Latest

A new species of extinct exotic lizard – so strange that it has been identified as a dinosaur the size of a hummingbird

BY NEWSDESK · JUNE 14, 2021 · 6 MINUTE READ

The Oculudentavis naga, as depicted in this artist's reconstruction, was a strange lizard that researchers initially struggled to classify. They are still unsure of its exact location in the lizards family tree. Credit: Stephanie Abramovich/Pereti Museum Foundation/Current Biology

An international research team has described a new species of Oculudentavis, providing further evidence that the animal first identified as a hummingbird-sized dinosaur was in fact a lizard.

The new species, named Oculudentavis naga in honor of the Naga people of Myanmar and India, is represented by a partial skeleton that includes a complete skull, exquisitely preserved in amber with visible scales and soft tissue. The specimen is of the same genus as Oculudentavis khaungraae, whose original description as the smallest known bird was withdrawn last year.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.

The researchers published their results in the journal Current Biology today (June 14, 2021).

The team, led by Arnau Polit of Barcelona's Instituto Catala de Paleontology Miquel Crusafont, used computed tomography to digitally separate, analyze and compare each bone in the two species, to reveal a number of physical characteristics that distinguish the small animals as lizards. Politt said Oculudentavis is very strange, however, and it was difficult to classify it without a careful examination of its features.

"The specimen baffled us all at first because if it was a lizard, it was very unusual," he said in an institutional press release.

Pollitt and his colleagues, lizard experts from around the world, first observed the specimen while studying a collection of amber fossils obtained from Myanmar by gemologist Adolph

Peretti. (Note: Mining and selling Burmese amber are often intertwined with human rights abuses. Peretti legally purchased the fossil prior to the dispute in 2017. More details appear in the ethics statement at the end of this story.)

Oculudentavis naga, the top, is of the same genus as Oculudentavis khaungraae, the bottom, a specimen whose controversial identification as an early bird was retracted last year. The skulls of both specimens were deformed during preservation, emphasizing lizard-like features in one and bird-like features in the other. Credit: Edward Stanley of the Florida Museum of Natural History/Pereti Museum Foundation/Current Biology

Reptile expert Juan Diego Daza examined the unusually small skull preserved with a short portion of the spine and shoulder bones. He, too, was confused by its strange set of features: could it be some kind of pterodactyl or perhaps an ancient relative of monitor lizards?

“From the moment we uploaded our first CT scan, everyone started brainstorming what it might be,” said Daza, assistant professor of biological sciences at Sam Houston State University. “Ultimately, a closer look and our analyzes help us clarify her position.”

The main clues that the mysterious animal was a lizard included the presence of scales. The teeth attach directly to the jawbone, rather than being placed in cavities, like dinosaur teeth; Lizard-like eye structures and shoulder bones. A skull bone in the shape of a hockey stick is universally shared among large-sized reptiles, also known as domes.

The team also determined that the skulls of both species had been deformed during preservation. Oculudentavis khaungraae’s nose was compressed into a narrower, more beak-like shape while the brain of O. naga – the part of the skull surrounding the brain – was compressed. Study co-author Edward Stanley, director of the Discovery and Digital Publishing Laboratory at the Florida Museum of Natural History, said the abnormalities highlighted bird-like features in one skull and lizard-like features in the other.

Amber can wonderfully preserve small forest animals that would otherwise decay. CT scans of this Oculudentavis naga fossil show specimen scales, skin, and soft tissues. Credit: Adolf Peretti / Peretti Museum Foundation / Current Biology

“Imagine you take a lizard and pinch its nose into a triangle,” Stanley said. “It will look a lot like a bird.”

Susan Evans, professor of morphology and vertebrate palaeontology at University College London, said Oculudentavis’ bird-like skull dimensions did not indicate it was related to birds.

“Although it represents a domed skull and a long, tapering snout, it does not present meaningful physical figures that could be used to maintain a close relationship with birds, and all of its

physical figures that could be used to maintain a close relationship with birds, and all of its features indicate that it is a lizard," she said.

While the skulls of the two species don't closely resemble each other at first glance, their common characteristics became clearer as researchers digitally isolated each bone and compared them to one another. The differences were minimized when the original shape of both fossils was reconstructed through a painstaking process known as reshaping, conducted by Marta Vidal Garcia of the University of Calgary in Canada.

"We found that both specimens are similar enough to belong to the same genus, Oculudentavis, but a number of differences indicate that they represent two separate species," Politt said.

In the better-preserved specimen of O. naga, Evans said, the team was also able to identify a raised crest that extends just below the top of the snout and a flap of saggy skin under the chin that may have bulged in width. However, the researchers failed in their attempts to find the exact location of Oculudentavis in the lizard's family tree.

"It's a really strange animal. It's not like any other lizard we have today," Daza said. "We think it represents a bunch of squatters we weren't aware of."

Daza said the Cretaceous period, 145.5 to 66 million years ago, gave rise to many groups of lizards and snakes on the planet today, but tracing fossils from this era back to their closest living relatives can be difficult.

"We estimate that many lizards arose during this time, but have not yet evolved into their modern appearance," he said. "That is why they can deceive us. They may have the characteristics of this or that group, but in reality, they do not quite match."

The majority of the study was conducted using CT data generated at the Australian Neutron Scattering Center and High Resolution X-ray Tomography Facility at the University of Texas at Austin. Stanley said O. naga is now available digitally to anyone with an Internet connection, allowing the team's results to be re-evaluated and opening up the possibility of new discoveries.

"With paleontology, you often only have one specimen of a species to work with, which makes this individual very important. So researchers can be quite protective of it, but our mentality is 'let's shoot it there,'" Stanley said. Do the research, not necessarily do the research. We feel this is how it should be."

While Myanmar's amber deposits are a treasure trove of fossil lizards not found anywhere else in the world, Daza said the consensus among paleontologists is that Burmese amber is becoming increasingly difficult to obtain, especially after the military seized power in Myanmar. February

February.

“As scientists we feel that our job is to uncover these invaluable traces of life, so that the whole world can learn more about the past. But we have to be very careful not to benefit in the process a group of people who commit crimes against humanity.” In the end, credit should go to the miners who risk their lives to recover these amazing amber fossils.”

Other co-authors are C. Salvador Arias from the Argentine National Scientific and Technical Research Council (CONICET – Miguel Lillo Foundation); Andrej Cernansky from Comenius University in Bratislava, Slovakia; Aaron Bauer of Villanova University; Joseph Bevet of the Australian Organization for Nuclear Science and Technology; and Adolf Peretti of the Peretti Museum Foundation in Switzerland.

A 3D digital sample of O. naga is available online via MorphoSource. The fossil of O. naga is in the Foundation of the Peretti Museum in Switzerland, and the specimen of O. khaungraae is in the Hupoge Amber Museum in China.

The specimen was obtained in accordance with the ethical guidelines for the use of Burmese amber defined by the Society for Vertebrate Paleontology. The sample was purchased from licensed companies independent of the military groups. These companies legally export amber pieces from Myanmar, in accordance with an ethical code that ensures that human rights abuses are not committed during mining and marketing and that funds from sales do not support armed conflict. The fossil has a documented paper trail, including export permits from Myanmar. All documents are available from the Peretti Museum Foundation upon request.

Reference: June 14, 2021, Current Biology.DOI: 10.1016 / j.cub.2021.05.040

Funding: National Science Foundation, Sam Houston State University, Royal Society, Ministry of Science, Innovation and Spanish Universities, CERCA Program / Generalitat de Catalunya, Ministry of Education of the Slovak Republic and the Slovak Academy of Sciences

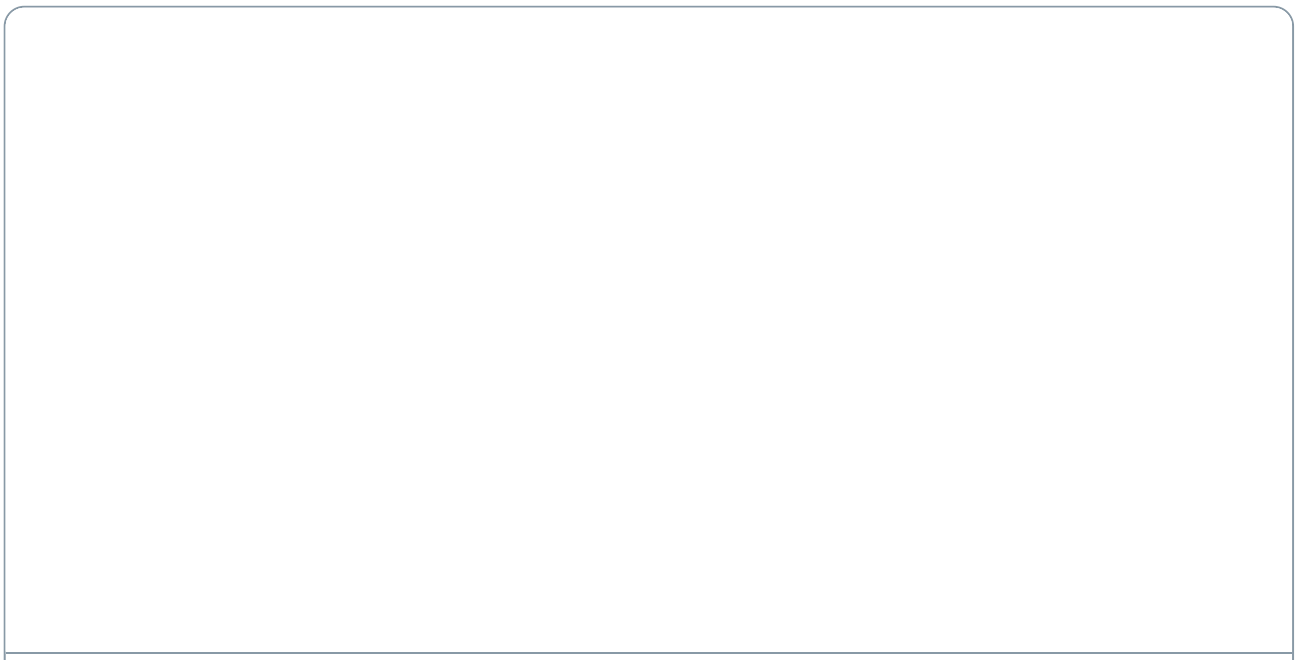
Picture Credit!

LATEST NEWS

Tweets by @TittlePress

TittlePress
@TittlePress

The crypto markets are mostly down; Sideways trading of equities: market envelope tittlepress.com/crypto/1190083/

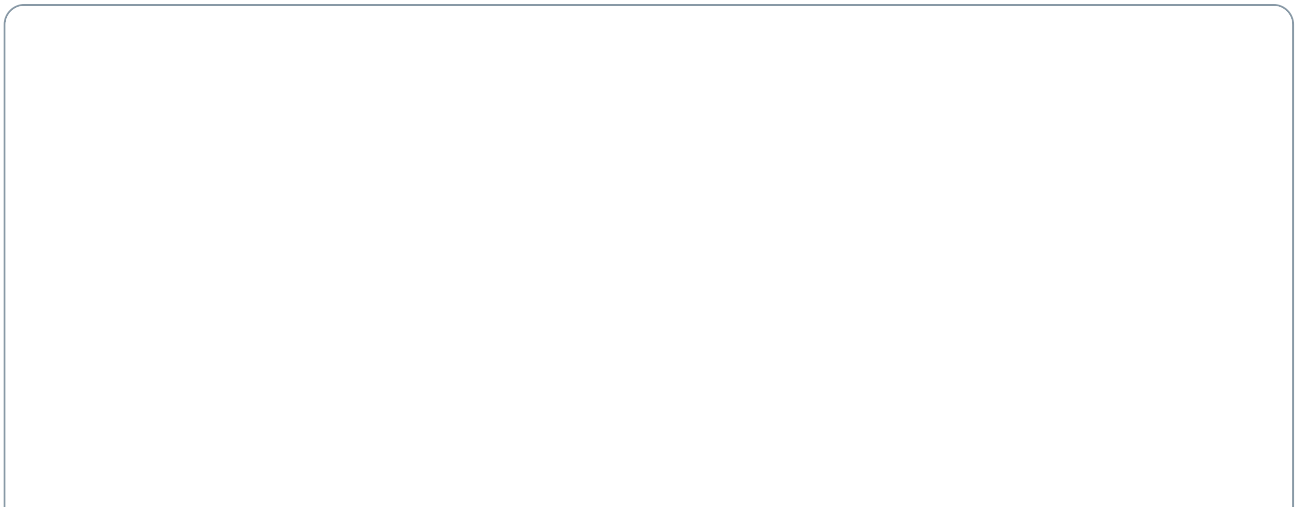


The crypto markets are mostly down; Sideways trading of equities: market envelope - TittlePress
Evergrande's woes continue as company strives to cut debt Twitter's consumer product marketing manager gives i…
tittlepress.com

20s

TittlePress
@TittlePress

Racist "white replacement theory" spreads to Republicans tittlepress.com/trending/11900…



RELATED POSTS

Latest

India records less than 1 Lakh new COVID cases for the fourth consecutive day

Breaking news updates June 11, 2021: As India continues its fight against the COVID-19 pandemic, the country has…

BY NEWSDESK

Latest, Trending

Ice-T hilariously applauds actor reviews

The rapper-turned-actor was quick to overshadow a journalist who tweeted criticism of his acting abilities. Ice-T has always…

BY NEWSDESK

Latest, Trending

Six months later, Bidens' critics are still attacking his brain. I only care about her heart

I got into my car one day last week and heard a short audio clip of President Bidens'…

BY NEWSDESK

Latest, Trending

Third person charged with murder in death of Clark County Detective Jeremy Brown

Woman Winlock faces second degree murder after allegedly facilitating the sale of stolen guns in a secret investigation…

BY NEWSDESK