

Lesser Hedgehog Tenrec

Echinops telfairi

Background: Tenrecs are a diverse group of mammals that has evolved in isolation on the island of Madagascar. All tenrec species are native to Madagascar and were one of the first mammals to colonize the island.


Due to their isolation on the island of Madagascar, tenrecs have several characteristics that were commonly found in early placental mammals. These characteristics include:

- Low, variable body temperatures
- A *cloaca* – a single common area for reproductive, intestinal and urinary/anal tracts
- Un-descended testes in males

Tenrec Taxonomy: Tenrecs belong to the family *Tenrecidae*. The family Tenrecidae is broken down into several subfamilies; different species of tenrec make up most of these subfamilies and one subfamily is comprised of animals called otter shrews (otter shrews are found in western and central Africa). There are 28 species of tenrec, and 3 species of otter shrew.

Tenrec Diversity: While most tenrecs are nocturnal, opportunistic feeders, there is great diversity among tenrec species in size, appearance, and activity. For example, some species are:

- Large and bold, others small and well camouflaged
 - Range in size from 1.7 inches – 15 inches in length
- Aquatic, terrestrial, or arboreal
- Covered in soft fur, or covered in spines – resembling shrews, hedgehogs, mice

		
Aquatic tenrec This aquatic tenrec inhabits streams in forested areas, has webbed feet and a long tail (photo: PJStephenson@wwfint.org).	Lowland streaked tenrec This terrestrial tenrec has a black and yellow coloration, and resembles a mixture of a shrew and a hedgehog.	Lesser hedgehog tenrec This species is both terrestrial and arboreal, and is named after its hedgehog-like appearance.

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Description:

- Size: Typically 5-6.5 inches long
- Weight: About 7 ounces
- Physical Description: Small mammal similar in appearance to hedgehogs. Their backs are covered in sharp spines of varying color, from tan or off-white to dark brown-black. The belly, face, and legs are covered with short, soft hair. They have short tails, prominent ears, 5-toed feet with sharp claws, and many whiskers on the face.

In the Wild

Habitat and Range:

- Range: Found in southern and southwestern Madagascar
- Habitat: Prefer dry areas such as dry forests, scrublands, agricultural areas, dry coastal regions, and semi-desert regions

Diet:

- Omnivorous: Eat insects and their larvae, eggs, spiders, and occasionally fruit

Adaptations:

- Have sharp, barbed spines covering their back
 - Curl into a ball when threatened to expose the spines and protect their head
 - Will come out of defensive ball-posture during an attack to bite a particularly persistent predator
- Rely on their excellent sense of smell and hearing to compensate for poor eyesight
- Sharp nails facilitate climbing
- Tenrecs enter *torpor*, or a state of inactivity, in which they lower their body temperature to save energy. See the “Activity” section below for more information.

Social Structure:

- Primarily solitary

Lifespan:

- Median Life Expectancy is:
 - Females: 7 years
 - Males: 8 years

Ecosystem relationships:

- Predators: Include birds of prey, mammalian carnivores such as genets and civets, and snakes

Reproduction:

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- Breeding season: Breeding occurs within several days after coming out of torpor, around October depending on temperatures
- Gestation: about 1 ½ months
- Number of offspring: Typically 5-7
- Maturation:
 - Newborns weigh approximately 8 grams
 - Females care for their young for about a month without assistance from males
 - Reach sexual maturity following their first cold season in torpor

Activity:

- Nocturnal: Often rest in hollow trees during the day
- Semi-arboreal: tenrecs are both terrestrial (ground-dwelling) and arboreal (tree-dwelling). They are excellent climbers.
- Torpor: Tenrecs enter a state of torpor seasonally, and while sleeping.
 - Enter a state of torpor during the cold season for 3-5 months
 - Enter a daily state torpor during the warmer season – while sleeping, their temperature drops to save energy

Other “fun facts”:

- Although they are similar in appearance to hedgehogs, they are not closely related
 - The closest relatives to the tenrec family are otter shrews and golden moles
 - In comparison, hedgehogs are related to gymnures. Gymnures are small shrew-like mammals that are classified in the same family as hedgehogs.
- The spines of hedgehogs and tenrecs are a good example of convergent evolution. Each species evolved spines independently as a result of adaptation to similar conditions.
- There are also some behavioral differences between hedgehogs and tenrecs. For example, hedgehogs hiss at potential predators when rolled into a ball, while tenrecs will come out of the ball to bite and attack persistent threats.

Conservation Status and Threats:

- Listed on IUCN Red List as Least Concern
- Although they are considered widespread and somewhat adaptable, they are threatened by several factors:
 - Most people (as much as 80% of the island’s population) live below the poverty level and rely on subsistence farming, called *tavy*, or slash-and-burn agriculture
 - Deforestation has affected about 80% of Madagascar's forests
 - Madagascar is home to a wide diversity of plants and animals – about 95% of Madagascar’s reptiles, 89% of its plants, and 92% of its mammals are endemic to the island of Madagascar (are found nowhere else in the world but Madagascar)
 - With so many exotic animals found nowhere else in the world, many animals are collected for the pet trade

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- Political unrest in Madagascar has created conservation challenges for all Malagasy species. Bans on illegal hunting and logging in protected areas are increasingly difficult to enforce and many international aid organizations have withdrawn support due to the unconstitutional change of power that happened in 2009.
 - Following several years of political deadlock, democratic elections returned in 2013, although Madagascar remains politically unstable.
 - Malagasy rosewood species are now listed on CITES Appendix II.

At the Zoo

Mosi (male) and **Mchumba** (female) were born in 2013 and acquired from a private breeder. Mosi is Swahili for “first born” and Mchumba is Swahili for “sweetheart”.

What We Can Do

- Make environmentally responsible lifestyle decisions to help conserve habitat – conserve energy, reduce litter and pollution
- Make sure you know the origin of the products you buy – buying something imported illegally supports the black market by sustaining demand
 - Ex. Rosewood is still being illegally imported from Madagascar despite bans on logging because people are still buying it
- Do your research before buying a pet
 - Make sure you are not purchasing a wild-caught individual – captive-bred species are often easy to find
 - Make sure you know how to properly care for any animal before you decide to buy it as a pet
 - Some things to consider include adequate housing, diet, temperature requirements, and lifespan
 - Some pets also require a lot of time and money to be properly cared for

Additional Resources and References:

- Macdonald, David W. “Tenrecs and Golden Moles” *The Princeton Encyclopedia of Mammals*. Princeton, New Jersey: Princeton University Press, 2006. 68-73. Print.
- IUCN Red List: <http://www.iucnredlist.org/details/40592/0>
- Afrotheria Specialist Group: <http://researcharchive.calacademy.org/research/bmammals/afrotheria/tenrecs/>
- National Zoo: <http://nationalzoo.si.edu/animals/smallmammals/fact-tenrec.cfm>
- JSTOR: <http://plants.jstor.org/person/bm000008373>
- The Encyclopedia of Life: <http://eol.org/pages/1178673/details>
- Lincoln Park Zoo: <http://www.lpzoo.org/animals/factsheet/lesser-madagascar-hedgehog-tenrec>

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- Animal Diversity Web:
 - <http://animaldiversity.ummz.umich.edu/accounts/Tenrecidae/>
 - <http://animaldiversity.org/accounts/Erinaceidae/>
- The Houston Zoo: <http://www.houstonzoo.org/wp-content/uploads/2013/01/Madagascar-Lesser-Hedgehog-Tenrec-2013.pdf>
- Oakland Zoo: <http://www.oaklandzoo.org/Tenrec.php>
- Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/cloaca>
- Madagascar: http://www.conservation.org/where/africa_madagascar/madagascar/Pages/projects.aspx
- World Wildlife Fund: <http://worldwildlife.org/places/madagascar>
- Science Daily: https://www.sciencedaily.com/terms/convergent_evolution.htm