

Researchers describe new 5-million-year-old saber-toothed cat from Florida

March 14 2013, by Danielle Torrent

A University of Florida researcher has described a new genus and species of extinct saber-toothed cat from Polk County, Fla., based on additional fossil acquisitions of the animal over the last 25 years.

The 5-million-year-old fossils belong to the same lineage as the famous *Smilodon fatalis* from the [La Brea Tar Pits](#) in Los Angeles, a large, carnivorous [apex predator](#) with elongated upper canine teeth. Previous research suggested the group of saber-toothed cats known as Smilodontini originated in the Old World and then migrated to North America, but the age of the new species indicates the group likely originated in North America. The study appeared online in the journal *PLOS One* Wednesday.

"*Smilodon* first shows up on the fossil record around 2.5 million years ago, but there haven't been a lot of good intermediate forms for understanding where it came from," said study co-author Richard Hulbert Jr., vertebrate paleontology collections manager at the [Florida Museum of Natural History](#) on the UF campus. "The new species shows that the most famous saber-toothed cat, *Smilodon*, had a New World origin and it and its ancestors lived in the southeastern U.S. for at least 5 million years before their extinction about 11,000 years ago. Compared to what we knew about these earlier saber-toothed cats 20 or 30 years ago, we now have a much better understanding of this group."

Hulbert helped uncover fossils of the new genus and species, *Rhizosmilodon fiteae*, from a phosphate mine during excavations in

1990. The species was named after Barbara Fite of Lutz, Fla., who in 2011 donated one of the critical specimens used for the new description and allowed UF scientists to make casts of two other partial jaws in her collection.

The donation was a major contribution to the research because the remarkably well-preserved lower jaw contains almost pristine examples of all three chewing teeth, Hulbert said. The genus name *Rhizosmilodon*, meaning "root of *Smilodon*," implies the animal could be a missing link and direct ancestor of *Smilodon*, which became extinct about 11,000 years ago.

The study's lead author, Steven Wallace, an associate professor in the department of geosciences and member of the Don Sundquist Center of Excellence in Paleontology at East Tennessee State University, used comparative analysis of saber-toothed cat anatomy to help determine the animal's taxonomy. The analysis was primarily based on structure of the animal's lower jaw and teeth, smaller than the *Smilodon* and about the size of a modern Florida panther.

"The taxonomy of this animal was controversial because when it was first published 20 years ago, they only had one partial, somewhat-decent lower jaw, and it was missing some of the critical features," Hulbert said. "We now have more complete specimens showing it has a mixture of primitive and advanced characters, and does not match any previously named saber-toothed cat genus or species."

Originally misidentified as a member of the genus *Megantereon* in the early 1980s, *Rhizosmilodon* is instead the sister taxon to *Megantereon* and *Smilodon*, and the oldest of the group. These three cats are in the same tribe—meaning they are more closely related than a family or subfamily—and are often called as saber-toothed cats because of their long canine teeth, Hulbert said.

"When people think of saber-toothed cats, they think of it as just one thing, as if the famous tar pit saber-toothed cat was the only species, when in fact, it was an almost worldwide radiation of cats that lasted over 10 million years and probably had a total of about 20 valid species," Hulbert said. "Counting the newly described animal, there are now six different species of saber-toothed cats known just from Florida."

Saber-toothed cat expert Julie Meachen, an instructor at Marshall University School of Medicine in Huntington, W. Va., said the study helps settle the debate about whether the tribe arose from the Eurasia before coming to North America.

"I think that this revision was well-needed," Meachen said. "The fact that it's one of the oldest lineages is really interesting because that means that this exciting group of [saber-toothed cats](#) really is a North American tribe—it evolved and persisted in North America."

Since 1915, more than 60 new [species](#) of reptiles, birds and mammals have been named from Central Florida phosphate mines, located southeast of Tampa and south of Lakeland. *Rhizosmilodon* lived in a forested coastal habitat that was also home to rhinos, tapirs, three-toed horses, peccaries, llamas and deer. Its relatively small size probably allowed it to climb trees and safely hide captured prey from large carnivores, such as packs of wolf-sized hyena-dogs and an extinct type of bear larger than the modern grizzly.

Provided by University of Florida

Citation: Researchers describe new 5-million-year-old saber-toothed cat from Florida (2013, March 14) retrieved 10 April 2024 from <https://phys.org/news/2013-03-million-year-old-saber-toothed-cat-florida.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.