

Grad student finds a new saber-toothed species in a museum collection

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Credit: University of Oregon

There's a new saber-toothed predator in town—and it's been hiding in plain sight.

The [fossil specimen](#), unearthed in Wyoming, was on display for decades at the Smithsonian National Museum of Natural History in Washington, D.C. When it went off-exhibit in 2017 during a museum renovation, UO

graduate student Paul Barrett finally got a closer look.

The animal had long, sharp, saber-shaped teeth, but it was far bigger than the other saber-toothed [animals](#) that existed around the same time, about 33 million years ago. And the way its skull was structured was unusual, too. The carnivorous creature was a clear outlier, earning it a new species name: *Eusmilus adelos*. Barrett describes the species in a paper published Oct. 26 in *Nature Scientific Reports*.

"For its [time period](#), it was anomalously large," Barrett said, about the size of a modern-day lion.

E. adelos is part of the nimravids, a group of mammals with cat-like body types that lived roughly 40 to 7 million years ago. Most saber-toothed nimravids were comparable in size to bobcats or cougars. This one was closer in size to *Smilodon*, the genus of well-known saber-toothed tigers that roamed millions of years later, long after nimravids went extinct.

The new finding also prompted Barrett to rethink the evolution of nimravids.

"Historically, our ideas of how nimravids evolved is that they got increasingly more saber-toothed until they went extinct," Barrett said. Those analyses focused mostly on the distinctive size and shape of nimravids' teeth.

Barrett considered many other features of the animals too, like the size and shape of the limbs and spine. He also factored in details from the skull, such as passages for nerves, veins and arteries. With those new details, a more complex story emerged.

Instead of simply becoming more saber-toothed over time, he proposed,

nimravids split into two groups early on. One of those groups evolved saber teeth. The other branched out a variety of species that look more similar to today's cats.

Millions of years later, a similar pattern reoccurred in the family that includes modern cats, Barrett said. The saber-toothed lineage of Smilodon died out, but a sister group with other kinds of [teeth](#) diversified into the set of animals that eventually became the cats we know today.

Nimravids are "converging on what we see in cats today, but tens of millions of years earlier," he said.

In other words, nimravids are often described as cat-like. But really, cats have copied them.

More information: Paul Zachary Barrett, The largest hoplophonine and a complex new hypothesis of nimravid evolution, *Scientific Reports* (2021). [DOI: 10.1038/s41598-021-00521-1](https://doi.org/10.1038/s41598-021-00521-1)

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