



TROPICAL BIOLOGY ASSOCIATION

Field Guides



Primates and
other mammals of
KIRINDY



KIRINDY FOREST AND ITS MAMMALS

Kirindy is a dry deciduous forest covering about 12 000 hectares and is managed by the Centre de Formation Professionnelle Forestière (CFPF). Dry deciduous forests are among the world's most threatened ecosystems, and in Madagascar they have been reduced to 3 per cent of their original extent. Located in Central Menabe, Kirindy forms part of a conservation priority area and contains several locally endemic animal and plant species.

Kirindy supports eight species of lemur; Madagascar's largest predator, the fossa; and other unusual vertebrates such as the giant jumping rat. Kirindy's plants are equally notable and include two species of baobab, as well as the Malagasy endemic hazomalany tree (*Hazomalania voyroni*).

Animals that are endemic to the Menabe region include the giant jumping rat (*Hypogeomys antimena*), the narrow-striped mongoose (*Mungotictis decimlineata decimlineata*), Berthe's mouse lemur (*Microcebus berthii*) and the Madagascar flat-tailed tortoise (*Pyxis planicaudata*).

This guide describes the lemurs of Kirindy forest alongside three other large mammals that are specialities of the forest.

This document was developed during Tropical Biology Association field courses in Kirindy. It was drawn together by Rosie Trevelyan and the TBA staff. We would like to thank all our TBA alumni and teachers who have allowed us to use their photos for this guide. A special thanks to Manfred Eberle, Kate Lessells and Scott Armbruster. This publication was funded by the European Commission (B7-6200/01/0370/ENV).

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LEMURS

All 71 species and subspecies of lemur are endemic to Madagascar. The island separated from the mainland of Africa some 140 million years ago, which is before modern mammals, including lemurs, appear in the fossil record. It appears that lemurs colonized Madagascar through a single dispersion event by crossing the Mozambique channel, after which they radiated into the groups that we see today.

Extant lemurs are divided into five families, though 2000 years ago there were a further three families and 16 species which are now all extinct.

The five living families of lemurs are:

Lemuridae

- bamboo lemurs
- true lemurs*
- ruffed lemurs

Cheirogaleidae

- fork-marked lemurs*
- mouse lemurs*
- dwarf lemurs*

Megaladapidae (Lepilemuridae)

- sportive lemurs* (seven species within a single genus *Lepilemur*)

Indridae

- woolly lemurs
- sifaka*
- indri

Daubentoniidae

- aye aye

**Lemurs found in Kirindy*





LEMURIDAE

Divided into two subfamilies, the true lemurs (Lemurinae) and bamboo lemurs (Hapalemurinae). In Kirindy, the family is represented by genus *Eulemur*.

Red-fronted brown lemur

Eulemur fulvus rufus

Characteristics Coat colour is reddish-brown.

Behaviour Diurnal behaviour coupled with nocturnal activity (known as cathemeral activity). Live in matrilineal groups of approximately three females and four males. Groups are territorial. The dominant male sires 60 per cent of the infants in the groups studied in Kirindy.

Diet Mainly fruit.

Size Body is ~450mm; tail is ~525mm; and weight is 2.3kg.

Status Least concern (IUCN).





CHEIROGALEIDAE

All members of this family are nocturnal, sleeping in nests or tree holes by day. Some species undergo prolonged sessions of torpor.

Pale fork-marked lemur

Phaner furcifer pallescens

Characteristics Distinct black y-shaped lines running from their eyes, joining at the top of the head (the “fork mark”). This continues down the back, including the tail.

Behaviour Nocturnal. Very territorial and can be heard throughout the night in Kirindy. Live in pairs: females are dominant. They forage alone, spending 90 per cent of their time apart. Most interactions between males and females are conflicts over food – the female wins.

Diet They specialize on tree exudates (gum) and defend territories containing gum-producing trees. In Kirindy, the genus *Terminalia* forms the main source of their diet. They also eat the secretions of insects.

Size Head and body length ~250mm; tail ~300mm; and weight is ~460g.

Status Data deficient (IUCN).





Grey mouse lemur

Microcebus murinus

Characteristics Very small mouse-like lemur with a grey back and off-white underparts. Note the white patch on its nose and dark eye-rings. Mouse lemurs can be seen rapidly scurrying and leaping among the trees.

Behaviour Nocturnal. Both sexes forage alone at night in multiple overlapping home ranges. Males increase their home ranges during the mating season and can leave sperm plugs to reduce competition. Both sexes undergo torpor during the day: males sleep alone while related females sleep together. Adult females hibernate for several weeks each year; males hibernate for only a few days at a time.

Diet Largely fruit but can eat insects.

Size Head and body length ~125mm and tail ~135mm; females are 17 per cent larger than the males; weight ~109g.

Status Least concern (IUCN).



Berthe's mouse lemur

Microcebus berthae

Characteristics Red head, rufous-looking, cinnamon round eyes, line down back.

Behaviour Nocturnal. They are solitary – female ranges show little overlap while male ranges are more dispersed. If caught under a flashlight at night they are more likely to freeze than run away like other mouse lemurs.

Size This is the smallest primate species in the world. Its body weight is ~30g (a gorilla's body weight is ~160kg). Body length ~61mm; tail length ~136mm.

Status Endangered (IUCN).





Coquerel's dwarf lemur

Mirza coquereli

Characteristics Coquerel's dwarf lemurs are brown or grey-brown, with large ears and a long bushy tail. The large ears and sharp, pointed nose are distinguishing features.

Behaviour Nocturnal. They forage alone at night and males and females have separate home ranges of 1-4ha. Mothers carry the young by mouth and park them while foraging. Coquerel's dwarf lemurs do not hibernate, but are less active on colder nights. They build spherical nests about 2-10m above the ground.

Diet Omnivorous: feeds on fruits, flowers, gum, spiders, frogs, insects and even on smaller mouse lemurs.

Size Head and body length is ~200mm; tail length is ~330mm; weight ~305g.

Status Vulnerable (IUCN).



Fat-tailed dwarf lemur

Cheirogaleus medius

Characteristics Fawn-grey on the dorsal coat and cream white underneath. Note the dark rings round the eyes.

Behaviour Nocturnal. These lemurs have the unusual behaviour of hibernating in tree holes for six to eight months during the dry season. During hibernation, they do not feed, relying on stored fat reserves, some of which are in the tail – hence the name. Fat-tailed dwarf lemurs live in small family groups (an adult male, a female pair and one or two offspring). Both males and females take part in raising the young. Territories are 1-2ha and are marked by smearing faeces on to trees.

Diet Omnivorous: feeds on fruits, flowers, seeds, gum, insects.

Size Head and body length is ~200mm; tail length is ~250mm; weight ~200g.

Status Data deficient (IUCN).





MEGALADAPIDAE (LEPILEMURIDAE)

Nocturnal, vertical clingers and leapers, with legs that are elongated compared to their trunks and arms. Leaves constitute the bulk of their diet.

Red-tailed sportive lemur

Lepilemur ruficaudatus

Characteristics The overall body is grey-brown. Note the reddish tail.

Behaviour Nocturnal. They live in pairs in small home ranges of 0.3-1.2ha but forage solitarily. The males grunt whilst females chatter. They sleep in tree holes by day; this species does not hibernate.

Locomotion Vertical clinging and leaping (compared with *Cheirogaleus*, which moves quadrupedally).

Diet Almost exclusively eats leaves. This species has one of the lowest recorded metabolic rates for mammals, which may be an adaptation to its low-quality diet.

Size Body length is ~280mm; tail length is ~255mm; and weight is ~800g.

Status Vulnerable (IUCN).





INDRIDAE

This family contains the largest living lemur – the indri. In Kirindy, the family is represented by the sifaka. This name comes from the animal's characteristic threat behaviour in which it issues an explosive, hiss-like “shee-faak” and jerks its head rapidly backwards.



Verreaux's sifaka

Propithecus verreauxi verreauxi

Characteristics White body and black/brown crown.

Behaviour Easily spotted clinging vertically to a tree trunk during the day. Sifakas are powerful jumpers in the trees but on the ground they hop and bound bipedally, often with arms held above the head. They live in small matrilineal groups of approximately two related females and two unrelated males where the females are socially dominant.

Diet Leaves, fruit, flowers and bark.

Size Body size is ~430mm; tail length is ~580mm; and weight is 3.5kg.

Status Vulnerable (IUCN).



OTHER INTERESTING MAMMALS

Carnivora/ VIVERRIDAE



Fossa

Cryptoprocta ferox

The largest mammalian carnivore in Madagascar. Top of food chain.

Characteristics Brown upper parts and cream underparts. The head is similar to a mongoose's with a broader muzzle. Its tail aids balance when climbing trees but is not prehensile.

Behaviour A very agile mammal. It was believed that fossa were completely nocturnal, but studies show this belief was formed more because of their rarity. They are active during the day and at night, depending on season and prey availability.

Diet The predominant predator for many species in the region, it eats small- to medium-sized animals, from fish to birds, and even hunts lemurs.

Size Length ~1.4m, tail is roughly the same length as the body; weight ~6.7kg.

Status Endangered (IUCN).



**Carnivora/
HERPESTIDAE**



Narrow-striped mongoose

Mungotictis decemlineata decemlineata

This subspecies of mongoose is endemic to the dry deciduous forests of the Menabe region.

Characteristics Eight to 10 dark stripes on its back and sides; known to the local Malagasy people as *boky boky* because of the sound it makes.

Behaviour Diurnal and can be both terrestrial and arboreal; lives in variable groups of up to 10 individuals.

Diet Mostly insects, but will also eat small vertebrates, birds' eggs and other invertebrates.

Size Body length is ~350mm; and weight is ~2.2kg.

Status Endangered (IUCN).





NESOMYINAE

An endemic subfamily. This species is endemic to the region.

Giant jumping rat

Hypogeomys antimena

Characteristics The largest rodent in Madagascar is the giant jumping rat; rabbit-like with conspicuous large ears, long hind legs and short forelegs. Found only in two forest blocks in Menabe, it is one of Madagascar's most endangered mammals.

Behaviour Territorial, with a range of around 3.5ha. Nocturnal, living in burrows by day. Monogamous; the male contributes to the care of young. One offspring normally produced per litter.

Locomotion Walks on all four limbs.

Diet Fruit, seeds, leaves and young shoots on the forest floor.

Size Body length ~330mm excluding the tail; weight ~1.3kg.

Status Endangered (IUCN).



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PHOTOS

Manfred Eberle

Cheirogaleus medius

Microcebus berthae

Phaner furcifer pallescens

Mirza coquereli

Microcebus murinus

Lepilemur ruficaudatus

Kate Lessells

Eulemur fulvus rufus

Scott Armbruster

Cryptoprocta ferox

Tropical Biology Association

Propithecus verreauxi verreauxi

Mungotictis decemlineata decemlineata

Hypogeomys antimena

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TROPICAL BIOLOGY ASSOCIATION

Mammals of Kirindy

This guide was developed to help participants on Tropical Biology Association field courses to learn about the primates and other interesting mammals of Kirindy forest. It is not designed to be a complete field guide. It provides notes on their characteristics, ecology and behaviour to help the reader distinguish them from other Kirindy species.

Tropical Biology Association

The Tropical Biology Association is a non-profit organization dedicated to providing professional training to individuals and institutions involved in the conservation and management of tropical environments. The TBA works in collaboration with African institutions to develop their capacity in natural resource management through field courses, training workshops and follow-up support.

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