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Fossil amphibian hints at earliest evidence of 'slingshot' tongue

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▲ Albanerpetontids were sit-and-wait predators, probably mostly running around overground, using their projectile tongue to grab insects. Photograph: Stephanie Abramowicz/Daza et al/Science/PA

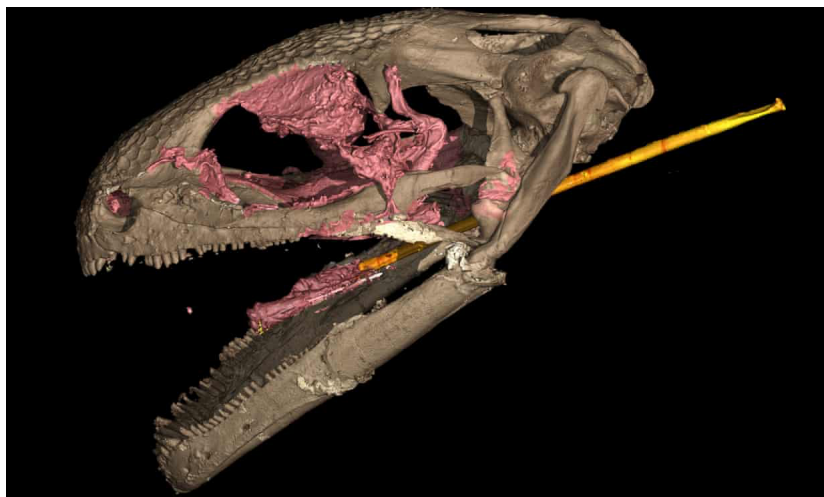
Scientists have uncovered the oldest evidence of a “slingshot” tongue, in fossils of 99m-year-old amphibians.

The prehistoric armoured creatures, known as albanerpetontids, were sit-and-wait predators who snatched prey with a projectile firing of their “ballistic tongues”.

Although they had lizard-like claws, scales and tails, analysis indicates that [albanerpetontids](#) were amphibians and not reptiles, the team said.

They believe the findings, published in the journal *Science*, redefine how the tiny animals fed. Albanerpetontids were previously thought of as underground burrowers.

Edward Stanley, a co-author of the study and the director of the Florida Museum of Natural History’s digital discovery and dissemination laboratory, said: “This discovery adds a super-cool piece to the puzzle of this obscure group of weird little animals. Knowing they had this ballistic tongue gives us a whole new understanding of this entire lineage.”



▲ CT scan of an albanerpetontid skull. Photograph: Edward Stanley/Florida Museum of Natural History/PA

Modern-day amphibians are represented by three distinct lineage: frogs, salamanders, and limbless caecilians. Researchers have said that until 2m years ago there was a fourth line, the albanerpetontids, whose lineage dated back at least 165m years.

However, Susan Evans, another co-author of the study and a professor of vertebrate morphology and palaeontology at University College London, said the lineage could be much more ancient, possibly originating more than 250m years ago.

She said: "If the earliest albanerpetontids also had ballistic tongues, the feature has been around for longer than the earliest chameleons, which likely date back to 120m years ago."

Fossils of the tiny creatures were uncovered in Myanmar, trapped in amber, and a specimen found in "mint condition" gave researchers an opportunity for detailed examination.

The researchers said the fossil represented a new species of albanerpetontids, named *Yaksha perettii*, which was about 5cm long without the tail.

Evans said: "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."

Another fossil, a tiny juvenile previously misidentified as a chameleon because of its "bewildering characteristics", also had features that resembled that of an albanerpetontid - such as claws, scales, massive eye sockets and a projectile tongue.

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

The animals might have breathed entirely through their skin, as some salamanders did, she added.

Despite the findings, researchers said that how albanerpetontids fitted in the amphibian family tree remained a mystery.

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