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Nov 06 2020 <

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“Weird and wonderful” ancient amphibian had chameleon-like projectile tongue

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Scientists have uncovered the oldest evidence of a slingshot-style tongue in fossils of “weird” 99 million-year-old [amphibians < https://www.sciencefocus.com/tag/amphibians/>](https://www.sciencefocus.com/tag/amphibians/).


Researchers say these armoured creatures, known as albanerpetontids, were “sit-and-wait predators” that [snatched prey with a projectile firing of their “ballistic tongues < https://science.sciencemag.org/content/370/6517/687>](https://science.sciencemag.org/content/370/6517/687)”.

Although they had lizard-like claws, scales and tails, analysis indicates albanerpetontids were amphibians and not [reptiles < https://www.sciencefocus.com/tag/reptiles/>](https://www.sciencefocus.com/tag/reptiles/), the team said. They believe the findings, published in the journal *Science*, redefines how the tiny animals fed, as albanerpetontids had previously been thought to have been underground burrowers.

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whole new understanding of this entire lineage.

 The albanerpetontids fossil was preserved in amber © Adolf Peretti/Daza et al/Science

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The albanerpetontids fossil was preserved in amber © Adolf Peretti/Daza et al/Science

Modern-day amphibians are represented by three distinct lineages – frogs, salamanders and limbless caecilians.

Researchers say that until two million years ago, there was a fourth – albanerpetontids – whose lineage dates back at least 165 million years.

However, study co-author [Susan Evans < https://www.ucl.ac.uk/biosciences/people/susan-evans>](https://www.ucl.ac.uk/biosciences/people/susan-evans), professor of vertebrate morphology and palaeontology at University College London, believes their lineage may be much more ancient, possibly originating more than 250 million years ago.

“If the earliest albanerpetontids also had ballistic tongues, the feature has been around for longer than the earliest chameleons, which likely date back to 120 million years ago,” said Evans.

Read more about amphibians:

- [Giant two-metre salamander thought to be world’s largest amphibian < https://www.sciencefocus.com/news/giant-two-metre-salamander-thought-to-be-worlds-largest-amphibian/>](https://www.sciencefocus.com/news/giant-two-metre-salamander-thought-to-be-worlds-largest-amphibian/)
- [Prehistoric amphibian terrorised early dinosaurs < https://www.sciencefocus.com/nature/prehistoric-amphibian-terrorised-early-dinosaurs/>](https://www.sciencefocus.com/nature/prehistoric-amphibian-terrorised-early-dinosaurs/)

[Fossils < https://www.sciencefocus.com/tag/fossils/>](https://www.sciencefocus.com/tag/fossils/) of the tiny creatures were uncovered in Myanmar, trapped in amber, and a specimen found in

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“We envision this as a stocky little thing scampering in the leaf litter, well hidden, but occasionally coming out for a fly, throwing out its tongue and grabbing it,” said Evans.

Another fossil – a tiny juvenile previously misidentified as a chameleon because of its “bewildering characteristics” – also had features that resembled albanerpetontids such as claws, scales, massive eye sockets and a projectile tongue.



The revelation that albanerpetontids had projectile tongues helps explain some of their “weird and wonderful” characteristics, said Evans, such as unusual jaw and neck joints and large, forward-looking eyes – a common characteristic of predators.

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"In theory, albanerpetontids could give us a clue as to what the ancestors of modern amphibians looked like," said Evans. "Unfortunately, they're so specialised and so weird in their own way that they're not helping us all that much."

Reader Q&A: Could we bring back an extinct species using DNA, Jurassic Park style?

To 'de-extinct' an animal, you need a source of the animal's DNA, which provides the blueprint for making it. DNA is sometimes preserved in fossils, and the oldest DNA extracted to date comes from a 700,000-year-old horse bone found in the Canadian permafrost.

However, DNA breaks down over time, and scientists think that it's unlikely to be found in any specimen older than a million years. Dinosaurs went extinct 65 million years ago. No dinosaur DNA, no dinosaurs. Sorry!

Some other species, however, are fair game. In 2003, scientists briefly de-extincted a type of goat, called the bucardo. DNA-laden cells, taken from the last living female before she died, were used to create a clone, and the resulting embryo was transplanted into the womb of a living domestic goat. The bucardo was delivered by Caesarean section, but died shortly after birth due to lung defects. The bucardo was therefore the first animal to be de-extincted, but also the first animal to go extinct twice!

Other de-extinction projects include attempts to revive an Australian amphibian called the gastric-brooding frog, a North American bird called the passenger pigeon and the one and only woolly mammoth. These use a combination of cloning, gene-editing and stem cell methods, but don't hold your breath waiting for the pitter-patter of tiny feet.

De-extinction is still very much in its infancy, so for now, take solace in the fact that dinosaurs never really left us. Birds are their direct descendants, and they're everywhere.

Read more:

- [What is DNA? < https://www.sciencefocus.com/the-human-body/what-is-dna/>](https://www.sciencefocus.com/the-human-body/what-is-dna/)
- [What if the dinosaurs had survived? < https://www.sciencefocus.com/nature/what-if-the-dinosaurs-had-survived/>](https://www.sciencefocus.com/nature/what-if-the-dinosaurs-had-survived/)

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