



Australia's smallest sauropod dinosaur

Discovery shines light on how sauropods grew

- Today the Museum announced the discovery of Australia's smallest sauropod dinosaur.
- The sauropod is a juvenile titanosaur that weighed around 4.2 tonnes at the time of its death.
- Australia's smallest sauropod is the third specimen to be referred to the species *Diamantinasaurus matildae*.
- This find reveals *Diamantinasaurus* grew allometrically, meaning that their bones changed shape and grew at different rates, becoming more robust as they aged.

The Australian Age of Dinosaurs Museum (the Museum) today announced the discovery of Australia's smallest sauropod, a juvenile titanosaur and the third specimen to be referred to the species *Diamantinasaurus matildae*. The fossilised bones were recovered from a sheep station near the north-western margins of the Winton Formation, a geological deposit that is around 95 million years old.

The paper describing the juvenile *Diamantinasaurus*, available at <https://doi.org/10.1080/02724634.2021.2047991>, was published on Thursday, 14 April in the *Journal of Vertebrate Paleontology*.

The juvenile titanosaur was discovered on Elderslie Station, near Winton, and excavated by staff and volunteers from the Museum in 2012. Most of the bones recovered were in remarkably good condition and were located about one metre below the surface, sitting on a layer of fossilised angiosperm (flowering plants), ginkgo (maidenhairs) and fern leaves.

Research on the juvenile titanosaur was led by Museum Research Associate Samantha Rigby who is undertaking a Master of Science (Research) at Swinburne University of Technology under the supervision of Dr Stephen Poropat. Using a handheld laser scanner, Miss Rigby digitally scanned each bone from the specimen to create three-dimensional models that enabled her to digitally compare them with other sauropod remains from the Museum. This comparison led Miss Rigby and colleagues to discover that the small specimen belongs to *Diamantinasaurus* though with juvenile characteristics, such as unfused vertebrae, minimal muscle scarring, smooth bone texturing and marked proportional differences to an adult.

Miss Rigby and her colleagues found that the bones of the small titanosaur grew allometrically, meaning that its bones changed shape and different parts of its body grew at different rates. "The limb bones (humerus, thumb claw and femur) of this juvenile titanosaur grew at a more rapid rate than its back and shoulder bones," Miss Rigby said. "The limb bones are also narrower in width when compared with the robust limb bones of an adult *Diamantinasaurus*." This suggests that as *Diamantinasaurus* grew, its limb bones became more robust to enable it to support its immense weight.

The skeleton of the young sauropod is almost 10% complete and includes three thoracic vertebrae, several ribs, a scapula, a humerus, a thumb claw and a femur. "At the time of its death, this juvenile

titanosaur weighed around 4.2 tonnes, which is about the same as an adult Asian elephant,” Miss Rigby said. “This exceedingly rare and globally significant find provides important insights into the growth patterns of sauropod dinosaurs and, in particular, titanosaurs.”

The juvenile *Diamantinasaurus* joins several significant specimens at the Museum including *Australovenator wintonensis*, *Savannasaurus elliottorum*, *Ferrodraco lentoni*, *Confractosuchus sauroktonos* and the bones from the holotype and referred specimens of *Diamantinasaurus matildae*.

Co-founder of the Museum, David Elliott OAM, describes the discovery as a great step forward. “Having the only three referred specimens of a unique species of sauropod at the Museum is a remarkable achievement,” he said. “Australia’s smallest sauropod will continue to provide insight into the growth patterns of these large animals and the world they inhabited.” The fossilised remains of Australia’s smallest sauropod are now on display at the Museum, which is located 25km from Winton township in western Queensland.