

# Investigators identify predators threatening Madagascar's iconic primates

September 10 2024

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Camera trap photos on the Bezà Mahafaly Special Reserve in Madagascar captured images of, clockwise from upper-left: a dog and cat, a troop of ring-tailed lemurs and two Verreaux's sifakas. Credit: Michelle Sauter/Frank Cuozzo

In 2003, a team of primatologists led by the University of Colorado

Boulder trapped, tagged and released a male ring-tailed lemur in the [Bezà Mahafaly Special Reserve](#) in Madagascar. The researchers captured him one more time in 2004, but after that, the lemur disappeared, never to be seen again.

That is, until 2008 when his internally placed electronic tag, similar to a dog's microchip, showed up in a pile of scat from a forest cat. This predator is related to [domestic cats](#) and was likely introduced to the island off the coast of Africa hundreds of years ago.

Now, that case of cat predation is part of a new study exploring how such attacks could endanger the conservation of lemurs. Over the course of 14 months, researchers from the United States and Madagascar became lemur crime scene investigators. They gathered a wide range of data, including camera trap photos, scat samples and eye-witness reports to unravel the mystery of who is eating these primates at Bezà Mahafaly.

Their findings suggest that predators not native to Madagascar, such as forest cats and dogs, may kill more lemurs than scientists once believed. Lemurs live only in Madagascar, and several species are already in danger of going extinct.

"It's not that people didn't know that predation was happening," said Michelle Sauther, lead author of the new study and a professor of anthropology at CU Boulder. "But they've mostly been looking at other conservation priorities like the effects of deforestation."

She and her colleagues [published their findings](#) in the journal *Folia Primatologica*.

The study focused on Bezà Mahafaly, a roughly 242-acre protected area at the southwestern tip of Madagascar. Here, tamarind trees grow along river drainages, turning a lush green during the rainy season from

October to March.

The reserve is home to four species of lemurs: the ring-railed lemur (*Lemur catta*) and Verreaux's sifaka (*Propithecus verreauxi*), which are out during the day; the white-footed sportive lemur (*Lepilemur leucopus*) and the gray-brown [mouse lemur](#) (*Microcebus griseorufus*) are awake at night. Of those, all but the mouse lemur are considered endangered or critically endangered.

Sauther, who has been studying lemurs in Beza Mahafaly since the late 1980s, sees the research as an example of what scientists can discover when they really get to know a natural area.

"When you're doing a long-term study and you come back year after year, you find out things are not always the way you think they are," she said.

## Scat detectives

Lemurs have several natural predators. They include the fosa (*Cryptoprocta ferox*), a strange mammal that is related to the mongoose but is much bigger and looks a bit like a puma. Before this study, researchers thought that the fosa had been extirpated from the area.

In 2008, Sauther and her colleagues noticed that something seemed to be amiss in the reserve. One day, they heard a troop of ring-tailed lemurs screaming and found a recently killed lemur on the [forest floor](#).

"That year, we were walking through the forest looking for lemurs, and we kept finding dead guys," she said. "We thought: 'Something's going on.'"

Her team, including Frank Cuzzo, who earned his doctorate in

biological anthropology from CU Boulder in 2000, decided to investigate. The study was a massive operation: From June 2008 to July 2009, the group set up cameras at nine locations throughout the reserve. Researchers walked for miles along trails every week to search for scat and lemur predation. They then sifted through those droppings to look for bones or other evidence of predation.

In all, the team collected 13 examples of predator attacks on lemurs, including the case of the ring-tailed lemur whose electronic tag showed up in cat scat. At least six of those primates were probably killed by dogs or cats. Another five may have been the victims of either cats or fosa, which leave behind similar tooth marks.

The team concluded that a combination of fosa, forest cat and dog predation can lead to potentially dangerous spikes in lemur deaths.

"That's when we really started thinking: Wow, there's a lot of predation here from endemic animals like the fosa, but also the introduced animals like dogs and forest cats," said Cuzzo, now affiliated with the Lajuma Research Center and the Mammal Research Institute at the University of Pretoria in South Africa.

## **Predator spectrum**

Sauter noted that cats and dogs may be so effective at preying on lemurs because the primates haven't had much time to evolve defenses against these new arrivals.

In a previous study, she and her colleagues used DNA evidence to show that Madagascar's forest cats are [descended from domestic cats](#) from the Arabian Sea region—and likely came to the island aboard merchant ships.

She and Cuzzo can't be sure how much of a dent these predators are making in lemur numbers. But they suspect that it's more than scientists have previously accounted for. Across Madagascar, populations of most [lemur](#) species are continuing to decline today.

The researchers urge scientific funding groups to support more long-term research projects that can unravel the full spectrum of threats facing endangered species.

"Predation is a dynamic process," Sauther said. "You can't just say, 'Cats are doing this, and dogs are doing that.' You really have to look at what the whole predator group is doing."

**More information:** Michelle L. Sauther et al, Seasons of death: patterns of predation on wild lemurs and other fauna by endemic and introduced predators, *Folia Primatologica* (2024). [DOI: 10.1163/14219980-bja10033](#)

Provided by University of Colorado at Boulder

Citation: Investigators identify predators threatening Madagascar's iconic primates (2024, September 10) retrieved 10 September 2024 from <https://phys.org/news/2024-09-predators-threatening-madagascar-iconic-primates.html>

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