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Near-complete dinosaur skull found in Queensland

Discovery supports the theory that Australian sauropods migrated from South America

- Today the Museum announced the discovery of Australia's most-complete sauropod skull.
- This is the fourth specimen to be referred to the species *Diamantinasaurus matildae*.
- Similarities between the excavated skull and a titanosaur that lived in South America support the theory that sauropods used Antarctica as a pathway to Australia.
- This find reveals, for the first time, the skull shape of *Diamantinasaurus.*

Today the Australian Age of Dinosaurs Museum (the Museum), in collaboration with researchers from Curtin University, announced the discovery of Australia's first sauropod skull. The near-complete skull, belonging to a dinosaur nicknamed Ann, was excavated by the Museum in 2018 during its annual dinosaur dig at Elderslie Station near Winton, Queensland.

Diamantinasaurus is a member of the dinosaur group Sauropoda, known for having small heads, long necks and tails, barrel-like bodies and four columnar legs. The fossilised skull fragments date to 98–95 million years ago and represent the fourth fossil specimen of *Diamantinasaurus matildae* to be discovered by the Museum.

The paper describing the sauropod skull belonging to *Diamantinasaurus*, available at https://royalsocietypublishing.org/doi/10.1098/rsos.221618, was published on Wednesday 12 April at 00.01 BST (Wednesday 12 April at 9.01am AEST) in *Royal Society Open Science.*

Research on the sauropod skull was led by Museum Research Associate Dr Stephen Poropat, a Postdoctoral Research Fellow at Curtin University. "This skull gives us a rare glimpse into the anatomy of this enormous sauropod that lived in northeast Australia almost 100 million years ago," Dr Poropat said. "In analysing the remains, we found similarities between the Ann skull and the skull of a titanosaur called *Sarmientosaurus musacchioi*, which lived in South America at about the same time as *Diamantinasaurus* lived in Queensland. These similarities include details of the braincase, the bones forming the back end of the skull near the jaw joint and the shape of the teeth.

"Our research suggests that *Diamantinasaurus* was one of the most 'primitive' titanosaurs. Gaining a better understanding of this species might explain why titanosaurs were so successful, across so much of the world, right until the end of the Age of Dinosaurs."

Dr Poropat said the findings support previous theories that sauropods were using Antarctica as a pathway between South America and Australia between 100 and 95 million years ago. "We suggest that sauropods were travelling between Australia and South America, via Antarctica, during the mid-Cretaceous. Warmer conditions that far south might have been favourable for them," Dr Poropat said.

"The window between 100 and 95 million years ago was one of the warmest in Earth's geologically recent history, meaning that Antarctica, which was more or less where it is now, had no ice.

Similarly, Australia, which was much further south than today, was warmer with less seasonality. In that climate, Antarctica was forested and might have been an attractive habitat or pathway for wandering sauropods."

The sauropod skull was discovered on Elderslie Station, near Winton, in 2018 by the Australian Age of Dinosaurs Museum during its annual dinosaur dig. Ann is the third fossil specimen of *Diamantinasaurus matildae* to have been discovered on Elderslie and the newly described sauropod skull joins several other significant fossil specimens at the Museum. These include the skeletons of the megaraptorid theropod *Australovenator wintonensis*, three other specimens of *Diamantinasaurus matildae*, the titanosaurian sauropod S*avannasaurus elliottorum*, the ornithocheirid pterosaur *Ferrodraco lentoni,* the crocodyliform *Confractosuchus sauroktonos* and the 54m-long Snake Creek tracksite housed in the *March of the Titanosaurs* exhibition.

Executive Chairman of the Museum, David Elliott OAM, described the skull discovery as important to understanding the evolution of titanosaurs and to understanding the many ecosystems that have lived on the Australian continent. "Understanding and interpreting how animals lived millions of years ago is like putting together a puzzle without all the pieces," Mr Elliott said. "Each new piece brings us closer to understanding how life on Earth evolved and our own place within its dynamic history."

The fossilised sauropod skull is now on display at the Museum, which is located 24km from Winton township in western Queensland.