INTRODUCED PREDATORS LEAVE A TRAIL OF EXTINCTION

Introduced mammals can be devastating for birds. The invasive house mice that eat seabird nestlings alive on sub-Antarctic islands such as Marion and Gough provide one example with which many readers of this magazine will be familiar. New Zealand's flightless and phylogenetically distinct Stevens Island Wren was extinct by the time it was described to science because of feral cats (but probably not just a single lighthouse keeper's cat named Tibbles, as the apocryphal version of the story goes). Even the Dodo, the most iconic extinct bird of all time, was very likely hastened to its demise by feral pigs and monkeys preying on eggs and nestlings.

Although the conservation literature is replete with accounts of how introduced mammalian predators have been calamitous for birds, until recently no single study had comprehensively synthesised these impacts at a global scale. Writing in the *Proceedings of the National Academy of Sciences* in late 2016, Tim Doherty and his co-authors presented an important new analysis of how introduced predators have impacted global bird, mammal and reptile diversity over the past five centuries.

THE AUTHORS FOUND THAT INTRODUCED PREDATORS HAVE NEGATIVELY IMPACTED AT LEAST 400 SPECIES OF BIRDS SINCE 1500, **WITH 87 OF THESE DRIVEN TO EXTINCTION**

The authors found that introduced predators have negatively impacted at least 400 species of birds since 1500, with 87 of these driven to extinction. Cats and rodents are the worst offenders; feral cats are implicated in the extinctions of 40 species, and rodents in those of 52. These are also the predators that – along with feral pigs and dogs - have had the greatest impact in terms of geographical regions and avian taxonomic groups. Geographically, the most severely affected areas include Polynesia, New Zealand, Central America, Hawaii and the Indian Ocean islands.

ALBERT FRONEMAN

Domestic cats are significant nest predators of the endangered Spotted Ground Thrush.

Just six African birds feature on the list of threatened species negatively impacted by introduced predators, although this low number may reflect a lack of research in many parts of the continent more than anything else. The species known to have been affected include African Penguin (cats), Blue Crane (dogs) and Spotted Ground Thrush (domestic cats are significant nest predators). None, however, has been pushed to extinction.

The picture on islands is very different. The Mascarene Islands and Madagascar have lost a staggering 15 species, extinctions wholly or in part because of cats, macaques, mongooses, pigs and other non-native predators. The list of the departed includes a blue pigeon, a starling and a solitaire (close relative of the Dodo) from Rodrigues, a kestrel, a pink pigeon and a rail from Réunion, the Red Rail of Mauritius, the Aldabra Brush-warbler, and Madagascar's Delalande's Coua. All three owls in the genus *Mascarenotus* – one each from Rodrigues, Réunion and Mauritius – are gone.

The study by Doherty and colleagues is a stark reminder of the biological catastrophe humans have unleashed by introducing mammalian predators in many parts of the world, particularly islands. It also underscores the importance of conservation interventions such as the cat-eradication programme that took place on Marion Island and the eradication of house mice planned for Gough Island.

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Reference

Doherty, T.S. et al. 2016. 'Invasive predators and global biodiversity loss.' *Proceedings of the National Academy of Sciences* 113: 11261–11265.

CONGRATULATIONS!

The winner of the Zeiss Challenge No.9 (September/October 2016 issue) was Mrs Freda Kirschner of Waverley, Gauteng. The correct answer was that all those species are burrow nesters.