

Conservation news

Community-based conservation: the key to protection of marine turtles on Maio Island, Cape Verde

Cape Verde has the third largest population of the Endangered loggerhead marine turtle *Caretta caretta*. Within the archipelago Maio Island is one of the three most important nesting sites for this species, with c. 500 females coming ashore to nest between June and October each year. In 2012 the island had the highest number of turtles killed and nests poached in the country. The island has not yet been influenced by development for tourism, and predation by people is the major threat to marine turtles on the island.

In 2013 the NGO Maio Biodiversity Foundation (www.maiiconservation.org), a Fauna & Flora International partner, received funding from the NOAA/U.S. Fish and Wildlife Service Marine Turtles Conservation Act and the British Government's Department of Environment, Food and Rural Affairs Flagship Species Fund to trial a new marine turtle conservation strategy on the island. In just one nesting season the total number of females killed (38) in 2013 was reduced by 75% on the protected beaches compared to the same area in 2012 (152 turtles killed), and only 2% of the nests were poached.

With a total area of 269 km², Maio has important nesting beaches all along its coast. In 2013 the Foundation's teams conducted patrols every night during the peak of the nesting season, from July to September. The presence of the teams on the beaches helped to reduce poaching of turtles and nests. In addition, the patrols facilitated collection of data on the nesting behaviour of the females. The eight patrol teams covered 20 beaches, resulting in almost 25 km of protected nesting sites.

One of the main strengths of the strategy was to base turtle conservation teams in eight coastal villages around the island. Teams consisted of a minimum of two local guards from Maio, a Cape Verdean team leader and national or international volunteers. The team members were hosted by local families. The integration of the teams in the local communities made the effort to protect marine turtles more visible in the coastal villages, and local men, women and, especially, young people had opportunities to observe and participate in turtle patrols, clean-up of nesting beaches and awareness-raising events. These activities opened the door to the turtle world and the threats these animals are facing, especially during the vulnerable nesting period. In addition, local host families received financial benefits for their hospitality. It seems that the combination of practical education and turtle-friendly income opportunities were key to the success of the Foundation's strategy.

More than 10 km of important nesting beaches, in proximity to three coastal villages, are still unprotected on Maio island. The Foundation, with the support of local and international partners, continues to fund-raise so that three more teams and three more villages can be included in the strategy during the nesting season of summer 2014.

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Guidance briefs launched for tree conservation

At least 8,000 of the world's tree species are threatened with extinction. These species face a number of threats, occupy a range of ecological niches, and vary in their capacity to tolerate and adapt to environmental change. As a result, conservation action for threatened trees often involves the use of specific techniques tailored to the needs of individual species. These techniques range from species identification (necessary to support monitoring and protection of wild populations) to species-specific methods for propagation and planting (necessary to support the recovery of small populations).

Techniques for tree conservation are used regularly by many organizations and individuals, ranging from botanic gardens to people with traditional ecological knowledge. However, these same skills are often lacking among other sections of the conservation community, including many with the opportunity to implement tree conservation. For example, in 2010 a survey of 63 nature reserves in southern China (a priority area for tree conservation) found that 80% of these reserves had little or no knowledge of their threatened trees or how to protect them. In Brazil's Araucaria forest lack of knowledge of the propagation requirements of threatened species has limited their inclusion in restoration projects. Of all the threatened species in this ecosystem only 17% have been grown by state nurseries.

The Global Trees Campaign, a joint initiative between Fauna & Flora International and Botanic Gardens Conservation International, is implementing a number of approaches to meet the technical capacity needs of individuals and organizations working for tree conservation. In 2013 290 people involved in protected areas or other land management in Belize, Brazil, Cameroon, China, Kyrgyzstan, Indonesia and Saint Lucia received training in a variety of technical skills. In China training has been complemented by a programme of cross-sectoral knowledge exchange between academic institutions, botanic gardens, forestry departments, NGOs and nature reserves, as well

as peer-to-peer learning between reserves. The capacity-building programme in China has provided support to 35 nature reserves, helping them to deliver improved conservation action for more than 25 threatened tree species.

To complement the work carried out through projects the Global Trees Campaign has launched a series of technical guidance briefs promoting best practice for tree conservation. Each brief covers a different core skill for tree conservation and has been tailored to meet the needs of non-specialists (people with some experience in conservation but with limited knowledge and experience in botany, forestry or horticulture). The first series of nine briefs is available at www.globaltrees.org/resources/practical-guidance and contains guidance on carrying out tree surveys, botanical identification, monitoring, nursery management, seed collection, seed processing and storage, germination and seedling growth, germination experiments, and tree planting.

Briefs will be translated into a number of languages during 2014–2015, making them accessible to as wide an audience as possible. Because these briefs represent an introduction to tree conservation techniques, links to sources of further guidance are included. Users are encouraged to adapt the guidance to local circumstances and to approach local experts or the Global Trees Campaign for additional advice. Feedback on the briefs is welcomed (please address to david.gill@fauna-flora.org).

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New evidence of wild Amur tigers and leopards breeding in China

On 15 November 2013 CCTV news reported that pug-marks of a wild adult female Amur tiger *Panthera tigris altaica* and three kittens had been found in the Hunchun forest department of Jilin Province in north-east China. The front pad widths of the adult were 9.0–9.3 cm and those of the kittens were 6.0–6.2 cm. Experts have examined the details of the pug-marks and tracks and have confirmed the presence of a female and kittens. From the size of the pug-marks it is estimated the kittens were 4–5 months old. It is particularly notable that this record was outside Hunchun Nature Reserve, > 20 km away from the Sino–Russian border. In recent years camera-traps have recorded adult Amur tigers in this area and local people have reported sightings of Amur tiger pug-marks and/or loss of livestock.

Historically, the Endangered Amur tiger was distributed across most of the forested montane areas of north-east China. It has been argued that this subspecies originated in China (The World's Cat (1976), 1–14) and this has been partially confirmed by a genetic study (PLoS Biology (2004),

2(12), e442). It is estimated that in the mid 20th century there were 150 Amur tigers in China and 30–40 in Russia. However, until now, it was presumed that the c. 20 extant Amur tigers in China were migrants from the Russian far east and that it was unlikely any were resident breeding females.

There is also new evidence of the Critically Endangered Amur leopard *Panthera pardus orientalis* in this area. In October 2013 CCTV news reported a video recording of a female Amur leopard and two kittens walking past a video trap in the Jilin Wangqing Nature Reserve. Based on the kittens' body size it is estimated they were < 5 months old and thus still lactating. As the area of Wangqing Nature Reserve is > 600 km² it is most likely that this family is part of a resident population rather than being migrant. Russian wildlife biologists reported that only c. 50 extant Amur leopards were known in the Russian far east in 2012. Only 7–12 were believed to be present in China in 2000, although this estimate was derived from data collected during a survey for the Amur tiger.

Given these recent sightings and sign observations we believe the future outlook for these two subspecies in China is improving. In 2011 WWF–China initiated a prey recovery project in north-east China and introduced SMART technology (Integrative Zoology (2010), 5, 363–377) for patrolling. These measures will ensure improved habitat conditions and more effective protection for both species. The Feline Research Center of the Chinese State Forestry Administration has initiated camera-trap monitoring for both species, DNA analysis of faecal samples, and a new pug-mark identification technique in collaboration with Wildtrack. The Chinese State Forestry Administration is now consulting with experts to develop a Chinese Big Cat Conservation Action Plan to ensure the continued protection of the Amur tiger and leopard in China.

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Indexing for Life: improved genetic data resources for conservation

In setting conservation priorities for a taxon a range of factors need to be considered, including threatened status, endemism, rarity, charisma, function in ecosystem and genetic diversity. When trying to determine which strategy will conserve the greatest extent of independent evolutionary life, phylogenetic distance methods can be used as they reveal the genetic uniqueness of a taxon. The evolutionary distinctiveness measure, for example, can be calculated for groups of taxa, of different Eukaryotic kingdoms, based on the length of each branch of a phylogenetic tree. By combining evolutionary distinctiveness (ED) with the