

Briefly

INTERNATIONAL

Potential for bonanza as fisher-naïve fish spill out of reserves

The benefits of no-take zones on fish biomass are recognized, with fishes in reserves likely to live longer and grow larger. Now observations in three locations in the Philippines have revealed that fish species targeted by fisheries display shorter flight initiation distances inside reserves than fish outside the no-take zones. Shorter flight initiation distances, measured as the linear distance between a snorkeller and the fish in question, make fish easier to catch. Furthermore, the reduced flight initiation distances were also observed in fish that had crossed into fishing zones from protected areas. These results suggest that fish adapt their behaviour according to the level of risk to which they are exposed, and that it takes time for fishes that enter fishing areas from reserves to increase their flight initiation distances.

Source: *Ecology Letters* (2012) <http://dx.doi.org/10.1111/ele.12028>, and *Nature* (2013) 498 (7432), 167–168

Arctic summary makes for chilling reading

This year the Arctic has broken a number of records but none of them are positive. The annual report on the Arctic region, prepared by the USA's National Oceanic and Atmospheric Administration, shows that minimum sea ice levels set a new all-time low in September 2012, and the Greenland ice sheet underwent a rare, nearly ice-sheet wide melt event in July, with c. 97% of the ice sheet melting on one day in July. Biodiversity in the Arctic region is being affected, with the Arctic fox considered to be close to extinction. At the other end of the food chain, 2012 saw massive algal blooms below the summer sea ice, suggesting that previous estimates of biological production in this part of the marine food chain have been underestimated.

Source: *NOAA Press Release* (2012) http://www.noaa.gov/stories/2012/20121205_arcticreportcard.html

New report examines global expansion of organic farming

Research findings published in a new report by the Worldwatch Institute show that since 1999 the global land area farmed organically has expanded more than

threefold to 37 million ha. In 2010 certified organic farming accounted for c. 0.9% of the world's agricultural land. Oceania, including Australia, New Zealand and Pacific Island nations has 12.1 million ha of certified organic agricultural land, whereas Europe has 10 million ha and Latin America 8.4 million ha. Africa has 3% of the world's organic agricultural land, with just over 1 million ha certified. Asia has 7%, with a total of 2.8 million ha and, despite a decline in organically farmed land in China and India between 2009 and 2010, India's export volume of organic produce has increased by 20%.

Source: *WorldWatch Institute* (2013) <http://www.worldwatch.org/achieving-sustainable-food-system-organic-farming>

Unusual role models for innovative carbon capture and storage system

The natural ability of sea urchins to absorb CO₂ could be a model for an effective carbon capture and storage (CCS) system. At present most CCS proposals are based around the idea of capturing CO₂ from electricity generating stations or chemical plants and pumping the stripped out gas into underground storage in former oil wells or rock formations. Alternatively, the CO₂ can be locked in another substance such as calcium carbonate or magnesium carbonate using an enzyme called carbon anhydrase. A chance discovery by researchers has revealed that urchins use metal nickel to turn carbon dioxide into shell and it is hoped the technique can be harnessed to turn emissions from power plants into harmless calcium carbonate. The use of nickel rather than the considerably more expensive carbon anhydrase would be a far more economic option.

Source: *BBC News* (2013) <http://www.bbc.co.uk/news/science-environment-21320666>

Reptile extinction risk analysed

The first ever global analysis of reptilian extinction risk, based on a random representative sample of 1,500 species, has revealed that nearly one in five species are threatened with extinction, with another 20% categorized as Data Deficient. Freshwater environments, tropical regions and oceanic islands are home to the highest proportion of threatened reptile species. The highest proportion of Data Deficient species is in tropical areas and among fossorial reptiles. The research emphasizes

the need to focus on tropical areas, where reptilian habitat loss is occurring at a dramatic rate, and on fossorial reptiles and certain snake taxa for which little information exists. The main threats to reptiles were found to be human-induced habitat loss and harvesting.

Source: *Biological Conservation* (2013) <http://dx.doi.org/10.1016/j.biocon.2012.07.015>

Link between diversity and disease

A number of previous studies have suggested a positive link between high biodiversity and reduced disease risk. Newly published research shows that host diversity inhibits transmission of a virulent pathogen of amphibians, as a result of consistent linkages among species richness, host composition and community competence. In the study, surveys in 345 wetlands in California, USA, showed consistent changes in community composition as species richness increased. In species-poor assemblages highly competent hosts predominated, whereas species that were more resistant to infection became progressively more common as species richness increased. Wetlands with six amphibian species had a 78% reduction in parasite transmission compared to areas with a single amphibian species. These findings indicate the influence of biodiversity on infection risks, as well as highlighting the importance of examining whole communities when investigating infectious disease transmission.

Source: *Nature* (2013) <http://dx.doi.org/10.1038/nature11883>, and *University of Colorado Boulder news release* (2013) <http://www.colorado.edu/news/releases/2013/02/13/cu-boulder-amphibian-study-shows-how-biodiversity-can-protect-against>

Symbiosis drives speciation

Interactions between species are known to drive diversification but to date most studies that examined this have focussed on competition and predation. Now a new literature study has revealed that symbiosis also plays a significant role in diversification. The study examined the relationship between a family of insects called gall midges and their fungal symbionts. The fungi help the midges to break down plant tissues and the female midges deposit fungal spores with their eggs. The research shows gall midges that have the symbiotic relationship with the fungi use a wider

variety of host plants. Furthermore, a comparison between the lineages of symbiotic and non-symbiotic midges showed that symbiotic midges are more than 17 times as diverse of non-symbiotic midges. The author suggests that the midge–fungi relationship allows the exploitation of a wider niche, which in turn enables diversification.

Source: *Nature* (2013) 494(7436), 151, and *Proceedings of the Royal Society B* (2013) <http://dx.doi.org/10.1098/rspb.2012.2820>

Thorny issue

A comparison between sales of live cactuses on an internet auction site with export permits for live plants on the CITES Trade Database suggests that only 10% of the plants traded could be linked to official permits. All transactions monitored by the researchers should have had a permit, as they all involved dealings between CITES Parties, and the cacti in question are all listed on CITES Appendix 1, for which an export permit is mandatory. The authors suggest that many of the cacti sold on the website had been artificially propagated but an export permit remains mandatory for artificially propagated plants as well as for those taken from the wild. Given the small size of some cactus populations in the wild, the authors express concern at the potentially wide scale of the illegal global trade in CITES-listed species.

Source: *Conservation Biology* (2013) <http://dx.doi.org/10.1111/cobi.12019>

Tropics are trickier for invaders

Rates of establishment by invading species are higher in temperate regions than in tropical areas, possibly because the biotic resistance to invasion is stronger in the tropics. A new study has compared the biotic resistance of a temperate marine community with that of a tropical community, through the manipulation of one of the mechanisms of biotic resistance, predation. Using non-native tunicates as a model fauna, researchers conducted predator exclusion experiments in which they prevented predators such as fish and crabs from reaching plastic plates on which the tunicates were growing. The results showed that the effect of predation on species richness of non-native tunicates was over three times greater in tropical Panama compared to temperate Connecticut. These findings support the view that the connections within food webs in tropical latitudes are generally more diverse than those in temperate areas, which puts invading species at a disadvantage when they attempt to establish in tropical areas.

Source: *Ecology* (2013) <http://dx.doi.org/10.1890/12-1382.1>, and *Nature* (2013) 494(7437), 285

New climate model suggests some good news for tropical forests

The refinement of models used to estimate tropical carbon losses in response to global warming has suggested that many previous models may have overestimated the amount of carbon that will be lost from these areas. The authors of these new models, who used an ‘emergent model constraint’ to refine the models, suggest that the model results indicate that the likelihood of a tropical die-back event is lower than previously feared. However, forests are not yet out of the woods, because some of the drivers of interannual variability of contemporary atmospheric CO₂ concentrations, such as temperature changes and drought events, have considerable effects on some aspects of tropical-ecosystem processes, such as fires.

Source: *Nature* (2013) 494(7437), 319–320, and 341–244

EUROPE

EU ministers back ban on fish dumping

In the EU almost a quarter of all current fish catches are discarded dead because they are not the fish the crews intended to catch. EU fisheries ministers have, however, now agreed to phase out this controversial practice of dumping unwanted fish. A ban on discards will be phased in, starting in January 2014, for certain types of fish. Ministers agreed some exemptions to the ban although the European Parliament may still refuse to accept them. The ban will apply to pelagic stocks such as herring and whiting from next year, and to white fish stocks from January 2016. Details of how the discards ban will work in practice will be debated later. Many crucial details are still to be resolved over exactly how the policy is enforced, how fishing crews are supported and how they are helped to buy gear that fishes more selectively.

Source: *BBC News* (2013) <http://www.bbc.co.uk/news/world-europe-21598367>

Artificial lights keep redshanks going at night...

Redshanks overwintering in an estuary in eastern Scotland have been found to benefit from the artificial lighting emanating from nearby industrial sites. Researchers fitted the birds with posture-sensitive radio transmitters, which allowed them to investigate how much time the birds were spending with their heads down, sweeping

for invertebrates, or up, stalking their prey by sight. Under conditions of low illumination the redshanks spent more time foraging by touch in the mud but switched to visual foraging under brighter conditions, such as moonlit nights. Redshanks foraging near a large petrochemical complex were observed to employ visual foraging regardless of the lunar phase. Visual stalking of prey by redshanks is more efficient than when the birds forage by touch, and so the authors suggest that nocturnal lighting improves the foraging rates of these waders. Source: *Journal of Animal Ecology* (2012) <http://dx.doi.org/10.1111/1365-2656.12012>, and *Nature* (2012) 492(7427), 11

... but light pollution affects blackbirds

Artificial lighting at night is associated with health problems in humans but its effects on wildlife have not been investigated to the same degree. Now researchers have examined the effects of light at night on the reproductive physiology of European blackbirds. In the first part of their study, free-living blackbirds were fitted with light loggers, to determine the light intensity experienced by the birds in forests and cities. Captive birds from both forests and cities were then exposed to darkness at night, or low light intensities. The birds exposed to light at night moulted earlier, and developed their reproductive system up to 1 month earlier than those kept under dark nights. The results suggest that lighting at night may be affecting the ecology of many species in cities, especially as the lighting used in the experiments was 20 times lower than that produced by a street light.

Source: *Proceedings of the Royal Society B* (2013) <http://dx.doi.org/10.1098/rspb.2012.3017>, and *Nature* (2013) 494(7437), 284–285

Major EU initiative on conservation of genetic resources

In December 2012 a consortium of European conservation biologists launched a web portal designed to assist biodiversity policy makers and resource managers in incorporating genetic considerations into conservation plans. The web portal (www.congressgenetics.eu) provides a one-stop-shop for non-geneticist biodiversity professionals to access and apply genetic information to species conservation, share questions and data, design studies and interpret results, and build partnerships. The web portal was created with the active participation of more than 200 European conservation professionals at 10 workshops across the EU during 2012. The project,

entitled ConGRESS, Conservation Genetic Resources for Effective Species Survival, is funded under the EU Framework 7 program. With new 2020 targets for the Convention on Biological Diversity, countries now have an obligation to include genes in their conservation plans and this web tool will provide the necessary information and support to enable this to happen.

Source: Cardiff School of Biosciences (2012) <http://www.cardiff.ac.uk/biosci/newsandevents/news/newsstories/launch-of-a-major-eu-initiative-on-conservation-of-genetic-resources.html>

European Commission steps in to pesticide debate

The European Commissioner for health and consumer policy has tabled a discussion paper asking EU member states to restrict the use of neonicotinoids, a group of pesticides thought to cause harm to bees, to plants that are not attractive to the insects. This would include sunflowers, oilseed rape, cotton and maize. Farmers would also be prohibited from using seeds containing the active substances from these chemicals, and they would no longer be available for sale. The Commission hopes to have these rules in place by July 2013, and to review the measures in 2 years time. France, Germany, and Slovenia have already partially banned the use of neonicotinoids. Guidance from the European Food Safety Authority issued in January 2013 recognized that neonicotinoids pose 'high acute risks' to bees that encounter residues from these pesticides in pollen and nectar.

Source: BBC News (2013) <http://www.bbc.co.uk/news/science-environment-21277933>

Charity reaches rainforest goal

A charity founded to save an area of tropical rainforest the size of Wales has achieved its goal, raising GBP 2 million in 3 years to protect > 2 million ha of forest, mainly in Africa. 'Size of Wales' was founded by Welsh environmentalists annoyed their country was often used in the media as a comparator to gauge the scale of rainforest destruction. Many Welsh people appreciated the positive spin placed on typical media phrases such as 'A rainforest the size of Wales has been destroyed', and donated more than GBP 1 million, which has been match-funded by a Cardiff-base charitable trust, the Waterloo Foundation. The funding will focus on 20 projects securing community land rights, protected areas and community forest conservation. There will also be limited reforestation. 'Size of Wales' will continue operating to keep the

land secure and also educate people in Wales about their impact on tropical forests.

Source: BBC News (2013) <http://www.bbc.co.uk/news/science-environment-21618349>

Moth numbers decline in the UK

A report on the state of Britain's larger moths has found that nearly two-thirds of common and widespread large species have declined in the last 40 years. Three species, the orange upperwing, the bordered gothic and the Brighton wainscot, have all become extinct during this time. Losses among moth species varied markedly throughout the country, with the southern half of Britain seeing declines of 40% in total counts of larger moths, while moth numbers remained static in northern Britain. The reasons for these declines are not yet fully understood, although changes in habitat are thought to have had largely negative effects on these insects. The report also details the immigration of new species of moth to Britain, with 27 species having colonized the country from 2000 onwards, with studies suggesting that rates of moth immigration appear to be on the increase.

Source: *The State of Britain's Larger Moths 2013* (2013) <http://butterfly-conservation.org/files/state-of-britains-larger-moths-2013-report.pdf>

Pilot badger culls in Somerset and Gloucestershire approved

Pilot badger culls, to halt the spread of tuberculosis to cattle, are set to go ahead later this year in the UK after final licence conditions were met. The culls, in Gloucestershire and West Somerset, were earlier postponed amid fears they could not be carried out effectively last autumn. Badgers will be shot in the open without first being trapped in cages, which is current practice. The authorization from Natural England states that culling can take place from 1 June and will last for 6 weeks. It will be repeated annually for 4 years. There is considerable opposition to the cull, however. The RSPCA has claimed studies into a cull found it would not have a major impact on the spread of TB, and have recommended vaccination as an alternative.

Source: BBC News (2013) <http://www.bbc.co.uk/news/uk-england-21602753>

Bulgaria risks EU's wrath over wind turbine decision

A project to build 95 wind turbines close to one of the most important sites on the Black Sea for overwintering red-breasted geese,

Lake Durankulak, has been given the go ahead by the Bulgarian Court. Not only could the proposal result in the loss of part of the red-breasted geese's feeding area but the birds are also at risk of collision with the turbines themselves. The Court's ruling overturned an earlier decision by the Bulgarian Minister of the Environment and Water to revoke the plan, on the grounds that it threatened a high nature value area and the Endangered goose. The Court's ruling has been made despite the project being in direct breach of European law. Should the project proceed, it is likely that the European Commission will take action against the Bulgarian government through the European Court of Justice.

Source: *BirdLife International News* (2013) <http://www.birdlife.org/community/2013/02/court-ruling-threatens-red-breasts/>

Report tracks threats from alien invasion...

Invasive alien species pose a greater risk to Europe's biodiversity, economy and human health than previously thought, a report has concluded. The European Environment Agency has compiled a list of 28 invasive species that highlight the range of threats facing European ecosystems. There are an estimated 10,000 or more non-native species in Europe, of which at least 15% have negative ecological or economic impacts. One species whose spread and impact has been well documented is Japanese knotweed. It can reach 4 m in height and its root system can reach depths of 3 m and spread up to 20 m, making it almost impossible to eradicate once established. It forms dense stands and outcompetes native plants, resulting in a botanical monoculture. The report suggests that the best way to tackle invasive species is through a combination of preventative measures, early detection and rapid response to incursions.

Source: *European Environment Agency* (2013) <http://www.eea.europa.eu/publications/impacts-of-invasive-alien-species>, and *BBC News* (2013) <http://www.bbc.co.uk/news/science-environment-21509016>

...and five non-native species to be banned in the UK

The sale of five aquatic plant species, whose spread in British waterways costs the economy GBP 1.7 billion annually in control measures, has been banned in the UK. Sold for use in garden ponds, water fern, parrot's feather, floating pennywort, Australian swamp stone-crop and water primrose have escaped into the wild, where they outcompete native species and damage habitats. These five species form dense

floating mats, depleting oxygen and light availability, which has a negative effect on the fish and other species that occur in these habitats. Retailers, who have a year to adjust to the ban, will face a fine of up to GBP 5,000 and up to 6 months in prison if they sell these plants.

Source: *Non-native Species Secretariat News* (2013) <https://secure.fera.defra.gov.uk/nonnativespecies/news/index.cfm?id=107>

Polyisobutene implicated in deaths of seabirds

Polyisobutene (PIB) has been identified by researchers as a substance thought to have been responsible for the deaths of > 4,000 seabird deaths in at least four incidents around European coasts in recent years. The substance was identified from samples taken from seabirds washed up along the south-west coast of England and accords with analysis done separately by the Environment Agency. Used for making chewing gum, adhesive tape and cosmetics, PIB is currently given one of the lowest hazard classifications under The International Convention for the Prevention of Pollution from Ships and as a result can still legally be dumped into the sea. However, when PIB mixes with sea water the chemical can become lethal for seabirds, covering them in sticky goo, preventing them from flying and feeding. The RSPB is now seeking public support to call on the International Maritime Organization to urgently review the hazard classification of PIB.

Source: *RSPB News* (2013) <http://www.rspb.org.uk/news/339845-rspb-calls-for-action-to-prevent-substance-identified-in-seabird-tragedy-causing-further-deaths>

Flowers on the edge

Some of Britain's rarest wild flowers are to be found on road verges and they are increasingly under attack. A campaign organized by Plantlife, Flowers on the Edge, is calling on the councils responsible for managing road verges to provide improved protection for species at risk, such as harebells, the early purple orchid and the green winged orchid. It is thought that councils are mowing verges too often and are failing to collect cuttings as part of their routine management. If flowers are left to set seed, this is not only good for their survival but also provides a valuable food source for birds and small mammals. Moreover, with about three times more grassland on road verges than there is left in the countryside, healthy road verges are a vital last refuge for wild flowers and also act

as wildlife corridors in an intensively managed landscape.

Source: *Plantlife Press Release* (2013) <http://www.plantlife.org.uk/roadvergecampaign>

SUB-SAHARAN AFRICA

Rhino horn—is it time to legalize the trade?

Researchers have argued that a global ban has failed to stem the international demand for rhino horn and that the market could be met by humanely shaving the horns of live rhinos. At present in South Africa about two rhinos are poached per day. It is estimated that there are c. 20,000 white rhinos left, with the majority in South Africa and Namibia. There are also an estimated 5,000 black rhinos still alive but the western black rhino became extinct in 2011. Any trade in rhino horn is prohibited under CITES but the researchers suggest the ban is boosting poaching by constricting the supply of rhino horn and driving up the price. Rhinos grow c. 0.9 kg of horn each year and the risks to the animals from shaving the horn are minimal. Many wildlife campaigners disagree, however, noting that enforcement regimes are not in place to prevent the laundering of wild rhino horn.

Source: *Science* (2013) 339(6123), 1038–1039, and *BBC News* (2013) <http://www.bbc.co.uk/news/science-environment-21615280>

Extinct toad returns to the wild

Two thousand Kihansi spray toads have been repatriated to the Kihansi Gorge in Tanzania, 3 years after having been declared extinct in the wild. Five years after the toad's discovery in 1996 a hydroelectric dam was built in the Kihansi gorge, the only known location of the species. The Kihansi toad lived in the mist created by the flow of the Kihansi falls, which decreased by 90% following the dam's construction, rendering the gorge uninhabitable for the species. An ex situ captive breeding programme, instigated with 499 individual toads collected from the gorge, proved successful, and insurance populations of the Kihansi toad now exist in breeding facilities in the USA's Toledo and Bronx Zoos, and at the University of Dar es Salaam. At the gorge itself a gravity-fed misting system has been installed to replicate the waterfall's spray, which has allowed the reintroduction of the toads to their erstwhile home.

Source: *Wildlife Conservation Society Press Release* (2012) <http://www.wcs.org/press/press-releases/kihansi-spray-toad.aspx>

DRC's gorillas threatened by rebel advance

The intention of the M23 rebels to march south from the occupied city of Goma to Bukavu is raising concerns for the plight of the area's primates, in addition to growing humanitarian concerns. Both the Primate Rehabilitation Centre of Lwiro, home to > 50 chimpanzees, and the GRACE sanctuary for wounded gorillas, lie on the route between Goma and Bukavu. Reports suggest that the rebels have, by and large, cooperated with the authorities in the Virunga National Park, where two mountain gorilla families remain unaccounted for. Parts of the Virunga National Park are controlled by militia groups of the Democratic Forces for the Liberation of Rwanda, responsible for much of the poaching in the area. The presence of these groups also prevents patrolling by Park rangers.

Source: *New Scientist* (2012) 216(2893), 6

Space on the savannah shrinking for lions

A study examining the amount of savannah habitat available for lions in Africa shows that people and lions are increasingly competing for space in this habitat, with the latter losing out. In 1960, for example, 11.9 million km² of the 13.5 million km² of the savannah had fewer than 25 people per km². By 2000 this figure had shrunk to 9.7 million km², with projections suggesting that the next 40 years will see these areas decrease still further. Free-ranging lion populations occur in c. 25% of savannah area, with between 32,000 and 35,000 lions occurring in 67 areas. Of these, > 6,000 lions are in populations of doubtful long-term viability, with some lion populations in West and Central Africa particularly at risk. Lions in these areas have already undergone local extinctions, even when populations reside in nominally protected areas.

Source: *Biodiversity Conservation* (2012) <http://dx.doi.org/10.1007/s10531-012-0381-4>

Elephant numbers on the wane in Kenya...

A survey of the elephant population of Samburu/Laikipia indicates that > 1,000 elephants have been lost from this population, Kenya's second largest, in 4 years. Evidence from previous surveys suggests that the Samburu/Laikipia population peaked at 7,415 in 2008, with the population now numbering 6,361. Poaching, which has been increasing across Africa since 2006, is considered to be the main threat to this

population, and to other elephant populations in Africa. A report by TRAFFIC in 2012 found that over half of the elephants found dead in Africa in 2011 had been killed illegally. The rise in poaching is linked to increasing levels of wealth in China and Thailand, which is driving demand for ivory.

Source: *New Scientist* (2012) 216(2894), 6

...and elephant numbers plummet in Gabon

More than 11,000 forest elephants have been poached for ivory in Gabon's Minkebe Park, once home to the largest population of Africa's forest elephants. The decline equates to two thirds of the Park's forest elephant population, with the majority of the elephants being killed in the last 5 years. Until recently Gabon's elephants were thought to be less susceptible to poaching than those in other countries. An artisanal gold mining camp at the edge of Minkebe Park has expanded in recent years from 300 miners to >5,000. Park authorities estimated that 50–100 elephants were being killed every day. The increased demand for ivory in the Far East, and resulting high prices, are driving elephant poaching. The Gabonese government has responded to these figures by stepping up anti-poaching measures and intends to pass legislation for tougher sentences for those poaching and trafficking ivory.

Source: *WCS press release* (2013) <http://www.wcs.org/press/press-releases/gabon-elephant-slaughter.aspx>

Ethiopian lions are different

Lions that occur in Ethiopia differ phenotypically from lions elsewhere in Africa, as they have an extensive dark mane, and are smaller and more compact than their conspecifics. Now an investigation of the DNA of 15 captive lions in Addis Ababa zoo has illustrated that Ethiopian lions also vary genetically from lions in both Africa and Asia. Furthermore, the study showed that there was little incidence of inbreeding in this captive lion population, and the authors suggest that these animals should form the basis of a captive breeding programme for this unique lion population. Exact numbers of Ethiopian lions remaining in the wild are hard to ascertain but it is thought that the country's population probably only numbers a few hundred individuals.

Source: *European Journal of Wildlife Research* (2012) <http://dx.doi.org/10.1007/s10344-012-0668-5>, and *University of York* (2012) <http://www.york.ac.uk/news-and-events/news/2012/research/addis-ababa-lion/>

Fruit bats prefer native and commercially unimportant fruits...

Conflict between fruit bats and commercial fruit growers is a major problem throughout the Old World tropics, where it frequently results in killing of bats and, in some countries, government-sanctioned culls. However, experiments in which the Malagasy endemic pteropodid *Rousettus madagascariensis* held briefly in cages was presented with 10 fruit species (one native and the rest introduced, three of which are commercially important), showed that the bats prefer native and commercially unimportant figs (*Ficus polita*), rose apple *Syzygium jambos* and mountain apple *Syzygium malaccense* to the cash crops of litchis *Litchi chinensis* and Japanese persimmon *Diospyros kaki*. These results provide a perspective on the dietary preferences of fruit bats and should be repeated with other genera of pteropodids (such as *Cynopterus* and *Pteropus*) in Asia and Australia, respectively, where conflicts are acute. The authors suggest that planting *Syzygium* around commercial fruit trees may reduce the predation pressure of bats on such fruit.

Source: *Endangered Species Research* (2012) <http://dx.doi.org/10.3354/esr00441>

...while African elephants prefer the Serengeti National Park

A study aimed to determine African elephants' welfare inside Serengeti National Park and in the adjoining areas of Grumeti Game Reserve and Ikoma Open Area has revealed that elephants living outside the National Park are more stressed than those within the protected area. By testing elephant dung the research team found animals outside the national park had significantly higher levels of the stress hormone glucocorticoid. With no fences around protected areas in the Serengeti animals and people may come and go, and elephants can enter into areas where they are at greater risk. The study found more elephants choose to live inside the park, suggesting they somehow know which areas are safer to live in, and actively avoid areas where human disturbance is greater. It is thought the elephants may have learned to associate humans and vehicles with the hunting activity that occurs outside Serengeti National Park.

Source: *BBC News* (2013) <http://www.bbc.co.uk/nature/21279321>

Toolkits and training for ecosystem service assessments

Despite a growing awareness of the importance of ecosystem services in

supporting human well-being, data relating to the consequences of land use decisions are often incomplete. Furthermore, the methods, skills and resources needed to collect new information may not be available. A new 18-month project, which started in January 2013, will provide training for 10 African conservationists (and their institutions) to conduct ecosystem services assessments and use the results to promote better policy decisions and build institutional capacity. Participants will be trained in the use of an ecosystem services 'toolkit' developed by a consortium of organizations under the umbrella of the Cambridge Conservation Initiative. It is hoped the toolkit can be used to demonstrate the added value that high biodiversity sites often provide in terms of human well-being benefits at a local, national or global scale.

Source: *Cambridge Conservation Initiative* (2012) <http://www.conservation.cam.ac.uk/collaboration/demonstrating-ecosystem-service-values-africa>

The hawksbill turtle's monogamous sex life

The sex lives of the Critically Endangered hawksbill turtle has been revealed by a study in the Seychelles. The turtles were found to be mainly monogamous within a season, with females storing sperm from one male and using it to fertilize multiple egg clutches. DNA testing of hawksbill turtle hatchlings on Cousine Island showed that most egg clutches were sired by just one male, and no males fertilized more than one female during the 75-day season. This suggests that a large number of males are available to females. Females do not appear to be using sperm storage to facilitate sexual selection, and thus the primary value of storing sperm by marine turtles may be to uncouple mating and fertilization in time and avoid costly re-mating.

Source: *Molecular Ecology* (2013) <http://dx.doi.org/10.1111/mec.12235>, and *BBC News* (2013) <http://www.bbc.co.uk/nature/21261584>

SOUTH AND SOUTH-EAST ASIA

Leopard killing rife in India

Despite being protected by national law and listed in Appendix I of CITES, a 10-year study of the trade in leopards in India has revealed that the species is regularly poached for illegal trade. An analysis of reports from newspapers and records from the State Forest departments of leopard body

part seizures showed that 420 incidents were reported between 2001 and 2010. The report's authors also factored in undetected trade in leopards, coming to the conclusion that leopards have been poached for illegal trade at a rate of four per week for the last 10 years. The illegal market in leopard body parts is dominated by skins, with 88.3% of seizures involving skins. An examination of where the leopards are being seized suggests that much of the poaching occurs in northern India, which accounted for 67.8% of leopards killed.

Source: *Illuminating the Blind Spot: A Study on Illegal Trade in Leopard Parts in India (2001–2010)* (2012) <http://www.traffic.org/home/2012/9/28/four-leopards-a-week-enter-indias-illegal-wildlife-trade.html>

Exploitation of the Amur falcon in north-east India

The Amur falcon recently joined the list of relatively abundant species that are heavily exploited. BirdLife International estimates that the global population of these birds is >1 million but in just one location in the state of Nagaland in north-east India >120,000 are harvested annually during their stopover on migration from north-east Asia to their winter quarters in southern Africa. The main reason for high exploitation appears to be market forces, with trappers selling birds at the rate of two per US dollar. Carcasses are piled into pick-up trucks, whose destination is currently unknown. The terrestrial biodiversity of north-east India is particularly high but, because of the region's distance from Delhi and the predominantly tribal culture, there is little regulation protecting biodiversity in the region.

Source: *Science* (2013) 339, 270

Ivory haul in Singapore

Following a tip-off customs officials in Singapore confiscated the biggest ivory haul to be found in the country for more than 10 years. Marked as waste paper, the shipment of 1.8 tonnes of ivory was passing through Singapore from Africa, although its final destination was not disclosed. The haul, which consisted of 1,099 pieces of raw tusk in 65 sacks, had a value of c. USD 2.5 million. Rising demand for ivory in Asia, where it is used for ornaments and in traditional medicine, has led to an increase in elephant poaching, with c. 25,000 elephants killed in Africa in 2011 alone. Trade in elephant ivory is illegal under CITES, to which Singapore is a signatory.

Source: *BBC News* (2013) <http://www.bbc.co.uk/news/world-asia-21257745>

Dam proposals attract vitriol in India

Circa 300 dams are proposed or being constructed in the valleys of northern India as the country tries to meet its energy demands. Although most of the dams in question are run-of-the-river dams that return the water to the river downstream, viewed by developers as less damaging than reservoir dams, local communities have voiced strong resistance to the plans, and conservationists have expressed concern about the potential effects on the fragile river ecosystems. Additional concerns also focus on the threats posed by heavy sediments and the risk of damage to the dams from the earthquakes that occur in this part of the Himalayas. Although dam proposals are required to include an environmental impact assessment, which is scrutinized by the Ministry of Environment and Forests, some question the independence of the agencies carrying out these assessments.

Source: *Nature* (2012) 492(7427), 15–16

Inauspicious start to the Year of the Snake, for snakes

Customs officials at Bangkok's Suvarnabhumi Airport have seized over 2,000 live snakes packed in mesh bags, which were concealed in over 200 polystyrene boxes declared as fresh fruit. The snake shipment had been sent to Hong Kong but was rejected by customs on the grounds of insufficient documentation. On return from Hong Kong the shipment was inspected by the Department of National Parks, Wildlife and Plant Conservation, following co-operation between CITES officials and Airport of Thailand officers. The species of snakes found by the officials, rat snakes and cobras, are protected under Thai laws and CITES legislation. Traders in some parts of the world, including Malaysia, have reported increases in demand for snakes, to coincide with the start of the Year of the Snake.

Source: *TRAFFIC* (2013) <http://www.traffic.org/home/2013/2/8/more-than-2000-live-snakes-seized-in-bangkok-airport.html>

Malaysian NGOs demand action for forest conservation in Borneo

Following the deaths of 14 Borneo pygmy elephants (believed to have been poisoned by an oil palm plantation developer), six Malaysian NGOs have called on the Sabah state government to pursue a more conservation focused agenda in managing the state's forests. The call focuses on three recommendations: setting aside more forest for strict protection within the state's main

forest reserve, bringing plantation management practices on existing timber and palm oil plantations in-line with Forest Stewardship Council and Roundtable on Sustainable Palm Oil certification standards, and reviewing policies, practices and plans within the critical elephant ranges of Sabah. Since the 1970s Sabah has lost most of its old-growth lowland forest cover. About one fifth of the state has been converted to oil palm plantations and most of its remaining natural forest is heavily degraded by logging.

Source: *Mongabay.com* (2013) <http://news.mongabay.com/2013/0228-sabah-ngo-demands.html>

EAST ASIA

Strategies to reduce demand for illegal wildlife in China

Governmental, non-governmental and private sector organizations met in Beijing in January to agree how best to reduce the demand in China for illegal wildlife products. Participants at the meeting, organized by the China Wildlife Conservation Association, TRAFFIC and WWF, included representatives from China's CITES Management Authority, State Forest Administration, General Administration of Customs, State Administration for Industry and Commerce, Supreme People's Court and Supreme People's Procuratorate. Among others participating in the meeting were representatives from China's Auction Association, National Arts and Crafts Association, Taobao (an online shopping company) and the Wildlife Conservation Society. The meeting highlighted the need for government and the media to align with non-governmental organizations and the private sector in their efforts to address the issue of consumer-driven demand for illegal wildlife products in China. Recommendations included the effective targeting of different consumer groups for illegal wildlife using a variety of approaches and communication channels

Source: *TRAFFIC* (2013) <http://www.traffic.org/home/2013/2/7/government-business-and-ngos-map-strategies-to-reduce-demand.html>

Fierce lizards or wimpy snakes?

A particular species of lizard will aggressively defend their eggs from predators such as snakes, a recent study has found. The research, conducted on Orchid Island off Taiwan, found mother lizards attacked snakes that attempted to raid their nests. The species involved were the Asian long-tailed skink *Eutropis longicaudata* and an

egg-eating snake *Oligodon formosanus*. The long-tailed skink is one of the few species that stays with its eggs until they hatch. However, it seems that the lizard only protects its eggs on Orchid Island because there are many more egg-eating snakes there compared to nearby islands. When researchers transferred nest-defending mothers to islands with few snakes, these females changed their behaviour. They decided not to guard their eggs because there was only a small chance that they would be eaten by snakes. Conversely, when lizards that had lacked parental care were moved to Orchid Island they began to defend their eggs.

Source: James Cook University (2013) http://www-public.jcu.edu.au/news/JCU_116409, and *Journal of Animal Ecology* (2012) <http://dx.doi.org/10.1111/1365-2656.12015>

Japanese whaling industry on the wane

A report on the whaling industry in Japan has shown the industry to be reliant on large subsidies, with whale meat consumption falling among the population. The report, prepared by the International Fund for Animal Welfare in conjunction with Japan-based agencies, claims that whaling subsidies from the Ministry of Agriculture have cost Japanese taxpayers over JPY 30 billion over the last 25 years, with some money even diverted to the Institute of Cetacean Research from earthquake reconstruction funds. The publication also disputes the Japanese government's claim that scientific whaling is generating valuable research information, reporting that the International Whaling Commission's Scientific Committee found, in 2006, that the research had failed to achieve any of its stated objectives. In contrast to the moribund whaling industry, whale watching is becoming big business in Japan, and is growing at an average rate of 6.4% per annum.

Source: *The Economics of Japanese Whaling* (2013) <http://www.ifaw.org/sites/default/files/economics-of-japanese-whaling-japan-ifaw.pdf>

Return of the living dead

The rapid development of cities, with the resultant fragmentation and loss of natural habitat, means they are likely to be home to so-called living dead species. These are species predicted to become locally extinct once the local community reaches an equilibrium. The number of living dead species is also known as the extinction debt. Predicting which species are living dead may enable conservationists to reverse the decline of these species and restore their

populations. A study of butterflies in Tokyo that trialled two methods to identify living dead species found that only specialist butterfly species had significant extinction debts. Furthermore, a map of extinction debts for the study area showed that small patches of habitat often had high extinction debts. The authors therefore suggest that improving patch area, connectivity and quality would have more significant impacts in small habitat patches than in large ones.

Source: *Animal Conservation* (2013) <http://dx.doi.org/10.1111/j.1469-1795.2012.00572.x>

NORTH AMERICA

Burn on, big river

A long-term plan to restore habitats along the Colorado River has been put into action, with the first experimental release of water from the Glen Canyon dam. Experimental releases of water from the dam will occur until 2020, to aid the movement of sediment downstream, where it will form sandbars, beaches and backwaters. The experimental releases of water at Glen Canyon dam are being undertaken within a flexible framework, based on > 16 years of research and experimentation conducted under the Glen Canyon Dam Adaptive Management Program. As favourable sediment conditions only occur periodically, the research findings enable researchers to determine when to conduct these water releases to maximize the ecosystem benefits along the Colorado River corridor in Glen Canyon National Recreation Area and Grand Canyon National Park.

Source: *US Department of the Interior Press Release* (2012) <http://www.doi.gov/news/pressreleases/secretary-salazar-implements-new-protocol-on-colorado-river-with-high-flow-water-release-from-glen-canyon-dam-to-benefit-grand-canyon.cfm>

Drought spells long-term doom for trees

In recent years trembling aspen have been dying across much of western North America, with evidence suggesting that water stress is contributing to their mortality. Recent investigation into this die-off now shows how trees that survive drought are made more susceptible to water stress. During drought conditions trees suffer hydraulic damage, as the lack of water causes air bubbles to enter the trees' xylem. Accumulated damage to xylem in this way, known as cavitation fatigue, leaves the trees more vulnerable to future droughts, contradicting the idea that trees survive drought

conditions. The study's authors discuss the potential effects of their findings on ecosystem stability, biodiversity and ecosystem carbon balance, and urge the inclusion of accumulative drought impacts into climate vegetation models.

Source: *Global Change Biology* (2012) <http://dx.doi.org/10.1111/gcb.12100>

'Rock star' wolf killed in Wyoming

Yellowstone's most well-known wolf, a female called 832F, has been shot outside the boundaries of the National Park. The wolf, which was tagged with a radio-collar, was the alpha female of the Lamar Canyon pack, and brings the total number of collared wolves shot after leaving Yellowstone this year to eight. Data from 832F's radio collar showed that she and her pack rarely moved outside the borders of the Park. Sanctioned wolf hunts have only just been permitted in Wyoming, following a recovery in wolf populations in the northern Rockies, and are a matter of fierce debate. Hunters and farmers support the hunts as a means of keeping the wolf population in check, whereas others believe that the population is not yet large enough to survive state-sanctioned harvests and point to the tourist money garnered by wolf-watching.

Source: *New York Times* (2012) <http://www.nytimes.com/2012/12/09/science/earth/famous-wolf-is-killed-outside-yellowstone.html>

Smoking banishes parasites

An investigation of the nests of two bird species common in North America, house sparrows and house finches, found that the birds incorporate cigarette butts into their nests, and that nests with more cellulose acetate (a component of cigarette butts) have fewer parasitic mites. A further experiment, which used heat traps to attract parasites to nests, showed that traps fitted with cellulose fibres and filters from smoked cigarettes and unsmoked cigarettes found that the former attracted far fewer parasites. This is not the first case of birds lining their nests with parasite repellants but the authors suggest that the incorporation of cigarette butts into nests supports the idea that urbanization brings with it new challenges, which birds sometimes address using adaptations that evolved elsewhere.

Source: *Biology Letters* (2012) <http://dx.doi.org/10.1098/rsbl.2012.0931>, and *Nature* (2012) <http://www.nature.com/news/city-birds-use-cigarette-butts-to-smoke-out-parasites-1.11952>

Crayfish share chytridiomycosis infection with amphibians

For the first time since documentation of the spread of the amphibian-killer fungus *Batrachochytrium dendrobatidis* began, researchers have found a non-amphibian host of the disease. Field surveys in Louisiana and Colorado have shown that the prevalence of *B. dendrobatidis* infection in crayfish is c. 29%, with the presence of crayfish in Colorado wetlands a positive predictor of *B. dendrobatidis* infection in co-occurring amphibians. Experiments indicated that the crayfish were able to transmit infection to amphibians, which may explain how *B. dendrobatidis* persists in freshwater habitats even after amphibians have been extirpated. The researchers also observed that crayfish exposed to water that had previously held *B. dendrobatidis* suffered significant mortality and gill recession, suggesting that the pathogen may release chemicals into water that cause host pathology even when these hosts are not directly infected.

Source: *Proceedings of the National Academy of Sciences of the USA* (2012) <http://dx.doi.org/10.1073/pnas.1200592110>

Cats pose severe threats to USA's birds and mammals

The serious threats posed by pet cats on island wildlife have long been recognized, but the effects of cats on mainland wildlife have proved harder to quantify. Now a systematic review of kills by cats in the USA has suggested that cats are likely to be the single greatest source of anthropogenic mortality for birds and mammals in the country, accounting for more deaths than roads and collisions with buildings. Estimates from the study show that free-ranging domestic cats kill 1.7–3.7 billion birds and 6.9–20.7 billion mammals annually. Although feral, stray and farm cats account for the majority of deaths, the authors found that pet cats were still killing significant numbers of animals, and called for pet owners to do more to prevent this mortality.

Source: *Nature Communications* (2013) <http://dx.doi.org/10.1038/ncomms2380>, and *BBC News* (2013) <http://www.bbc.co.uk/news/science-environment-21236690>

Cicada exert influence even during their absence

A new study that examined population sizes of 15 bird species between 1966 and 2010 in North America suggests that periodical cicadas may time their emergence to coincide with lower levels of predators.

Furthermore, the authors suggest that the cicadas are instrumental in setting in motion population fluctuations in their avian predators. Evidence suggests that, during the mass emergences of periodical cicadas that occur every 13 or 17 years in North American forests, the insects' effects on the ecology of their habitats are so profound that they exert an influence on the ecosystem for several years after their emergence.

Source: *The American Naturalist* (2013) 181, 145–149, and *Nature* (2013) 493(7432), 274

When a fall in hunting levels is not good news for ducks

The annual duck hunting season in the USA is traditionally big business but while bird numbers are rising faster than they have for decades, the number of waterfowl hunters continues to fall. A new study shows how the loss of revenue from duck hunting could result in millions of lost dollars for vital conservation work. Annual sales of the 'duck stamp', the Federal licence needed to hunt, are declining. While over 2,100,000 stamps were sold annually in the 1970s, between 2004 and 2008 this declined to 1,300,000. Federal funding for conservation of wetland habitat is dependent on the revenue raised by selling the duck stamps, with up to 98% of money raised used to purchase or lease habitat within the National Wildlife Refuge system. By using three different scenarios to explore the economic impact, the research team estimate that up to USD 14.3 million could be lost annually.

Source: *Wiley Press Release* (2013) <http://eu.wiley.com/WileyCDA/PressRelease/pressReleaseId-107280.html>, and *Wildlife Society Bulletin* (2013) <http://onlinelibrary.wiley.com/doi/10.1002/wsb.245/abstract>

Whales benefit from action on ocean noise

Noise levels experienced by whales from North Atlantic shipping makes it difficult for the animals to communicate with each other, affecting their ability to find food and mates. However, researchers have now persuaded shipping companies to change their routes in and around the Boston area. Captains use a new iPad App that provides information on the locations of whales and when to slow down. The change in operations has helped to lower the noise level for the several species of whales in the area, and it is also hoped that this will limit the number of accidental collisions. The iPad application gives real-time

information on the location of whales across the East Coast of America so that ships can avoid large gatherings of the cetaceans. Many of the companies that use the port of Boston are already telling their captains to use the Whale App and the recommended route change.

Source: *BBC News* (2013) <http://www.bbc.co.uk/news/science-environment-21492500>

How do monarch butterflies navigate northwards in the spring?

In the autumn North American monarch butterflies migrate from their northern range to their overwintering grounds in central Mexico, using a time-compensated sun compass to navigate. In the spring these same migrants fly northwards to the southern USA but, until now, the mechanism used for this remigration has been a mystery. Research has now shown that the spring remigrants also use an antenna-dependent time-compensated sun compass to navigate on their northwards flight. The temperature microenvironment at the overwintering site is essential for successful completion of the migration cycle. Without this cold exposure migrants continue to orient south.

Source: *Current Biology* (2013) <http://dx.doi.org/10.1016/j.cub.2013.01.052>

CENTRAL AMERICA AND CARIBBEAN

Endangered sharks return to their Bahamas home

Oceanic whitetip sharks are categorized as Vulnerable globally, and Critically Endangered in parts of their range, because of overfishing for their meat and leather, and accidental bycatch. Satellite tags applied to 11 mature oceanic whitetips near Cat Island in the central Bahamas have provided information about the horizontal and vertical movements of this species. Previously thought to be wide-ranging animals, this survey has revealed that, although they range widely, the sharks frequently revisit the same areas around the island. The results suggest that a ban on long-line fishing in the 1990s, reinforced by the banning of shark fishing in the Bahamas Exclusive Economic zone in July 2011, combines to make the Bahamas a safe haven for the sharks.

Source: *BBC News* (2013) <http://www.bbc.co.uk/nature/21497049>, and *PLoS ONE* 8(2): e56588, <http://dx.doi.org/10.1371/journal.pone.0056588>

SOUTH AMERICA

Baby boom for Galapagos tortoises

Despite having been reduced to just 12 females and three males in 1971 the giant tortoises of Española Island appear to be making a positive recovery. Following destruction of their island habitat by feral goats, the last remaining individuals of the Española Island tortoise were taken into captivity in 1971 to form a breeding colony. Their offspring were released back to Española Island after the goats had been removed. Now a genetic study of tortoises on Española Island has found that 24% of the tortoises sampled had hatched on the island, compared to only 3% in 2004 and none in 1994. This is particularly significant, as it appears to suggest that populations can, in some circumstances, recover despite the genetic bottlenecks that can result from small founding populations.

Source: *Evolutionary Applications* (2012) <http://dx.doi.org/10.1111/eva.12014>

Biofuels decline in Brazil

In 2007, at the height of the biofuels boom, Brazil's ethanol fuel output was second only to that of the USA. Now, 5 years on, the country's love affair with biofuels appears to be at an end. Consumption of liquid ethanol in 2012 is 26% lower than in 2008, and c. 10% of the country's 400 sugar-cane ethanol plants have closed since 2008. A number of factors have contributed to this decline, including the 2008 economic crisis, which hampered investments in the developing biofuels sector, two consecutive bad harvests, and the government's decision to freeze the price of petrol and diesel to keep inflation under control. The return to a reliance on fossil fuels, combined with a significant rise in the number of cars on the road, is already visible in CO₂ emissions, which increased to 170 million t in 2011, up from < 140 million t in 2008.

Source: *Nature* (2012) 491(7426), 646

Vampire bats filmed attacking penguin chicks

Documentary film makers have filmed vampire bats preying on chicks of the Humboldt penguin. On the outskirts of the Atacama Desert in southern Peru the team were recording how the penguins interact with other species, such as a neighbouring colony of predatory sea lions. Despite anecdotal evidence of the bats attacking penguins, the behaviour had never been recorded. Humboldt penguins, categorized as Vulnerable on the IUCN Red List, breed in coastal South America where

they hunt fish in the cold waters of the current that is also named after the German naturalist Alexander von Humboldt. Although the team witnessed vampire bats feeding on the sea lions it took patience and infrared equipment to witness them attacking penguin chicks, in the dark caves that are home to the penguins. The vampire bats were filmed biting the penguins' feet.

Source: *BBC News* (2013) <http://www.bbc.co.uk/nature/21534299>

PACIFIC

Fledgling makes recording début on Gau Island

The 20th confirmed grounding of a Critically Endangered Fiji petrel on Gau Island proved to be that of a fledgling on its first flight. Petrel groundings in villages occur only rarely, as a result, it is believed, of their being dazzled by lights. Eli O'Connor, from NatureFiji–MareqetiViti, became the first person in the world to hear and record the call of the bird. While the petrel was resting in its carton prior to its release, Eli picked up his guitar and strummed some chords. To his amazement, he was immediately answered by the Fiji petrel and was able to make a recording of subsequent calls. The grounding of the fledgling provided confirmed timing for the breeding season of the species, thus enabling researchers to concentrate their searches at a time when they know the bird is present on the island. Furthermore, the recording of the petrel's call will be used to attract petrels to nest in artificial nest boxes in an area made safe from predators in the hills of Gau, above Nukuloa.

Source: *BirdLife International* (2013) <http://www.birdlife.org/community/2013/01/a-guitar-reveals-the-call-of-the-fiji-petrel/>, and *NatureFiji* (2013) <http://www.naturefiji.org/newsstory.php?id=219&headline=A+Guitar+reveals+the+call+of+the+Fiji+Petrel>

AUSTRALIA/ANTARCTICA/ NEW ZEALAND

Southern Ocean shells feel the pinch of acidification

An examination of individuals of the pteropod *Limacina helicina antarctica* collected in the Southern Ocean has revealed these free-swimming sea snails are already suffering the effects of ocean acidification. This species makes its shells from aragonite, a type of calcium carbonate with rapid dissolution kinetics. Aragonite occurs at naturally low levels in the region sampled

but the researchers found that the mixing of deep water from upwelling with surface water containing anthropogenic CO₂ led to undersaturation of aragonite, with the consequence that the pteropod shells started dissolving. With the levels of anthropogenic-generated CO₂ dissolving in surface waters expected to rise, much of the Southern Ocean may become undersaturated with respect to aragonite by 2050, posing a threat to the aragonite-shelled organisms that dominate surface waters in polar regions.

Source: *New Scientist* (2012) 216(2893), 12, and *Nature Geoscience* (2012) <http://dx.doi.org/10.1038/ngeo1635>

Bacteria flourish in Lake Vida

A briny pool located on top of 800–970 m of permafrost, underneath nearly 16 m of ice, doesn't sound like a hospitable place for life. However, an examination of ice cores retrieved from Lake Vida, located in the northern most of the McMurdo dry valleys of east Antarctica have revealed a phylogenetically diverse and metabolically active assemblage of microbes living in the brine, dominated by bacteria. Furthermore, carbon-dating of organic matter in the ice above the brine suggests that the brine has been isolated for > 2,800 years. Researchers are unsure how the microbes are producing the energy they require to persist beneath the ice, speculating that high levels of hydrogen in the lake may play a role in the continued existence of this ecosystem.

Source: *Proceedings of the National Academy of Sciences of the USA* (2012) <http://dx.doi.org/10.1073/pnas.1208607109>

Involvement of native frogs in the war against cane toads

Investigations into potential means of controlling invasive cane toads in Australia are important, given the risks that these invaders pose to native wildlife. Recent experiments have shown that cane toads are susceptible to infection by a lungworm prevalent in their native range. Researchers have now potentially identified a means of getting the lungworms into the toad population by using a native Australian amphibian that does not appear to suffer ill effects from lungworm infection. The green tree frog, which shares many habitat characteristics with the cane toad, passed lungworms out through its faeces, and these lungworms were able to infect cane toads. This finding is potentially controversial, however, as the authors themselves point out: firstly, it is not possible to know with 100% certainty

whether green tree frogs do not suffer ill effects from lungworm infection, and secondly, there is a potential animal welfare issue in the deliberate infection of a native species with a parasite.

Source: *Animal Conservation* (2012) <http://dx.doi.org/10.1111/j.1469-1795.2012.00564.x>

Australia's National Wildlife Corridors Plan

Australia launched a National Wildlife Corridors Plan in November 2012. The plan describes a vision for a continent wide network of wildlife corridors that interconnect protected areas and landscapes. A new concept, large National Wildlife Corridors, have been recognized by the Plan along with process for their establishment. The Plan focuses on community-based approaches to corridors, it respects property rights and land ownership, and recognizes a collaborative approach to the establishment and management of corridors. This involves individuals, landowners, businesses, communities and governments, at all levels. It recognizes existing large corridors including Gondwanalink, the Great Eastern Ranges, Habitat 141, NatureLinks, the Trans-Australia Eco Link and the Tasmanian Midlandscapes, as well as smaller corridors such as those in urban landscapes. The Plan is an important response to climate change: it facilitates the interconnection of protected areas and

biodiversity conservation and relies on the active management of corridors.

Source: *Australian Government's Department of Sustainability, Environment, Water, Population and Communities* (2012) <http://www.environment.gov.au/biodiversity/wildlife-corridors/index.html>

Dolphins saved by juvenile's distress call

The distress call of a young dolphin has been used to lure a large pod of the animals to safety, after it appeared they would strand themselves in shallow water. Environment officials in Western Australia caught the juvenile and took it to deeper water, where its distress calls enticed the rest to follow. One dolphin died but a spotter plane reported that the rest, about 150, had swum to the safety of the open sea. The dolphins had been milling in shallow water at Whalers Cove near the town of Albany, on the south coast of the state. The juvenile was sending out distress signals that were calling the dolphins in but as soon as it was translocated to deeper waters the pod followed it out.

Source: *BBC News* (2013) <http://www.bbc.co.uk/news/world-asia-21313216>

First sightings of world's rarest whale

Two whales that stranded on Opape beach in New Zealand in 2010 have turned out to be

spade-toothed right whales, the rarest cetacean in the world. Previously only known from two skull fragments and a mandible, spade-toothed right whales occur in the deepest parts of the South Pacific Ocean. This was therefore the first opportunity to observe the appearance of this species: the adult female was c. 5 m long, and her skin was patterned in black, white and grey. Following the stranding, the mother and calf spade-toothed right whales were initially misidentified as Gray's beaked whales, and it was only following DNA analysis that the whales were identified correctly.

Source: *Current Biology* (2012) <http://dx.doi.org/10.1016/j.cub.2012.08.055>, and *Nature* (2012) 492(7429), 315

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