

# Lemur extinctions 'orphaned' some Madagascar plant species

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Canarium seed. Credit: Sarah Federman

The extinction of several species of large lemurs in Madagascar has created isolated "orphaned" plant species that once depended upon the animals to eat and disperse their large seeds, a Yale-led survey has found.

These large-seeded plant species face an uncertain future without lemurs capable of eating and dispersing their [seeds](#), according to Yale's Sarah Federman, a Ph.D. candidate in the Department of Ecology and Evolutionary Biology and lead author of the study published the week of April 11 in the *Proceedings of the National Academy of Sciences*.

"We need to understand the impacts of past extinction events or we cannot adequately design conservation plans for the future," Federman said.

An estimated 17 species of large lemur have gone extinct in the last few thousand years, and many of them are thought to have been important seed dispersers. Researchers examined characteristics of extinct and living lemur species to estimate the dispersal ability lost with these extinctions and to predict the impact on the island's flora. In the

absence of now-extinct lemurs, plant species with large seeds became "orphaned" or reliant upon poor dispersal substitutes such as wind, gravity, or rodents.



The black-and-white ruffed lemur is the last species large enough to disperse seeds of the Canarium plant in Madagascar. Credit: Sarah Federman

Researchers also identified contemporary examples of a precarious balance between [lemurs](#) and plants in Madagascar. For instance, the critically endangered black-and-white ruffed lemur is the last remaining species large enough to eat and disperse seeds of Canarium species. These [plant species](#) might be eventually lost if this lemur

species goes extinct, say the researchers.

Andrea L. Baden of the Department of Anthropology at Hunter College is senior author of the paper. Researchers from Duke University, the New York Botanical Garden, and North Carolina Museum of Natural Sciences also contributed to the research.

**More information:** Sarah Federman et al. Implications of lemuriform extinctions for the Malagasy flora, *Proceedings of the National Academy of Sciences* (2016). [DOI: 10.1073/pnas.1523825113](https://doi.org/10.1073/pnas.1523825113)

Provided by Yale University

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