

Lemurs can sniff out hidden fruit from afar

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Lemurs can use their sense of smell to locate fruit hidden more than 50 feet away in the forest—but only when the wind blows the fruit's aroma toward them, according to a study published in the *American Journal of Physical Anthropology*.

"This is the first time research has demonstrated that primates can track a distant [smell](#) carried by the wind," said anthropologist Elena Cunningham, a clinical associate professor of molecular pathobiology at NYU College of Dentistry and the study's lead author.

Many animals use their [sense of smell](#) to locate food. However, less is known about whether primates can smell food that is far away, or if they instead rely on [visual cues](#) or memory to find their next meal. Because many primates—including ring-tailed lemurs, whose diet is a mix of [fruit](#) and leaves—live in forests where their visibility is limited by the trees and foliage, being able to smell and locate distant fruit would be useful for foraging.

The researchers tested whether a group of ring-tailed lemurs living in the Lemur Conservation Foundation in Florida could detect hidden fruit from afar using their sense of smell alone. They hid containers in the underbrush of the forest—some containing ripe [cantaloupe](#) and some with fake cantaloupe—at a distance (between 13 and 56 feet) from a path routinely used by the lemurs. The containers were not visible from the path, so the lemurs had to use their sense of smell to locate the cantaloupe.

Smells are carried by the wind in "odor plumes," which animals navigate by monitoring the strength of a smell as they move. They sniff the air at one location, then move and sniff the air again, to see if they are getting closer to the smell in question.

The lemurs were able to find the cantaloupe when the wind blew the aroma of the fruit toward them. Upon detecting the scent of fruit, the lemurs sniffed the air at one or more locations as they moved toward the fruit. Sometimes, after detecting the smell, the lemurs would return to spots where cantaloupe had previously been hidden before going through the process of tracking the odor plume, suggesting that olfactory cues

may trigger memories of past meals.

While the containers of fruit hidden at a farther distance took the lemurs longer to locate, they still were able to find cantaloupe hidden as far away as 56 feet off the path. The lemurs did not find the containers of fake cantaloupe.

"The lemurs were able to detect the smell of the cantaloupe among the complex smells of the forest and successfully navigate the odor plume to the fruit," said Cunningham. "The results indicate that olfaction may be used to respond to cues from distant sources. The ability to sniff out distant foods may be a critical foraging skill for lemurs and other primates."

More information: Elena P. Cunningham et al, Ring-tailed lemurs (*Lemur catta*) use olfaction to locate distant fruit, *American Journal of Physical Anthropology* (2021). [DOI: 10.1002/ajpa.24255](https://doi.org/10.1002/ajpa.24255)

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