

Conservation news

Camera trapping in the Cardamom Mountain Landscape, Cambodia, reveals Asian elephant calves with severe injuries from wire snares

The Cardamom Mountain Landscape in south-west Cambodia comprises c. 2 million ha of tropical forest and is the only contiguous area in Indochina sufficiently large (> 4,400 km²) for the long-term viability of Asian elephants (Hedges, 2008, *Report to USFWS*). Since 1999 Fauna & Flora International (FFI) has been working with the Cambodian Government to recover this globally important elephant population. Part of FFI's conservation efforts include population monitoring using camera traps. Beginning in December 2016 we set 51 camera traps to monitor the core elephant population of c. 45 individuals within the Tatai Wildlife Sanctuary and Southern Cardamom National Park in the southern Cardamom Mountain Landscape, and an additional seven camera traps in Kirrirom National Park, to monitor a small subpopulation in the far south-east of this Landscape.

We obtained photographs and videos of 15 different groups of elephants in the core area, of 2–9 individuals, and of another group of six individuals in the Kirrirom subpopulation. We identified seven individual calves (< 1 year old), of which four had severe leg injuries from what appeared to be wire snares around the base of their legs. Additionally, our camera traps showed two adult and one subadult male elephants with trunk injuries and lacerations that appeared to have been caused by snares. In September 2017 local villagers found a carcass of an elephant calf that reportedly died from a snare wound. A calf in Moldulkiri province in eastern Cambodia died in July 2016 of an infection from a snare wound similar to those observed in our camera-trap videos.

We are concerned that wire snares could be causing unnaturally high calf mortality, jeopardizing the recovery of this critically important elephant population. These wire snares were not set for elephants but for capturing wildlife (e.g. the sambar *Cervus unicolor*, wild pig *Sus scrofa*, red muntjac *Muntiacus muntjak*, and the bears *Ursus malayanus* and *Ursus thibetanus*) for the illegal bushmeat market. There are ongoing efforts to remove snares. In 2015 > 27,000 snares were removed from the Southern Cardamom National Park, yet snaring appears to be increasing (Gray et al., 2018, *Biodiversity Conservation*, 27, 1031–1037)—another example of the pervasive threat that the bushmeat trade poses to wildlife.

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19th International Conservation Forum for Arabia's Biodiversity

The 19th Annual Sharjah International Conservation Forum for Arabia's Biodiversity was held at the Breeding Centre for Endangered Arabian Wildlife in Sharjah, United Arab Emirates, during 5–8 February 2018. This forum brought together over 200 participants from Jordan, Kuwait, Lebanon, Yemen, Bahrain, United Arab Emirates, Saudi Arabia, Oman and Iraq, and also from the UK, South Africa, Australia, the USA and New Zealand. The Sharjah workshops are hosted by the Environment and Protected Areas Authority of the Government of Sharjah, under the patronage of H.H. Sheikh Dr Sultan bin Mohammed al Qasimi, Member of the Supreme Council and Ruler of Sharjah.

The 19th meeting had four themes. A species assessment theme conducted an IUCN Red List assessment of the endemic plants of the Arabian region. The protected areas theme applied the new IUCN Key Biodiversity Area standard to selected taxa and sites across the Arabian Peninsula. The veterinary theme looked at clinical diagnostics and immunology in zoo and wild animals. A technical session looked at the application of drones in ecological monitoring and conservation management in the United Arab Emirates.

Working groups conducted an IUCN Red List assessment of endemic plants of the Arabian region. In total 375 species were assessed, 21% of which were found to be threatened, including 30 Critically Endangered species. This marked completion of the first comprehensive assessment of the status of all endemic plants in the region.

Taxonomic and regional working groups applied the Key Biodiversity Area Standard (IUCN, 2016, *A Global Standard for the Identification of Key Biodiversity Areas, Version 1.0*) to 37 species of threatened Arabian plants and animals, including six species of mammal, seven bird species, 11 reptiles, one amphibian and 13 aloes. Delegates delineated Key Biodiversity Areas for selected taxa and evaluated overlap between existing protected area networks and designated Important Bird Areas. The development of regional criteria for Key Biodiversity Areas was also discussed.

The veterinary theme focused on haematology, clinical chemistry, urinalysis, clinical immunology, neonatal immunology, vaccination and diagnostic testing, and the identification of disease using blood smears. Lectures introducing the

topics were complimented with small-group sessions in which case studies were discussed and diagnoses made. It was agreed that this basic approach to animal health should be developed in the region, to equip veterinarians better for the pivotal role they must play in ecosystem health.

In the technical session, case studies were presented for the application of quad-copters and fixed wing drones for vegetation monitoring, counts of shorebirds and turtles, and monitoring of herd dynamics of Arabian oryx *Oryx leucoryx*. Delegates discussed the opportunities, constraints, and challenges relating to the expansion of drone-based ecological monitoring in the Arabian Peninsula.

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First observations of the impacts of Hurricane Maria on the endemic imperial amazon

On 18 September 2017 the Caribbean island of Dominica was struck by the category five Hurricane Maria. This is the strongest storm on record for the island, considerably more powerful than the previous most destructive, Hurricane David in 1979. Although damage assessments from Maria have yet to be completed, environmental impacts are expected to be severe. Hurricane David, which caused widespread destruction only in the island's south, destroyed or damaged at least 5 million trees (*Bird Conservation International*, 1, 11–32). Maria encompassed the whole of Dominica and is thus expected to have caused more severe damage. Early estimates from the Forestry and Agriculture Department suggest at least 30% of trees were felled nationally, with much of the remaining 70% being stripped of foliage and fruits.

This damage is expected to have severe consequences for Dominica's biodiversity, including its national bird, the endemic and Endangered imperial amazon *Amazona imperialis*. Pre-Maria estimates suggested a population of 250–350

individuals across three disjunct localities; Morne Diablotin, the Northern and Central Forest Reserves, and Morne Trois Pitons National Park (<http://www.iucnredlist.org/details/22686411/o>). Given that Hurricane David reduced the species' population to just 40–60 birds (*Bird Conservation International*, 1, 11–32), the impacts of Maria are of great concern. The first observations of Maria's impacts on *A. imperialis* are presented here, based on records compiled by the Forestry and Agriculture Department since 18 September 2017, and a field visit by CAP during 16–23 January 2018.

By 23 January 11 confirmed sightings of *A. imperialis* had been collated from nine locations across the island, all of which are outside the pre-Maria range for the species. At two locations individuals were seen foraging on fallen grapefruit and guava in populated areas. In the latter case a single bird was observed eating guava daily for 2 months post-Maria but subsequently visits became less frequent.

These sightings indicate two things. Firstly, that the species still persists at several locations. Secondly, that Maria has pushed the species out of its natural habitat of high altitude forests, with all reported localities being low-lying sites near human settlements (areas where *A. imperialis* does not normally occur). The species may have been forced into these areas by the destruction and defoliation of highland trees and consequent reduction in food resources. As a result, there may now be increased foraging pressures through competition with the endemic *Amazona arausiaca* at these lower elevations.

As in the aftermath of Hurricane David, several weak, grounded *A. imperialis* individuals were found post-Maria. Two presumed male birds, both underweight and dehydrated, were brought to the Parrot Conservation and Research Centre. One died shortly after arrival; the second, which was found in Salisbury town on 18 December, was held at the Centre alongside an 18-year-old female who had been there from a young age. On 18 March 2018 both birds were moved to a facility in Germany. Only a few individuals are held elsewhere, including one at the Rare Species Conservatory Foundation, Florida, which was previously bred at the Parrot Conservation and Research Centre.

These observations indicate the conservation status of *A. imperialis* is of great concern, given the detrimental impacts of previous hurricanes on the species. Climate change scenarios predict that high intensity Caribbean hurricanes such as Maria will become more frequent (*Nature Geoscience*, 3, 157–163). A similar event in Dominica in the next few years, with no interceding recovery period, could have disastrous consequences for the species. During 2018 we plan to make a formal assessment of post-Maria *A. imperialis* populations, the results of which may warrant a re-examination of the species Red List status.