

# Newly discovered, primitive cousins of T. rex shed light on the end of the age of dinosaurs in Africa

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Abelisaurids enjoying the beach. Credit: University of Bath

Fossils of primitive cousins of T. rex that had short, bulldog snouts and even shorter arms have been discovered by scientists in Morocco. The two new dinosaur species belong to the Abelisauridae, a family of carnivorous dinosaurs that were counterparts to the tyrannosaurs of the Northern Hemisphere. They lived at the end of the Cretaceous period and show that dinosaurs were diverse in Africa just before their mass

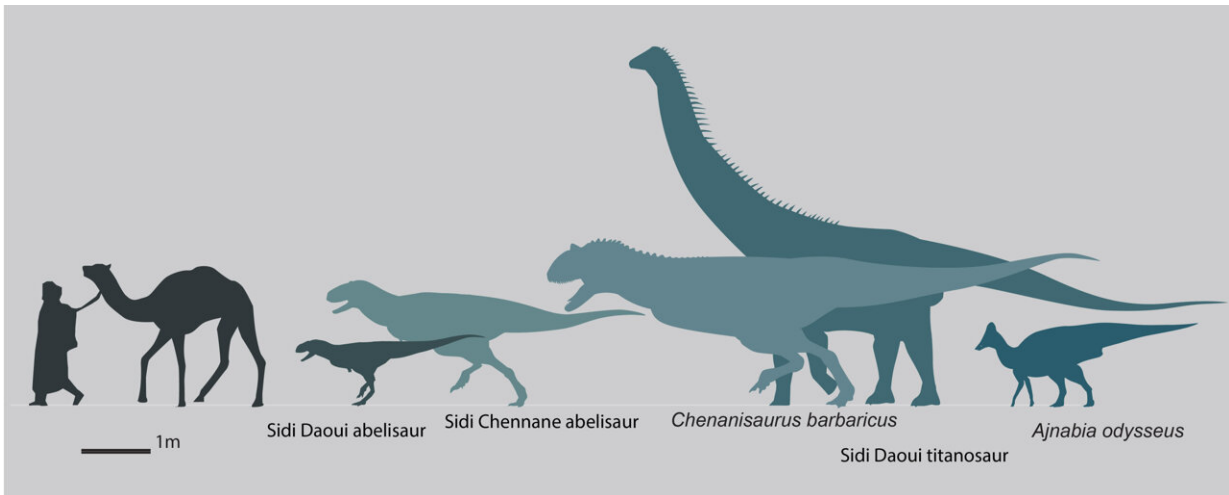
extinction by an asteroid 66 million years ago.

Two new species of dinosaur have been found from the end of the Cretaceous in Morocco, just outside of Casablanca. One species, found near the town of Sidi Daoui, is represented by a foot bone from a predator about two and a half meters (eight feet) long. The other, from nearby Sidi Chennane, is the shin bone of a carnivore that grew to around five meters (15 feet) in length.

Both were part of a family of primitive carnivorous dinosaurs known as abelisaurids, and lived alongside the much larger abelisaurid *Chenanisaurus barbaricus*, showing that Morocco was home to diverse dinosaur species just before a giant asteroid struck at the end of the Cretaceous, ending the age of dinosaurs.

Dr. Nick Longrich, from the Milner Center for Evolution at the University of Bath, led the study, which was published in *Cretaceous Research*. He said, "What's surprising here is that these are marine beds. It's a shallow, tropical sea full of plesiosaurs, mosasaurs, and sharks. It's not exactly a place you'd expect to find a lot of dinosaurs. But we're finding them."

Even though dinosaurs account for a small proportion of the fossils, the region is so rich in fossils, it has produced the best picture of African dinosaurs from the end of the [age of dinosaurs](#).



Credit: University of Bath

Rather than finding the same few species, paleontologists often recover fossils from [new species](#), suggesting the beds host an extremely diverse dinosaur fauna.

So far, the small number of dinosaur fossils that have been recovered represent five different species—a small duckbill dinosaur named Ajnabia, a long-necked titanosaur, the giant abelisaur *Chenanisaurus*, and now the two new abelisaur.

Dr. Longrich said, "We have other fossils as well, but they're currently under study. So we can't say much about them at the moment, except that this was an amazingly diverse dinosaur fauna."

The last dinosaurs vanished around 66 million years ago, along with as much as 90% of all species on earth, including mosasaurs, plesiosaurs, pterosaurs and ammonites. The pattern of the end-Cretaceous extinction and its causes have been debated for more than 200 years.

A giant asteroid impact in the Yucatan peninsula has been linked to their demise, although it's been argued that dinosaurs were already in decline. The Moroccan dinosaurs suggest that they thrived in North Africa up to the very end.



Metatarsal fossil. Credit: University of Bath

"The end of the Cretaceous in western North America definitely seems to become less diverse at the end," said Longrich. "But that's just one small part of the world. It's not clear that you can generalize from the

dinosaurs of Wyoming and Montana to the whole world.

"It also grew colder near the end, so it might not be surprising if dinosaurs at higher latitudes became less diverse. But we don't know much about [dinosaurs](#) from lower latitudes."

In Morocco at least, they seem to have remained diverse and successful up until the end.

"When T. rex reigned as a megapredator in North America, abelisaurids sat at the top of the food chains in North Africa," said Nour-Eddine Jalil, a professor at the Natural History Museum and a researcher at Université Cadi Ayyad in Morocco, who was a co-author on the paper.

"The dinosaur remains, despite their rarity, give the same messages as the more abundant marine reptile remains.

"They tell us that, just before the Cretaceous-Paleogene crisis, biodiversity was not declining but on the contrary, was diverse."

**More information:** Nicholas R. Longrich et al, New fossils of Abelisauridae (Dinosauria: Theropoda) from the upper Maastrichtian of Morocco, North Africa, *Cretaceous Research* (2023). [DOI: 10.1016/j.cretres.2023.105677](https://doi.org/10.1016/j.cretres.2023.105677)

Provided by University of Bath

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