

For lemurs, water holes are a matter of taste

February 25 2020, by Marie Claire Chelini



A red-fronted lemur in Kirindy Forest, Madagascar, tanks up at a watering hole.
Credit: Caroline Amoroso

It's 1 p.m. and you're only halfway through a six-hour hike, climbing in steep terrain under a 100° cloudless sky. Your water bottle is nearly

empty, and you've heard the worst of this hike is yet to come.

And then, just as you are making peace with the fact that you may collapse from dehydration at any second, you approach a small river. The germaphobe side of your brain is shouting for you not to drink from that. The dehydrated animal in you, however, is seriously considering it.

What do you do?

That is the question that Dr. Caroline Amoroso and her collaborators from Duke's department of evolutionary anthropology, set out to answer. With a slight difference: rather than unprepared hikers, they asked that question to red-fronted lemurs in Madagascar.

Although we often associate Madagascar with lush forests, some regions have a very marked dry season during which water becomes a limited resource. Water holes are few and far apart.

"On my first visit to Kirindy forest I was amazed at how these waterholes—which are essentially just puddles of standing water—serve as a source of life for so many animals," says Amoroso.

However, with animals, comes poop. Throughout the season, these water holes quickly become contaminated with [fecal matter](#) from all the mammals, birds and reptiles that come have a drink. Amoroso says that fecal contamination was easily detectable even to human observers.

"Approaching some waterholes I could tell that lemurs had been there recently because their droppings left such a smell!"



After some watchful waiting for predators, and a discussion perhaps, a quartet of Kirindy lemurs visits a tiny watering hole. Credit: Caroline Amoroso

By experimentally manipulating [water quality](#), following groups of radio-collared lemurs and observing [lemur](#) behavior at natural water holes, Amoroso and her team found that, all else being equal, lemurs prefer to drink clean water.

Indeed, when offered the choice between a bucket of clean water and a bucket of water containing lemur feces that had been disinfected by boiling, to kill all possible pathogens, lemurs virtually always drank from the clean water bucket. When the buckets were removed and lemurs had

to go visit natural water holes, however, they prioritized water holes closer to their resting site, even if they were more contaminated than further ones. Proximity was more important than cleanliness, but if multiple water holes were at similar distances, then lemurs seem to choose the least-contaminated source.

"I was surprised to find evidence that the lemurs chose natural waterholes with lower levels of fecal contamination," says Amoroso. "I thought that [in a natural setting] avoidance of fecal contamination would be relatively low on the lemurs' list of priorities."

The authors highlight that many other factors can influence a lemur's choice of water hole, such as exposure to potential predators or visits by competing groups. Indeed, Amoroso says that drinking [water](#) can be a very [risky business](#) for lemurs: "Lemurs would spend upwards of thirty minutes scanning the vegetation nervously and making sure there was no sign of predators before approaching the waterhole and drinking."

Lemurs prefer [clean water](#), unless it's too much trouble. In that hike you were on? Lemurs would definitely drink from the river.

Provided by Duke University

Citation: For lemurs, water holes are a matter of taste (2020, February 25) retrieved 9 April 2024 from <https://phys.org/news/2020-02-lemurs-holes.html>

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