



Twelve new Australian dinosaur specimens described

New research challenges assessments of sauropod diversity

- A groundbreaking study led by Samantha Beeston and the Australian Age of Dinosaurs Museum of Natural History sheds new light on sauropod dinosaurs in Australia.
- The study, published in *PeerJ*, describes and re-evaluates hundreds of bones, representing 12 new sauropod specimens from the Winton Formation in central Queensland.
- Re-evaluation of known sauropod species from the Winton Formation has consolidated these sauropods into three taxa: *Diamantinasaurus matildae*, *Savannasaurus elliottorum* and *Wintonotitan wattsii*.
- *Australotitan cooperensis* is now considered an indeterminate diamantinasaurian and might be the same as *Diamantinasaurus*.
- Two new specimens are assigned to *Diamantinasaurus matildae*, two to *Savannasaurus elliottorum* and three to *Wintonotitan wattsii*. The remaining five specimens are classified as indeterminate diamantinasaurians.

For over a century the skeletal remains of sauropod dinosaurs have intrigued researchers in Australia. However, their classification to species level has been challenging due to their incomplete nature. A groundbreaking study, led by University College London PhD candidate Samantha Beeston, in collaboration with the Australian Age of Dinosaurs Museum of Natural History (the Museum), is shedding new light on these gigantic creatures.

The paper describing the new sauropods, available at <https://peerj.com/articles/17180/>, was published on Wednesday, 10 April at 6am AEST in the open-access peer-reviewed scientific journal *PeerJ*. Beeston's research was conducted as part of her Master's thesis at Swinburne University of Technology, under the supervision of Dr Stephen Poropat (now at the Western Australian Organic and Isotope Geochemistry Centre, Curtin University).

Using advanced 3D-scanning technology, Beeston digitally scanned over 500 sauropod bones from the Museum's collection, covering a significant portion of Australia's Cretaceous sauropod record from the Winton Formation in central Queensland. This innovative approach enabled rigorous description and detailed comparison between specimens from Winton Formation locations, leading to clearer identification of the unique features that separate the known species from each other in the newly described specimens, including iconic ones like Matilda (*Diamantinasaurus matildae*) and Wade (*Savannasaurus elliottorum*).

Study and comparison of 12 new sauropod specimens by Beeston and colleagues led to two previously undescribed specimens being confidently assigned to *Diamantinasaurus matildae*, two others to *Savannasaurus elliottorum* and three to *Wintonotitan wattsii*. However, the remaining five specimens can be classified no further than Diamantinasauria because of the incomplete understanding of Winton Formation sauropod anatomy. According to Beeston, a lack of comparable specimens with overlapping bones has hampered precise classification. For instance, a specimen nicknamed Leo, which has numerous tail bones, faces classification complications due to the lack of comparable tail bones from named species.

Beeston's study also prompted a re-evaluation of the four known sauropod species from the Winton Formation, which led to consolidating them into three taxa: *Diamantinasaurus matildae*, *Savannasaurus elliottorum* and *Wintonotitan wattsi*. The other one, *Australotitan cooperensis* (Australia's largest dinosaur), is now considered an indeterminate diamantinasaurian and is likely the same as *Diamantinasaurus matildae*, implying that this species might have reached greater sizes than previously thought. Beeston noted that the fact there are so few bones preserved for *Australotitan* makes it very difficult – if not impossible – to assign new specimens to it, or to differentiate it from any of the other Winton Formation sauropod species. "Due to the limited fossil evidence for *Australotitan*, resolving its classification will be challenging," she said.

According to Australian Age of Dinosaurs Museum's Executive Chairman David Elliott, having another 12 of the Museum's sauropod specimens now identified and described is a significant leap forward in Australian paleontological research. "These dinosaurs help demonstrate the diverse natural history of Australia during the Cretaceous Period and will become important exhibits at the new Australian Age of Dinosaurs Museum of Natural History," he said. Mr Elliott was recently named Australia's 2024 Local Hero for his work in promoting Australian palaeontology and dedication to the long-term sustainability of towns and communities in regional Australia. The Museum is currently seeking funding support to finalise development of a multi-million-dollar Museum of Natural History in the Australian Outback.