

Tech

Studies show a strange new species of extinct lizard that was previously mistaken for a bird

katewinslet June 14, 2021



As depicted in this artist's reconstruction, the Oklidenta Bisnaga was a strange lizard that researchers had a hard time first classifying. They are not yet convinced of their exact location in the lizard's family tree. Credits: Stephanie Abramowicz / Peretti Museum Foundation / Current Biology

An international research team described a new species of *Oculudentavis* and provided further evidence that the animal first identified as a hummingbird-sized dinosaur was actually a lizard.

Named *Oculudentavisnaga* in honor of the Nagas of Myanmar and India, the new species is represented by a partial skeleton containing an amber-colored, exquisitely preserved complete skull with visible scales and soft tissue. The specimen belongs to the same genus as *Oculudentaviskhaungraae*, and its original description as the smallest

known bird was withdrawn last year. The two fossils were found in the same area and are about 99 million years old.

Researchers make their discoveries *Current biology* today.

A team led by Arnau Bolet of Barcelona's Institut Català de Paleontologia Miquel Crusafont used CT scans to digitally separate, analyze and compare each of the two bones, revealing many of the physical characteristics that characterize small animals as lizards. *Oculudentavis* is very strange, but it was difficult to classify it without scrutinizing its characteristics, Boretta said.

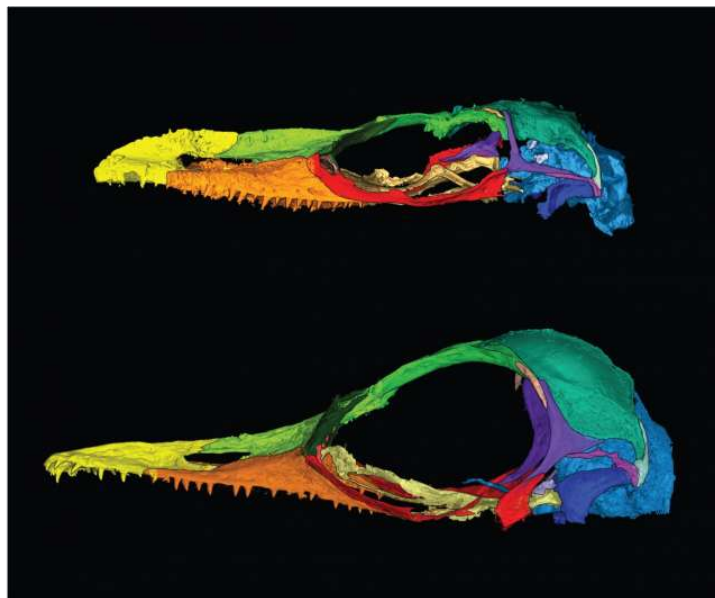
"The specimen initially confused us all, because if it were a lizard, it was very rare," he said in an institutional press release.

Boretta and fellow lizard experts around the world first turned to specimens when gemologist Adolf Peretti was studying a collection of amber fossils obtained from Myanmar. (Note: Burmese amber mining and sales are often involved in human rights abuses. Peretti legally purchased fossils before the 2017 conflict. For more information, see the Ethics Statement at the end of this story. It is described in).

Herpetologist Juan Diego Flórez examined a small, unusual skull that preserves short parts of the spine and shoulder bones. He was also confused by the strange arrangement of features. Is it some kind of terror dactyl, or perhaps an ancient relative of a monitor lizard?

"Everyone was brainstorming what it was from the moment we uploaded the first CT scan," said Daza, an assistant professor of biological sciences at Sam Houston State University. "In the end, a closer look and analysis can help clarify its location."

The main clues that the mysterious animal was a lizard included the presence of scales. A tooth that is attached directly to the jawbone, rather than being surrounded by a socket like a dinosaur tooth. Lizard-like eye structure and shoulder bones. The hockey stick-shaped skull is universally shared among scaly reptiles and is also known as Squamata.



Oculudentavis naga (top) belongs to the same genus as *Oculudentavis khaungraae* (bottom) and is a specimen whose identification as a controversial early bird was withdrawn last year. The skulls of both specimens deformed during storage, emphasizing one lizard-like feature

and the other bird-like feature. Credits: Edward Stanley, Florida Museum of Natural History / Peretti Museum Foundation / Current Biology

The team also confirmed that the skulls of both species were deformed during storage. *Oculudentavis khaungraae*'s nose is narrower, more beak-like contoured, *O.* The naga neurocranium (the part of the skull that surrounds the brain) has been compressed. The distortion highlighted the bird-like features of one skull and the lizard-like features of the other skull, said Edward, co-author of the study and director of the Digital Discovery and Dissemination Institute at the Florida Museum of Natural History. Stanley said.

"Imagine taking a lizard and pinching its nose into a triangle," Stanley said. "It will look like a bird."

However, the proportion of *Oculudentavis* bird-like skulls does not indicate that it is associated with birds, and is a professor of vertebrate morphology and paleontology at the University College London, co-author of the study. Susan Evans said.

"Despite presenting an arched skull and a long, tapered nose, it does not present meaningful physical features that can be used to maintain a close relationship. *bird*, And all its features indicate that it is a lizard," she said. The two skulls are not similar at first glance, but researchers have digitally separated and compared each bone to clarify common features. The difference was minimized when the original shape of both fossils was reconstructed by a painstaking process called retrodeformation carried out by Marta Vidal Garcia of the University of Calgary, Canada.

"We conclude that both specimens are similar enough to belong to the same genus *Oculudentavis*, but many differences suggest that they represent different species," Borett said. It was.

In a better preserved *O. naga* specimen, the team was also able to identify a raised peak running above the nose and a loose skin flap under the chin that may have swollen on the display, Evans said. Said. However, researchers have failed to find the exact location of *Oculudentavis* in the lizard family tree.

"It's a really weird animal. It's different from the other lizards we have today," Daza said. "I think it represents a group of scaled reptiles that we were unaware of."

The Cretaceous, 145.5 to 66 million years ago, created many groups of lizards and snakes on Earth today, but it is difficult to track fossils to their closest living relatives from this era. It may be.



Amber can exquisitely preserve small forest animals that would otherwise have been decomposed. A CT scan of this fossilized *occludenta bisnaga* shows the scales, skin and soft tissue of the specimen. Credits: Adolf Peretti / Peretti Museum Foundation /*Current biology*

"It is estimated that many lizards occurred during this period, but they have not yet evolved their modern appearance," he said. "That's why they can fool us. They may have this group or the characteristics of that group, but in reality they are not exactly the same."

Most of the work was done using CT data generated at the Australian Neutron Scattering Center and the University of Texas at Austin's high-resolution computed tomography facility. *O. naga* is now digitally available to anyone with internet access. This allows you to reassess your team's findings and open up new discoveries.

"In paleontology, there is often one specimen of the species to be treated, and that individual is very important. Therefore, researchers can completely protect it, but our idea is" it. Let's get there, "says Stanley. "The important thing is that research is done, not necessarily what we do. We feel that it is what it should be."

Myanmar's amber deposits are a treasure trove of fossils **Lizards** Daza is not found anywhere else in the world, but consensus among paleontologists has made it increasingly difficult to ethically acquire Burmese amber, especially after the military took control in February. Said that it has become.

"As scientists, we feel that it is our job to uncover these precious traces of life, so that the whole world can know more about the past, but that in the process, we need to be very careful not to benefit the group of people who commit. Crimes against humanity. " "In the end, credit should be given to life-threatening miners to regain these amazing amber fossils."

The co-author of the other study is J. Salvador Arias of the National Scientific and Technical Research Council (CONICET-Miguel Lilo Foundation) in Argentina. Andrew Cernansky of the University of Comenius in Bratislava, Slovakia; Aaron Bauer of the University of Villanova; Joseph Bevit of the Australian Institute for Nuclear Science and Technology. Adolf Peretti of the Peretti Museum Foundation in Switzerland.

O. naga's 3D digitized specimens are available online from MorphoSource. The fossil of O. naga is at the Peretti Museum Foundation in Switzerland, O. Specimens of khaungrae are located at the Hupoge Amber Museum in China.

Specimens were obtained in accordance with the ethical guidelines for the use of Burmese amber set by the Society of Vertebrate Animals. Specimens were purchased from a licensed company independent of the military group. These companies legally export amber parts from Myanmar in accordance with ethical codes that ensure that human rights violations do not occur during mining and commercialization and that the money earned from sales does not support armed conflict. I am exporting. The fossil has a certified paper trail, including an export license from Myanmar. All documentation is available on request from the Peretti Museum Foundation.

[The discovery of the smallest known Mesozoic dinosaurs reveals new species in bird evolution](#)

For more information:

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Quote: In a survey, a strange new species of extinct lizard (June 14, 2021) that was previously mistaken for a bird was found at <https://phys.org/news/2021-06-species-bizarre-extinct-lizard>. -Obtained from previously on June 14, 2021. html

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