

Conservation news

Introducing the *Good Scrub Guide*

Life on Earth is intrinsically connected to and reliant upon the oceans, which provide more than 50% of our oxygen and store five times more carbon than tropical forests. The future of the oceans is uncertain, however, with ongoing degradation caused by pollution, overexploitation of fish stocks, destruction of coastal and marine habitats and global climate change. The economic cost of poor ocean management is already significant and is likely to increase substantially by 2050 in the absence of any mitigation of the effects of climate change.

One of the biggest challenges facing marine conservationists is plastic pollution, which is now ubiquitous in the marine environment. Plastic is generally non-degradable and therefore nearly every piece of plastic ever manufactured still exists. With the emphasis on easy living and the shift towards a throw-away society, increasing amounts of plastic are ending up in the marine environment via tourism-related activities, industry, active dumping and careless littering, to name just a few sources.

Marine plastic pollution has traditionally been referred to as macroplastic pollution—large, visible pieces of debris that severely affect marine biodiversity—and is a well-publicized issue. In 2012 the Convention on Biological Diversity reported that 247 species of marine fauna have either ingested or become entangled in marine debris. More than 80% of these instances are associated with plastic debris and 15% of the species affected are on the *IUCN Red List of Threatened Species*.

Microplastic pollution, however, is an emerging area of research. This less visible form of pollution, by plastic particles of < 5 mm, has grave implications for the health of the world's oceans. No lower size limit exists and fragments measuring thousandths of a millimetre have been recovered in water samples. Their small size, ability to float on the surface of the water and persistent nature are of concern to scientists and policymakers alike.

Mussels, lugworms, several commercial fish species, seabirds and seals have all been proven to ingest and accumulate microplastics. It is estimated that 95% of northern fulmars contain microplastics in their stomachs. These plastics can cause physical blockages, choking, a false feeling of fullness and even death from starvation. Several studies have shown that some seabirds regurgitate microplastics to their young whilst feeding.

Central to the discussion is the evidence that plastics readily adsorb persistent, bioaccumulating and toxic chemicals (PBTs) from the marine environment. Similarly, toxic additives used in production and manufacture leach out of plastic material over time as a result

of UV exposure and physical breakdown. Many PBTs are known endocrine disruptors or carcinogens and the key question from scientists and policymakers is ‘To what extent are these toxins being passed along the food chain—and what implications does this pose to human health and the labelling of organic fish?’

A recent trend amongst cosmetic producers has been to introduce abrasive, plastic microbeads into personal care products such as facial exfoliators, body scrubs and toothpastes. These microbeads are essentially purpose-designed to wash down the drain and they invariably enter the marine environment. Their microscopic size (often < 1 mm diameter) prevents their retention by filtration screens during wastewater treatment.

As part of its wider marine programme Fauna & Flora International (FFI) is working with forward-thinking businesses to address direct sources of microplastic pollution, starting with the launch of its new *Good Scrub Guide* (www.goodscrubguide.org). The Guide helps consumers choose products that do not contain plastic microbeads. To increase the scope and impact of this work FFI has joined forces with like-minded organizations in The Netherlands—the Plastic Soup Foundation and the North Sea Foundation (Stichting de Noordzee)—to develop and launch a smartphone app that will allow consumers to scan products to check for the presence of microplastics. This tool was launched in October 2013 at the UN Environment Programme Second Global Conference on Land–Ocean Connections. The app is freely available for Android, iOS and Windows Phone users and more information can be found on the supporting online platform www.beatthemicrobead.org

TANYA COX *Fauna & Flora International, Cambridge, UK.*
E-mail tanya.cox@fauna-flora.org

Open sale of elephant ivory in Luanda, Angola

The ivory trade has long been recognized as an impediment to elephant conservation and, after being banned for 2 decades, since 2007 all trade in ivory has been strictly regulated through the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Angola is the only elephant-range country that is not a signatory to the Convention. In 2001 Angola agreed to become a Party to the Convention but conclusive documents have yet to be ratified. Angola does formally partake in the Elephant Trade Information System (ETIS), which tracks the trade and confiscation of ivory, but since its inception in 1989 it has not submitted a report to this body. Nevertheless, the country was singled out in the most recent

ETIS analysis as it is potentially a key country for the export and transit of large consignments of illicit ivory (Milliken et al., 2013, *Monitoring of Illegal Trade in Ivory and other Elephant Specimens*, CoP16 Doc 53.2.2). Angola is home to two species of elephant, the forest elephant *Loxodonta cyclotis* in the north and the savannah elephant *Loxodonta africana* in the north-east and south. Under Angolan legislation it is illegal to kill elephants without a hunting licence and possession and trade of ivory requires special permission. Despite these laws, to the best of our knowledge no enforcement or regular monitoring of the ivory trade is conducted by Angolan authorities.

In 2005 the wildlife trade monitoring organization TRAFFIC surveyed this trade in Angola, mostly in and near the capital Luanda, and found significant and open trade in ivory (Milliken et al., 2006, *No Peace for Elephants*, TRAFFIC, Cambridge). One market, the Benfica craft market south of Luanda, was responsible for over 90% of the ivory for sale. This included 24 polished tusks and 183 large carvings. On 29 August and 19 September 2013 we had the opportunity to revisit the Benfica craft market, where we found ongoing open sale of tusks and ivory carvings. During the second visit we systematically counted and photographed all larger pieces of ivory and were able to count c. 60–70% of the smaller items for sale (these were often displayed in large piles, hampering counting of individual items). The market is divided into two sections. The first section is arranged with tables in several aisles, where wooden sculptures, animal products, paintings and small items are displayed; the second section comprises mainly large wooden sculptures and fabrics. All the ivory was displayed in the first section and it was by far the most common animal product on sale. A total of 27 stalls were observed displaying ivory, 10 exclusively. The items for sale included 50 polished ivory tusks as well as 92 large (> 20 cm) and 70 medium-sized (10–20 cm) carvings. Smaller items included 125 necklaces, 342 bangles (two-thirds large and thick, one-third thin), 400 chopsticks (displayed in bundles of 20), 93 name seals and 892 other small items (including hair pieces, rings, combs, earrings and 'lion teeth').

Although all quotes were given in the national currency it was clear the traders were targeting foreign tourists. The presence of name seals, chopsticks and Buddha and dragon figurines, as well as the presence of Chinese-speaking clientele, suggest a direct link to East Asian markets. The shape and size of the tusks on display indicated that the ivory originated from African forest elephants as opposed to savannah elephants but the exact origin is unknown. Traders indicated that the ivory originated from within Angola but in 2005 the TRAFFIC team reasoned convincingly that the ivory was more likely to originate from the Democratic Republic of Congo and the Republic of Congo than from Angola. Our observations confirm that there is

still an open and significant trade in ivory at Benfica but with more whole tusks for sale than in 2005. Considering that most of the elephant range in Angola has yet to be surveyed, the effect of the ivory trade on the population remains unknown. In October 2013 it was announced that Angola would join CITES as its 179th Party, with the Convention entering into force at the end of December 2013. This gives a glimmer of hope that the country will start reporting details of its ivory trade to CITES and ETIS and hopefully this will lead to a clampdown of the open ivory trade in and near its capital.

MAGDALENA S. SVENSSON, ELENA BERSACOLA, SIMON K. BEARDER and VINCENT NIJMAN Oxford Brookes University, Oxford, UK. E-mail m.svensson@brookes.ac.uk

MICHAEL MILLS A.P. Leventis Ornithological Research Institute, University of Jos, Nigeria

The Endangered Andean cat and fracking in Patagonia

In July 2013 oil giant Chevron and the Argentine YPF oil company signed an agreement opening the door to massive exploitation of shale oil and gas in one of the most biodiverse regions of the Patagonian steppe (Chehebar et al., 2013, *Valoración de sitios para la conservación de la biodiversidad en la estepa y el monte de Patagonia*, Administración de Parques Nacionales de Argentina–WCS–TNC, Buenos Aires). This region is home to the most genetically distinct (Cossios et al., 2012, *Endangered Species Research*, 283–294) population of the most threatened cat species of the Americas, the Andean mountain cat *Leopardus jacobita*. The species was thought to be restricted to high Andean habitats until it was discovered in Argentina's northern Patagonian steppe at 650 m altitude in 2008 (Novaro et al., 2010, *Cat News*, 8–10). The entire currently known range of the Patagonian Andean cat lies atop the Vaca Muerta shale reserve, recently identified as one of the world's largest deposits of shale gas and oil.

During the last few decades this arid region, experiencing a trend of increasing dryness as a result of global climate change, produced 50% of Argentina's gas and oil through conventional extraction. Shale deposits must be extracted through the unconventional method of hydraulic fracturing (fracking). At least 377 unconventional wells have already been drilled and at least 2,500 additional wells were expected by 2018. However, development stalled after the re-nationalization of YPF in 2012, which had been bought by the Repsol company in the 1990s. YPF owns about one-third of the oil concessions for Vaca Muerta but lacked the funds for extensive development of fracking. The controversial agreement with Chevron will initially provide USD 1.24 billion to develop 100 fracking wells and