

Iguana-sized dinosaur cousin discovered in Antarctica

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"The midnight sun over Early Triassic Antarctica." Along the banks of a river, three archosaur inhabitants of the dense *Voltzia* conifer forest cross paths: *Antarctanax shackletoni* sneaks up on an early titanopetran insect, *Prolacerta* lazes on a log, and an enigmatic large archosaur pursues two unsuspecting dicynodonts, *Lystrosaurus maccaigi*. Credit: (c) Adrienne Stroup, Field Museum

250 million years ago, it was covered in forests and rivers, and the temperature rarely dipped below freezing. It was also home to diverse wildlife, including early relatives of the dinosaurs. Scientists have just discovered the newest member of that family—an iguana-sized reptile whose name means "Antarctic king."

"This new animal was an archosaur, an early relative of crocodiles and dinosaurs," says Brandon Peacock, a Field Museum researcher and lead author of a paper in the *Journal of Vertebrate Paleontology* describing the new species. "On its own, it just looks a little like a lizard, but evolutionarily, it's one of the first members of that big group. It tells us how dinosaurs and their closest relatives evolved and spread."

The [fossil skeleton](#) is incomplete, but paleontologists still have a good feel for the animal, named *Antarctanax shackletoni* (the former means "Antarctic king," the latter is a nod to polar explorer Ernest Shackleton). Based on its similarities to other [fossil animals](#), Peacock and his coauthors (Roger Smith of the University of Witwatersrand and the Iziko South African Museum and Christian Sidor of the Burke Museum and University of Washington) surmise that *Antarctanax* was a carnivore that hunted bugs, early mammal relatives, and amphibians.

The most interesting thing about *Antarctanax*, though, is where it lived, and when. "The more we find out about prehistoric Antarctica, the weirder it is," says Peacock, who is also affiliated with the Burke Museum. "We thought that Antarctic animals would be similar to the ones that were living in southern Africa, since those landmasses were joined back then. But we're finding that Antarctica's wildlife is surprisingly unique."



A slab containing fossils of *Antarctanax*. Credit: (c) Brandon Peecook, Field Museum

About two million years before *Antarctanax* lived—the blink of an eye in geologic time—Earth underwent its biggest-ever [mass extinction](#). Climate change, caused by volcanic eruptions, killed 90% of all [animal life](#). The years immediately after that [extinction event](#) were an evolutionary free-for-all—with the slate wiped clean by the mass extinction, new groups of animals vied to fill the gaps. The archosaurs, including dinosaurs, were one of the groups that experienced enormous growth. "Before the mass extinction, archosaurs were only found around the Equator, but after it, they were everywhere," says Peacock. "And Antarctica had a combination of these brand-new animals and stragglers of animals that were already extinct in most places—what paleontologists call 'dead clades walking.' You've got tomorrow's animals and yesterday's animals, cohabiting in a cool place."

The fact that scientists have found *Antarctanax* helps bolster the idea that Antarctica was a place of rapid evolution and diversification after the mass extinction. "The more different kinds of [animals](#) we find, the more we learn about the pattern of archosaurs taking over after the mass [extinction](#)," notes Peacock.



Lead author Dr. Brandon Peacock prospecting for Triassic vertebrate fossils at Coalsack Bluff, a famous site in Antarctic paleontology. Credit: (c) Adam Huttenlocker, Field Museum

"Antarctica is one of those places on Earth, like the bottom of the sea, where we're still in the very early stages of exploration," says Peacock. "*Antarctanax* is our little part of discovering the history of Antarctica."

More information: Brandon R. Peacock et al, A novel archosauromorph from Antarctica and an updated review of a high-latitude vertebrate assemblage in the wake of the end-Permian mass extinction, *Journal of Vertebrate Paleontology* (2019). [DOI:](#)

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