

First-ever single-claw dinosaur fossil found in China

30 March 2010



Reconstruction of *Xixianykus zhangi* (Credit: Matt van Rooijen)

Dr. Xing Xu, Institute of Vertebrate Paleontology and Paleoanthropology (IVPP), Chinese Academy of Sciences, and his collaborators, described a new dinosaur that was one of the smallest known and also one of the best adapted for running.

The original paper was published in the scientific journal *Zootaxa*, 2010 (2413). The fossil skeleton of the tiny animal, named *Xixianykus zhangi*, is highly incomplete but would probably have measured around half a meter in length. The specimen comes from Xixia County in Henan Province, China, where a large number of [dinosaur egg](#) fossils have been found, accounting for half of the total in China and one third of the total in the world, but dinosaur fossil finds are rare.

This Late Cretaceous 'road-runner' had a number of adaptations for fast, efficient locomotion. Most strikingly, the upper leg (the femur or thigh bone) is particularly short in comparison to the lower leg and the foot -- a pattern seen in many running animals today. Other features of the hind limb,

pelvis and backbone would have promoted stability and reduced superfluous, energy-wasting movements as *Xixianykus* dashed across prehistoric landscapes.

Dr. Corwin Sullivan, a postdoc from Canada working at IVPP and one of the authors of the study said: "The limb proportions of *Xixianykus* are among the most extreme ever recorded for a theropod dinosaur. This doesn't provide a basis for estimating its top speed, but it does show that *Xixianykus* was a highly efficient runner. Several other characteristics of the skeleton reinforce this impression."

Interestingly, some of these characteristics might also have played a role in another of the animal's likely activities -- digging for termites and ants. *Xixianykus* is a member of a group of theropod dinosaurs (which includes famous animals like Tyrannosaurs, Allosaurus and [Velociraptor](#)) called the alvarezsaur, many of which probably shared its fast-paced approach to life. Although the forequarters of *Xixianykus* are not preserved, its closest relatives among the alvarezsaur had short but strong arms, tipped by a single massive claw to break into logs or insect nests, and *Xixianykus* likely fed in the same way. Some of the adaptations that helped to stabilize the body when running could also have braced it when digging. Surprising as it may seem, the two activities complement each other in some respects and add up to a viable if unusual lifestyle.

Study coauthor Dr David Hone, a postdoc fellow of IVPP from British, said: "It may sound odd, but digging and running actually work quite well together. Some modern termite eating species travel long distances between colonies of their prey, so as an efficient runner *Xixianykus* would have been able to follow this pattern. Any small [dinosaurs](#) would be vulnerable to predators too and the ability to make a speedy exit if danger threatened would be valuable to an animal like

this."

More information: Paper available:

www.mapress.com/zootaxa/list/2010/2413.html

Provided by Chinese Academy of Sciences

APA citation: First-ever single-claw dinosaur fossil found in China (2010, March 30) retrieved 28 October 2020 from <https://phys.org/news/2010-03-first-ever-single-claw-dinosaur-fossil-china.html>

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