

# Ancient DNA Confirms Single Origin of Malagasy Primates

May 27 2005

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Yale biologists have managed to extract and analyze DNA from giant, extinct lemurs, according to a Yale study published in a recent issue of the Proceedings of the National Academy of Sciences.

Radiocarbon dating of the bones and teeth from which the DNA was obtained reveal that each of the individuals analyzed died well over 1,000 years ago, according to the senior author, Anne Yoder, associate professor in the Department of Ecology and Evolutionary Biology.

Living lemurs comprise more than 50 species, all of which are unique to the island of Madagascar, which is the world's fourth largest island and east of Africa. Evolutionary analysis of the DNA obtained from the extinct giants reveals that they, like the living lemurs, are descended from a single primate ancestor that colonized Madagascar more than 60 million years ago, Yoder said.

The biologists extracted DNA from nine subfossil individuals in two of the more bizarre extinct species, *Palaeopropithecus* and *Megaladapis*. The first has been likened to tree sloths and the second compared to koala bears. Both ranged in body weights from 100 to 150 pounds, as compared to the largest living lemur, *Indri indri*, which weighs in at fewer than 15 to 17 pounds.

“The most important conclusion to be drawn from our study is that the phylogenetic placement of subfossil lemurs adds additional support to the hypothesis that non-human primates colonized Madagascar only once,” Yoder said. “However, the limited taxonomic success of our study

leaves open the possibility that data from additional taxa will overturn this increasingly robust hypothesis.”

Yoder said the researchers’ results support the close relationship of sloth lemurs (*Palaeopropithecus*) to living indriids, but *Megaladapis* does not show a sister–group relationship with the living genus *Lepilemur*. “The classification of the latter in the family Megaladapidae is misleading,” she said.

Yoder said that damaging effects of moisture, ultraviolet irradiation, and tropical heat on DNA survival likely contributed to the inability to obtain DNA from some species. The only samples to yield DNA from tropical localities were the two individuals that were used as positive controls, Yoder said.

“The results of our study contribute to the mountain evidence that suggests that prospects for ancient DNA studies from the tropics are less promising than those from higher latitudes, but when the results are potentially of such compelling interest, it’s always worth a try,” she said.

Source: Yale University

Citation: Ancient DNA Confirms Single Origin of Malagasy Primates (2005, May 27) retrieved 3 May 2024 from <https://phys.org/news/2005-05-ancient-dna-malagasy-primates.html>

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