

Oryx

What are tenrecs and why should we care about their conservation?

By PJ Stephenson, 11th January 2021

You'll be forgiven if you've never heard of tenrecs.

They are found on the tropical island of Madagascar in the western Indian Ocean, yet many Malagasy don't know what they are or mistake them for other species, such as rats. The species also remain unknown to many academic zoologists and conservationists.

So let me introduce them.

Tenrecs are a diverse family of 31 small mammals. They evolved in East Africa and, around 60 million years ago, a few individuals crossed the Mozambique Channel to Madagascar, perhaps by drifting on dead wood or floating vegetation washed out to sea. No other mammals were thought to have lived on the island at that time so, as a result of adaptive radiation (made famous by Darwin's finches on the Galapagos), this early lineage evolved over millions of years to fill the vacant niches. Many tenrec species resemble mammals filling similar ecological roles elsewhere—a phenomenon known as convergent evolution.



The aquatic tenrec (left) is the only tenrec species adapted to live in and around freshwater streams, much like its relatives, the otter shrews, on mainland Africa. The large-eared tenrec (right) lives in the hot and arid south-west of Madagascar, where it feeds primarily on termites in dead wood. Photos: PJ Stephenson

The larger tenrec species foraging on the ground for diverse prey developed defensive spines and resemble hedgehogs. Smaller species found on the forest floor or climbing trees look like shrews; and species that have adapted to burrowing under the leaf litter could be mistaken for moles. The aquatic tenrec looks like a very large water shrew or a very small otter. On the other hand, some species, like tailless tenrecs and streaked tenrecs, look like nothing else on Earth. However, while

their body shapes are very different, tenrecs share a number of common biological traits that are often assumed to be primitive, such as low and variable body temperatures, and exceptionally long gestation.

Tenrecs are typically found in forests. Most species live in the eastern rainforests, but a handful (such as the large-eared tenrec and the lesser hedgehog tenrec) are adapted to the arid spiny desert in the south-west of Madagascar. The aquatic tenrec requires clear, running freshwater.



Left: Streaked tenrecs, like this highland streaked tenrec photographed at the zoo in Antananarivo, raise the crest of spines on their head when they are agitated. The spines are barbed and detachable and act as protection against predators. Right: An aquatic tenrec in a respirometry chamber where its metabolic rate was measured before it was re-released into the wild. Scientific studies of tenrecs have shed light on many aspects of mammal biology and evolution. Photos: PJ Stephenson

This unique family of mammals is under threat. Forty percent of Madagascar's forests have been lost in the last 50 years to meet the resource demands of a growing human population, shrinking the area available for tenrecs and the country's other unique wildlife, such as lemurs and chameleons. Furthermore, spiny species are hunted extensively for food. The aquatic tenrec is caught in fish traps and its freshwater habitats are often polluted with sediment from deforestation.



Aware of these challenges, a group of conservationists and biologists specializing in small

mammals (many from the IUCN Species Survival Commission's Afrotheria Specialist Group) assembled in Madagascar to discuss tenrecs. We reviewed their conservation status and threats and produced the first compilation of tenrec conservation needs for almost 3 decades.

Our [review](#) found that six tenrec species are threatened with extinction, and most species are thought to be in decline. We also agreed that we lack enough information to assess fully the extent of the problems facing the family. We concluded that tenrecs can only be saved if representative patches of their habitats are protected and more effort is made to fill knowledge gaps.

But, with Madagascar being one of the 10 poorest countries in the world, and even many biologists not knowing much about them, why should people care about tenrecs?

The simple answer is forests. Madagascar's diverse forests are important for people as well as tenrecs, providing a rich source of timber, firewood, medicines and food, as well as ecosystem services such as water supplies, soil and erosion protection, and climate regulation. These natural resources are vital for national sustainable development.



Protected areas, with large, interconnected tracts of forest (as found in Marojejy National Park, shown here), are important for the conservation of tenrecs, as well as for providing ecosystem services to local people. Photo: Martin Nicoll

Initial successes with community-based sustainable forest management and restoration schemes need to be scaled up. Projects are also needed to provide alternatives to resources such as timber, fuelwood and wild meat, so that forest management meets the livelihood needs of local people whilst reducing the impact on threatened species. The numerous protected areas established by

the Malagasy government remain key. But they need to monitor their tenrecs!

There are other reasons to care. Tenrecs are an integral part of complex ecosystems, preying on numerous small vertebrates and invertebrates and, in turn, providing food for birds, carnivores and snakes. Losing tenrecs would disrupt the food web and cause losses of other species. Furthermore, tenrecs are unique mammals derived from an ancient lineage that has already taught us a lot about evolution, as well as mammal biology, ecology and physiology. What other knowledge and scientific insights would be lost if tenrecs went extinct?

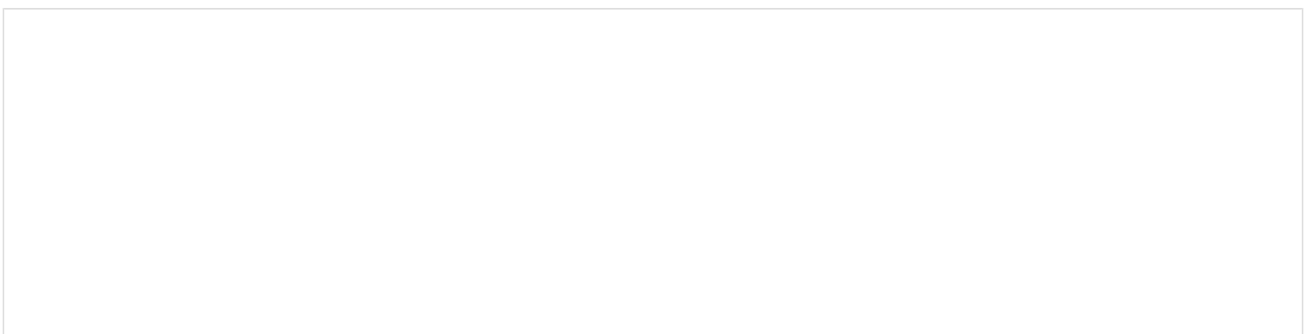


A Dobson's shrew tenrec (left) and a lesser hedgehog tenrec (right). As their common names suggest, these species look like mammals filling similar niches in other parts of the world. Photos: PJ Stephenson

So, few people may have heard of tenrecs, but we need to do more to conserve these fascinating mammals. If conservation agencies and donors can help the Malagasy government's efforts to conserve and sustainably manage Madagascar's natural forests, we will not only help secure the food security, water supplies and climate stability necessary for sustainable development, we will also help secure a future for the tenrecs.

Video: A female tailless tenrec and her offspring foraging for invertebrates in leaf litter on the forest floor in the Seychelles. Credit: PJ Stephenson

The article [Review of the status and conservation of tenrecs \(Mammalia: Afrotheria: Tenrecidae\)](#) is available in *Oryx—The International Journal of Conservation*. We dedicate this article to our close friend and colleague, Martin Nicoll (1954–2020), who was a pioneer of tenrec biology and conservation in Madagascar.





PJ Stephenson

PJ saw his first wild tenrec in 1986 on a student expedition to north-east Madagascar, before studying tenrecs across the island for his PhD. He went on to work for conservation organizations in Tanzania, Democratic Republic of the Congo, Côte d'Ivoire and Switzerland, but maintained his interest in these charismatic small mammals through his work in the IUCN SSC Afrotheria Specialist Group. He is now based in Switzerland where he is a Conservation Consultant and a research fellow at the University of Lausanne. (Profile Photo: Alexander Belokurov <http://imagenature.com>)