

# The great



*Here: adult male on the prowl.  
Opposite: clambering through vines  
to reach a favoured mating tree*

# pretender



Defying the conventions of nature as we know it, the fosa is one of Madagascar's most enigmatic inhabitants – and yet deforestation, human conflict and hunting for bushmeat are pushing the island's largest carnivores ever closer to obscurity, writes **Nick Garbutt**

**H**ow often have you caught a glimpse of someone and felt a flash of familiarity, but you can't quite place them? That's what my first sighting of a fosa felt like. Its appearance was both distinctive and striking – a lithe, low-slung, muscular body with a very long, thin tail – and yet at the same time it was confusing. There were suggestions of cat, hints of mongoose, and insinuations of civet or even dog, yet none of these really hit the mark. It just didn't conform to anything familiar.

So what exactly is a fosa? It is Madagascar's largest carnivore, which is, in essence, a giant mongoose in cat's clothing. Fosas share a distant ancestry with African mongooses, but on Madagascar have become arboreal hunters

*par excellence*, along the way acquiring a number of cat-like traits by convergent evolution. They are extremely agile climbers, helped by powerful forelimbs, paws with retractable claws and – one of their most peculiar features – 'reversible' ankles, which enable them to grasp both sides of a tree trunk with their hind feet when ascending or descending head-first.

However, other than sorting out the species' evolutionary history, zoologists have rather tiptoed around the fosa, as solitary forest carnivores are notoriously difficult to study. Most zoologists in Madagascar have tended to concentrate on the island's flagship lemurs.

One such zoologist was Mia Lana Lührs from Göttingen University in Germany, who arrived at Kirindy Forest in western Madagascar intending to study mouse lemurs. However, that plan changed overnight when, during a visit to the camp's long-drop, →



she was startled by something crashing through the forest. There was so much noise she expected to see a large animal, but to her surprise a rather small fosa appeared. She recounts, “I didn’t dare move in case I scared it away, but the fosa was more interested in the smelly toilet than me. Then it came over and sniffed my trousers and bit my leg. It was love at first sight, and I just knew this was the animal I wanted to study.” Lührs later reckoned it had been the smell of mouse lemurs (regular prey) on her trousers that had prompted the fosa’s odd behaviour.

Some of my own encounters with the fosa (pronounced ‘foo-sah’) have been peculiar too. One of the first also happened in Kirindy, several years prior to Lührs starting her work. I was camping and heard loud scratching and scrabbling outside my tent. I unzipped the flap only to see, within touching distance, one of my boots inside the mouth of a fosa. The boot was shredded in 30 seconds and the fosa began eating some of the leather. Remarkably the fosa, unlike me, seemed totally unfazed and after our brief stand-off it turned and padded off into the forest, leaving me rather bemused and wondering how on earth I was going to find a pair of replacement boots.

Such antics are in keeping with the species’ reputation for erratic and

## “A SINGLE CALL FROM A DISGRUNTLED FEMALE CAN CAUSE A MALE TO BEAT A HASTY RETREAT DOWN THE TREE”

inexplicable behaviour. Most sightings occur during the breeding season, when they are more active by day and shed their inhibitions. The fosa’s renown as Madagascar’s top predator has engendered a fearsome reputation (the animated feature film, *Madagascar*, portrayed fosas as rather crazed killers), yet details of the species’ habits and behaviour remain largely unknown. In the 15 or so years since that eye-to-eye encounter, I’ve seen fosas on many occasions, but most have been glimpses that left my curiosity unsatisfied and questions unanswered. Like numerous other species in Madagascar, the animal remains an enigma.

However, Lührs’ groundbreaking work is shedding new and fascinating light on this remarkable animal. She has notched up more than 500 hours in the company of fosas, much of this time during the breeding season, recording some of the species’ most intriguing behavior. Courtship occurs from October to November. During this period, receptive females climb into the branches of a specific mating tree, where



*Clockwise from above: fosas are known to eat lemurs; they generally lead a solitary life; females scent-marking and investigating each other; female in Kirindy Forest*

several males may visit over time. Receptivity lasts for about a week with a single female mating with several different males.

Lührs thinks that love in the treetops conveys two important advantages for females. From a lofty perch, the females' calls carry further to attract the largest number of potential suitors and, when males arrive, the females can 'control' their advances as only one male at a time can approach the female along a branch. If a female doesn't like what she sees, she can move to the thinner branches at the periphery of the canopy, where the heavier males can't proceed.

During copulation both males and females are highly vocal and produce a cacophony of weird, sometimes scary noises. Female control is a recurring theme during courtship. Rather surprisingly, despite being half the weight of males, females are dominant and use specific vocalisations relating to aggression to reinforce this. A single call from a disgruntled female can cause a male to break his union with her and beat a hasty retreat down the tree. Even more impressive is a single blood-



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## FOSA FACTS

**Latin name:** *Cryptoprocta ferox*, deriving from the Ancient Greek word *crypto*, meaning 'hidden', and *procta*, meaning 'anus', in reference to the fosa's being hidden by its anal pouch. The Latin word *ferox* means fierce.

**Size:** Total length: 140-170cm. Tail length: 60-80cm. Weight: 6-11kg (males), 6-9kg (females). Shoulder height is up to 35cm.

**Appearance:** Slender and elongated with short, powerful legs. Head relatively small, short muzzle, prominent round ears and large eyes with vertical pupils. Feet large and tail very long and slender. Fur short, smooth and dense. Upper parts sepia brown blending to creamy underparts. Male underparts are stained with orange secretion.

**Distribution:** Endemic to Madagascar.

**Habitat:** Widely but sparsely distributed throughout native forest regions (mainly rainforest and drier deciduous

forest) from sea level to 2,600m. Population densities historically very low: 0.26 individuals per kilometre squared in dry forests, probably even lower in rainforest. In recent times, probably higher densities, due to habitat loss and crowding in small forest fragments.

**Diet:** Mainly mammals, especially lemurs, but also rodents and tenrecs and other vertebrates. Front paws used to pin larger prey down before a fatal bite to throat or back of head.

**Behaviour:** Fosas are active both day and night (cathemeral) and occupy huge home ranges: in western forests, males cover up to 110km<sup>2</sup> and females up to 25km<sup>2</sup>. Female ranges are exclusive, but male ranges overlap considerably with one another. Male ranges underlie considerable seasonal fluctuation and territorial boundaries are marked with pungent scent.



Courtship is between mid-October and end of November and the gestation period is between six to eight weeks. Fosas usually have a litter of between one and three, although six have been recorded by Zoo Duisburg. Female fosas raise their offspring alone and their den is usually a hollow tree, hollowed termite mound or similar. Infants stay with mothers for 12 months or more, so females can breed only every second to third year. Adult lifespan reported in captivity 23 years (Zoo Duisburg), or 18 years in the wild.

Fosas are adapted to an arboreal lifestyle: long tails act as counter-balance when climbing (but is not prehensile), paw pads extend almost to heel, claws are semi-retractile and ankles are 'reversible'. When walking, the fosa's gait is distinctive and can be either plantigrade or digitigrade.

**Status:** Officially 'Vulnerable' but plight likely underestimated due to data deficiency.



*Clockwise from here:  
Until recently the  
fosa was thought to  
be a primitive cat; a  
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when on the hunt and  
moving through trees*



curdling yelp that Lührs says, “can clear a tree crown of males in an instant. They leap from the branches rather than risk climbing down and confronting the female.”

Along with these exciting discoveries, Lührs’ work has also revealed the many threats facing the species. Rampant deforestation and habitat fragmentation are issues that face most native species in Madagascar, but the problem is far more acute for fosas as they require such large territories.

Even in Kirindy (considered a major stronghold), the forest has shrunk so much that populations are being adversely affected. Territories are becoming more tightly packed, competition for prey between individuals is intensifying, and females are getting scarce. The species also suffers direct persecution from local people. “When wild food is harder to find, fosas sometimes enter villages to raid chickens.” Lührs explains. “If they’re caught, they’re killed.” In the past two years, 12 deaths at the hands of locals, plus one road kill have been recorded. The latest estimates suggest

the total population on the island is less than 2,500 and in the Kirindy area Lührs thinks there are 100 animals at best and perhaps less than 30 at worst.

In collaboration with Durrell Wildlife Conservation Trust and Duisburg Zoo, Lührs has initiated a significant conservation project, with initial efforts concentrating on raising

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awareness of the fosas’ plight and working with local communities to try and alleviate conflict and establish the species as an emblem for the Kirindy area.

Elsewhere in Madagascar there are other problems. In the Makira forests in the north east, fosas are actually directly hunted for both food and as body parts that are used in

traditional medicine (according to research by Chris Golden). Here fosas are just one component of a far-reaching local ‘bushmeat’ trade that includes lemurs (even aye-ayes), carnivores, tenrecs and other mammals.

On a more encouraging note, a parallel study to Lührs’ in Ankarafantsika National Park in north west Madagascar allows volunteers to get involved and actually contribute directly to fosa research and conservation. This project is run through Earthwatch by Dr Luke Dollar and Dr Julie Pomerantz, and concentrates on monitoring the park’s fosa population and assessing the effects of encroachment from surrounding villages, most notably the influx of feral dogs.

With this increased knowledge, the team hopes to better protect what remains of the fosas’ (and other endemic species’) habitat. There is little doubt such projects provide unique experiences for those who take part and, in this instance, contribute to the conservation of one of the world’s most strange and singular carnivores. **WT**