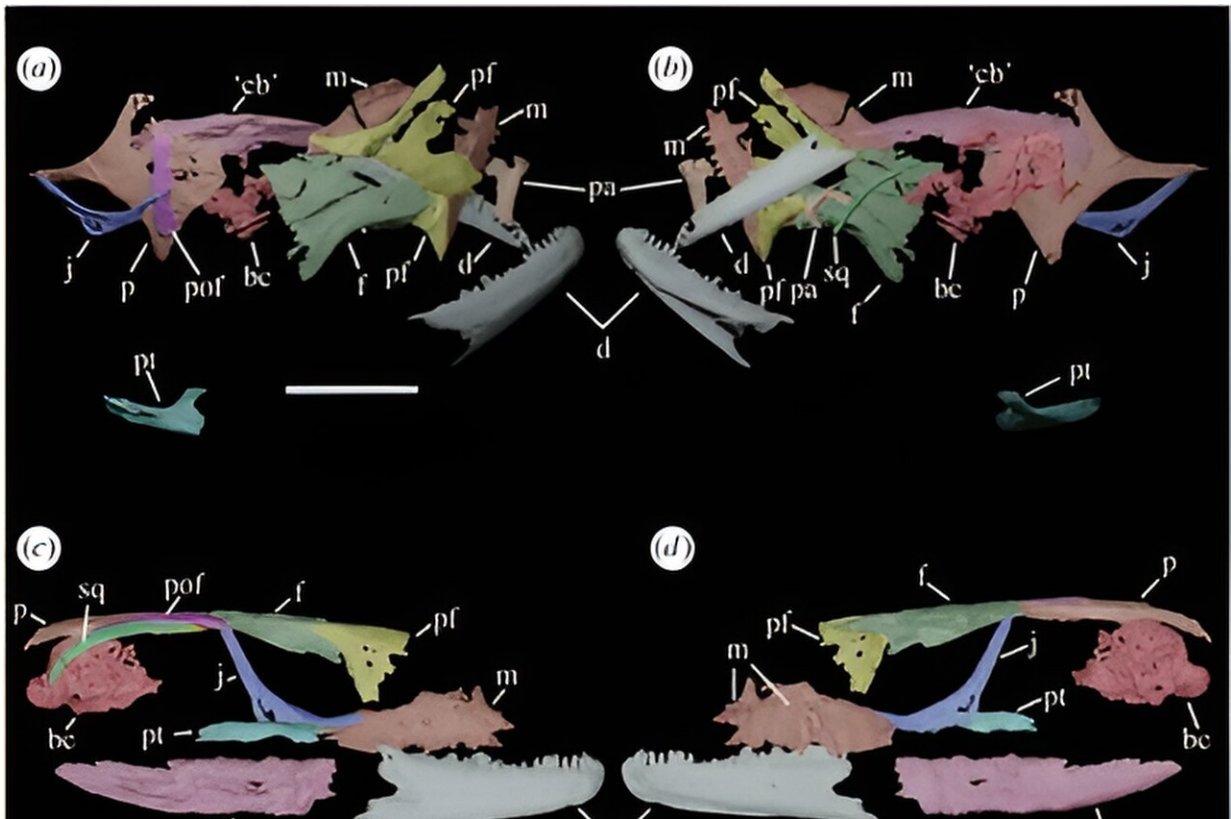


# Study gives gecko ancestor a place of honor, and a new name

November 29 2023



CT Imagery of the skull of *Helioscopus dickersonae* (DINO 15914). (a,b) In situ skull in dorsal (a) and ventral (b) views. (c–f) Reconstructed skull in left lateral (c), right lateral (d), dorsal (e) and ventral (f) views. All scale bars 5 mm. bc, braincase; cb, fused postdentary elements (compound bone); d, dentary; f, frontal; j, jugal; m, maxilla; p, parietal; pa, palatine; pf, prefrontal; pof, postorbitofrontal; pt, pterygoid; sq, squamosal. Credit: *Proceedings of the Royal Society B: Biological Sciences* (2023). DOI: 10.1098/rspb.2023.2284

Yale paleontologists have identified a new fossil lizard, found in the western United States, which they say was an ancestor of modern geckos. And they gave it a name that honors the lead researcher's grandmother and great aunt.

The discovery of the new species, which they named *Helioscopus dickersonae*, suggests that gecko ancestors appeared in North America much earlier than previously known.

"This discovery emerged from a larger investigation of two fossil lizard skulls from Dinosaur National Monument in Utah," said Dalton Meyer, a graduate student in Yale's Department of Earth and Planetary Sciences and first author of a [study](#) in the journal *Proceedings of the Royal Society B*.

"These skulls had both been previously described as part of a European genus of skink ancestors, but we wanted to investigate that further with 3D data," Meyer said.

Specifically, Meyer and his colleagues used computed tomography (CT) scans to develop 3D images of the skulls, which both dated back to the late Jurassic period, 163.5 to 145 million years ago. While one of the skulls was indeed an early skink, the researchers found, the other was not.

"It is one of the earliest known gecko relatives in the [fossil record](#)," Meyer said. "This means that the gecko line made it to North America nearly 100 million years before the prior known earliest record."

Scientifically, the discovery also offers vital information about specialized physical features of the gecko skull and how they developed. For example, unlike modern geckos, *Helioscopus dickersonae* was not primarily nocturnal. It had a prominent pineal foramen—a hole in the

top of its head that many lizard species use to sense sunlight and judge the length of daylight hours.

*Helioscopus dickersonae*, Meyer said, was likely similar in appearance to banded geckos or leopard geckos, in that it didn't have the adhesive toe pads that many modern geckos have. Based on more complete fossil skeletons from similar species found in Europe, he speculated that *Helioscopus dickersonae* may have been a skilled tree climber even without the toe pads.

Yet much remains unknown about how this early gecko fared in North America, other than the fact that it went extinct sometime within 90 million years of its arrival on the continent. Nothing like *Helioscopus dickersonae* appears in the fossil record in the Cretaceous period, which followed the Jurassic.

In naming the new species, Meyer chose "helioscopus," which roughly translates into "sun watcher," and "dickersonae," which honors his grandmother, Helen Dickerson, his great aunt, Shirley Dickerson, and Mary Cynthia Dickerson (no relation), who was the first curator of herpetology at the American Museum of Natural History in New York City.

"Both my grandmother and great aunt were extremely important people in my life, and my great aunt passed away while I was in the early stages of working on this fossil," Meyer said. "I was truly honored to have a chance to get to use their family name in this new species, in part as a memorial that will now persist long after I am gone."

Co-authors of the study are Yale graduate students Chase Brownstein and Kelsey Jenkins. The study's senior author is Jacques Gauthier, professor of Earth and planetary sciences in Yale's Faculty of Arts and Sciences and curator-in-charge for reptiles at the Yale Peabody Museum.

**More information:** Dalton Meyer et al, A Morrison stem gekkotan reveals gecko evolution and Jurassic biogeography, *Proceedings of the Royal Society B: Biological Sciences* (2023). [DOI: 10.1098/rspb.2023.2284](https://doi.org/10.1098/rspb.2023.2284)

Provided by Yale University

Citation: Study gives gecko ancestor a place of honor, and a new name (2023, November 29) retrieved 30 April 2024 from <https://phys.org/news/2023-11-gecko-ancestor-honor.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.