

Dinosaur discovery casts light on final flurry of animals' evolution

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A well preserved fossil of a new species of winged dinosaur, known as *Tongtianlong* or Mud Dragon, is giving scientists vital clues on a late flurry of evolution before the mass extinction event. Credit: Junchang Lu

A dinosaur fossil that almost went undiscovered is giving scientists valuable clues about a family of creatures that flourished just before the mass extinction.

The bird-like species, found at a building site in southern China and nicknamed the 'Mud Dragon', was preserved almost intact, lying on its front with its wings and neck outstretched. Scientists speculate that the

creature may have died in this pose after becoming mired in mud about 66-72 million years ago.

Scientists have named the new species *Tongtianlong limosus*, meaning 'muddy dragon on the road to heaven'.

The two-legged animal belongs to a family of feathered [dinosaurs](#) called oviraptorosaurs, characterised by having short, toothless heads and sharp beaks. Some, including the newly found species, had crests of bone on their heads that were probably used as display structures to attract mates and intimidate rivals, like modern-day cassowaries.

Fossil discoveries in recent decades suggest that this group of flightless animals was experiencing a population boost, diversifying into new species, during the 15 million years before the dinosaurs went extinct. The group was probably one of the last groups of dinosaurs to diversify before the asteroid impact 66 million years ago, which killed off all of the non-bird dinosaurs.



A well preserved fossil of a new species of winged dinosaur, known as Tongtianlong or Mud Dragon, is giving scientists vital clues on a late flurry of evolution before the mass extinction event. Credit: Junchang Lu

The skeleton was found during excavations using explosives at a school [construction site](#) near Ganzhou. The fossil remains remarkably well preserved and almost complete, despite some harm caused by a dynamite blast at the construction site.

Researchers from the University of Edinburgh and China, who carried out the study, say the finding helps better understand how the last-surviving dinosaurs were flourishing before tragedy struck.

The study, published in *Scientific Reports*, was carried out in collaboration with the Institute of Geology, Chinese Academy of Geological Sciences and the Dongyang Museum, China, and is the latest in a fruitful collaboration between Edinburgh and the Chinese Academy of Geological Sciences.

It was supported by the National Natural Science Foundation of China, the Fundamental Research Funds for the Chinese Academy of Geological Sciences, the EU Erasmus Mundus Experts Sustain Program and a Marie Curie Career Integration Grant.



An artist's impression of the Tongtianlong, or Mud Dragon, whose recently

discovered fossil is giving scientists valuable clues about a late flurry of evolution just before the mass extinction of dinosaurs. Credit: Zhao Chuang

Dr Steve Brusatte, of the University of Edinburgh's School of GeoSciences, said: "This new dinosaur is one of the most beautiful, but saddest, fossils I've ever seen. But we're lucky that the 'Mud Dragon' got stuck in the muck, because its skeleton is one of the best examples of a dinosaur that was flourishing during those final few million years before the asteroid came down and changed the world in an instant."

Dr Junchang Lü, of the Institute of Geology, Chinese Academy of Geological Sciences, said: "The discovery of the new oviraptorid dinosaur further indicates that the Ganzhou area of Southern China is a most productive locality of oviraptorid dinosaurs and has a huge diversity of oviraptorosaurs from the late Cretaceous. It will provide important information on the study of evolution, distribution and behaviour of oviraptorid dinosaurs."

More information: Junchang Lü et al, A Late Cretaceous diversification of Asian oviraptorid dinosaurs: evidence from a new species preserved in an unusual posture, *Scientific Reports* (2016). [DOI: 10.1038/srep35780](https://doi.org/10.1038/srep35780)

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