

Conservation news

Surveys in southern Myanmar indicate global importance for tigers and biodiversity

Myanmar's Tanintharyi Region is part of the Indo-Burmese biodiversity hotspot, at the Indochinese–Sundaic faunal transition. This region contains the largest remaining areas of biologically rich Sundaic lowland forest in mainland South-east Asia. Over one third of Tanintharyi Region's remaining lowland evergreen forest falls within the boundaries of the Lenya Proposed National Park and extension, first nominated for National Park status in 2002. These forests are home to the world's largest population of the Endangered Gurney's pitta *Pitta gurneyi*, now endemic to Tanintharyi, and support one of the three most significant tiger *Panthera tigris* populations in Myanmar. In spite of the known biodiversity value of the area, decades of armed conflict previously restricted access for scientific study and biological monitoring.

Tanintharyi remains predominantly forested, although large areas have been selectively logged since at least the 1800s, and there has been widespread land-use change in recent years. Since the 1990s the introduction and subsequent rapid expansion of oil palm plantations has been the single biggest threat to these forests. Over 400,000 ha of land was allocated to the crop by 2015, just over one third of which is reportedly planted, although this is almost certainly an underestimate. In addition, new road development and forest clearing for other agricultural products, particularly rubber and areca (betel) nut, have caused additional habitat loss and fragmentation for forest-dependent species.

The need to balance ongoing development with traditional livelihoods and biodiversity conservation requires reliable baseline information on the distribution of priority species. In response, and with the support and permission of the Myanmar Forest Department, Fauna & Flora International (FFI) and partners have so far conducted five camera trap surveys targeting large mammals within lowland areas of the Lenya forests. These surveys were conducted during May 2014–May 2016, spanning 91 camera trap locations and 6,542 trap-nights. We primarily used grid-based survey designs to guide overall camera spacing, but typically deployed cameras near ridge lines, footpaths, animal trails, streams or salt-licks that were likely to be used by wildlife.

Results confirmed a total of 45 mammal species, including many that are globally threatened. The Critically Endangered Sunda pangolin *Manis javanica* was detected at two camera trap stations. We also recorded the Endangered tiger, dhole *Cuon alpinus*, Asian elephant *Elephas maximus*, Malayan tapir *Tapirus indicus* and banteng *Bos javanicus*. A number of bird species were also identified from camera-trap data, including several Sundaic lowland forest species

such as the Endangered Gurney's pitta and Storm's stork *Ciconia stormi*.

A primary objective of this research is to assess the conservation status of tigers in southern Myanmar. We successfully confirmed the continued presence of tigers in the southern Tanintharyi Region and individually identified a minimum of five individuals in the Lenya Proposed National Park, based on their stripe pattern. For the 16 trap stations at which tigers were detected, the mean number of days until the first observation was $15 \pm \text{SD } 12.7$. The maximum time to first detection was 45 days. Hunting was also observed to be widespread within lowland areas of the Lenya Proposed National Park. Hunters were detected at a total of 41.8% of camera trap stations, including 10 of 16 locations where tigers were observed.

The results of these surveys indicate that the Lenya forests still retain a unique assemblage of globally threatened wildlife, including at least a small but possibly globally significant population of tigers. Surveys are ongoing but deforestation is widespread and accelerating in the surrounding landscape. High hunting pressure, logging, forest clearing and mining activity are commonly observed within the proposed protected area boundaries during surveys and pose a considerable risk to sensitive wildlife populations. We and our partners are slowly addressing these threats. Following a review of oil palm by FFI, for example, the new government of democracy icon Daw Aung San Suu Kyi has revoked some oil palm licences as a result of legal infractions, and has declared that it intends to review the remainder. With financial support from the KfW-funded Integrated Tiger Habitat Conservation Project, FFI is currently helping establish education, law enforcement and sustainable buffer zone management to support these efforts, while building multi-stakeholder support for conservation in this globally irreplaceable paradise of biodiversity.

SAW SOE AUNG, NAY MYO SHWE, JACKSON FRECHETTE and MARK GRINDLEY *Fauna & Flora International Myanmar Programme, Yangon, Myanmar*
E-mail mark.grindley@fauna-flora.org

GRANT CONNETTE *Conservation Ecology Center, Smithsonian Conservation Biology Institute, Front Royal, USA*

Projet Faux Gavial reduces commerce of slender-snouted crocodile in Gabon

Lambaréné, at the crossing of the Ogooué River with National Highway 1, has long been an important market for wildlife trade in Gabon. When the Gabonese NGO

Organisation Ecotouristique du Lac Oguemoué began surveys of the Lambaréné bushmeat market in 2012, the Critically Endangered slender-snouted crocodile *Mecistops cataphractus* was the most commonly observed bushmeat for sale. Between 2012 and 2015 slender-snouted crocodile bushmeat represented over half of all bushmeat from protected species recorded in market and restaurant surveys. Although the slender-snouted crocodile has been fully protected under national law in Gabon since 2011, local hunters, vendors, restaurant owners and consumers either did not fear law enforcement or did not understand that the species was protected, because they continued to openly advertise crocodile meat on restaurant menus and bushmeat tables.

In 2015 the Organisation launched an outreach campaign in Lambaréné—Projet Faux Gavia (Project slender-snouted crocodile)—to raise awareness about the species, rally pride for crocodile conservation, encourage local leaders and law enforcement to enforce laws, and change the preferences of the next generation of bushmeat consumers. Between October 2015 and September 2016 the Projet Faux Gavia team presented an environmental education curriculum on crocodiles at 14 local schools, launched student-led nature clubs that engaged in outreach about crocodile conservation, led community outreach with hunters and vendors at the local market, created a community green space with a crocodile mural, erected an informative panel on the protected status of the crocodile at the bushmeat market, and worked closely with local leaders to find ways to reduce commerce. As a result of these efforts, in February 2015, the Mayor of Lambaréné signed a decree forbidding the commerce of protected species in the city and pledging support to enforce protected species laws. In early 2016 the project team launched a citizen science project in which students use *WhatsApp* to record slender-snouted crocodile sightings and crocodile bushmeat for sale. The most active students in this effort will win scholarships for the upcoming school year.

Organisation Ecotouristique du Lac Oguemoué compiles biannual market surveys, at the opening and closing of each annual hunting season (March and September of each year). For the first time in 4 years of surveys the team found no slender-snouted crocodile bushmeat for sale during the closed hunting season of September 2015–March 2016 and only 4% of restaurant surveys included slender-snouted crocodile meat for sale. In comparison, during the previous closed hunting season (September 2014–March 2015), 27% of market surveys recorded slender-snouted crocodile meat for sale and 61% of restaurant surveys recorded slender-snouted crocodile stew on the daily menu. During the open hunting season of March–Sept 2016 no slender-snouted crocodiles were recorded on bushmeat tables and only two incidences of crocodile meat for sale were recorded in restaurants.

These early successes are promising but the team will need to maintain momentum to ensure that commerce does not restart or go onto the black market. In the forthcoming months the team will be looking for any black markets, identifying livelihood alternatives to hunting and selling crocodiles, and collaborating with local community leaders, including market representatives, teachers, law enforcement, conservation partners, elected leaders and religious leaders to keep this Critically Endangered crocodile off the bushmeat table and out of cooking pots.

We thank the Conservation Leadership Programme and the USFWS Wildlife Without Borders Program for their support. For more information on this project and the other work of Organisation Ecotouristique du Lac Oguemoué, see www.oelogabon.org.

HEATHER ARROWOOD and CYRILLE MVELE Organisation Ecotouristique du Lac Oguemoué, Libreville, Gabon
E-mail harrowood@yahoo.fr

Evaluating the impacts of conservation interventions on human well-being: guidance for practitioners

New guidance has been developed to help conservationists evaluate the impacts of their interventions on human well-being. Published by the International Institute of Environment and Development, these guidelines draw on insights provided by a wide range of conservation practitioners, academics and funding bodies for navigating the methodological decisions to be made in developing an evaluation strategy for a wide variety of situations. The document draws on robust scientific approaches while taking into account practical issues.

Conservationists are increasingly recognizing the importance of evaluating their impacts, to ensure accountability and to learn what works and what doesn't. As part of this, they are increasingly interested in impacts on human well-being because of the moral imperative to at the very least do no harm and, pragmatically, a growing number of conservation strategies rely on improved livelihoods or other positive social outcomes. Although a number of social impact evaluation tools and methods have been designed, by both academics and conservationists, no single tool or method will work for every intervention. Therefore, instead of providing another evaluation method, these guidelines aim to provide an understanding of the different steps and issues that are involved in social impact evaluation. They aim to enable conservationists to make the right decisions, and signpost appropriate methods and tools along the way. In particular, the guidelines aim to help small NGOs consider why they wish to evaluate their social impacts, and what is feasible given their funding and capacity constraints.