

A new giant sauropod, *Australotitan cooperensis* gen. et sp. nov., from the mid-Cretaceous of Australia

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Image Credit: Queensland Museum

Abstract

A new giant sauropod, *Australotitan cooperensis* gen. et sp. nov., represents the first record of dinosaurs from the southern-central Winton Formation of the Eromanga Basin, Australia. We estimate the type locality to be 270–300 m from the base of the Winton Formation and compare this to the semi-contemporaneous sauropod taxa, *Diamantinasaurus matildae* [Hocknull et al., 2009](#), *Wintonotitan wattsi* [Hocknull et al., 2009](#) and *Savannasaurus elliottorum* [Poropat et al., 2016](#). The new titanosaurian is the largest dinosaur from Australia as represented by osteological remains and based on limb-size comparisons it reached a size similar to that of the giant titanosaurs from South America. Using 3-D surface scan models we compare features of the appendicular skeleton that differentiate *Australotitan cooperensis* gen. et sp. nov. as a new taxon. A key limitation to the study of sauropods is the inability to easily and directly compare specimens. Therefore, 3-D cyber types have become a more standard way to undertake direct comparative assessments. Uncoloured, low resolution, and uncharacterized 3-D surface models can lead to misinterpretations, in particular identification of pre-, syn- and post-depositional distortion. We propose a method for identifying, documenting and illustrating these distortions directly onto the 3-D geometric surface of the models using a colour reference scheme. This new method is repeatable for researchers when observing and documenting specimens including taphonomic alterations and geometric differences. A detailed comparative and preliminary computational phylogenetic assessment supports a shared ancestry for all four Winton Formation taxa, albeit with limited statistical support. Palaeobiogeographical interpretations from these resultant phylogenetic hypotheses remain equivocal due to contrary Asian and South American relationships with the Australian taxa. Temporal and palaeoenvironmental differences between the northern and southern-central sauropod locations are considered to explain the taxonomic and morphological diversity of sauropods from the Winton Formation. Interpretations for this diversity are explored, including an eco-morphocline and/or chronocline across newly developed terrestrial environments as the basin fills.

Video Interview

PeerJ talks to Dr. Scott Hocknull about a new giant sauropod, *Australotitan cooperensis*

<https://www.youtube.com/watch?v=seKGrpyjYHU>

Press Coverage

[Meet Australotitan, the biggest dinosaur to ever stomp across ancient Australia](#)
www.cnet.com

Meet the Southern Titan! Huge dinosaur the same length as a BASKETBALL COURT roamed Australia 96 million years ago, study finds
www.dailymail.co.uk

New species of dinosaur – up to 30m long – confirmed as largest ever found in Australia
www.theguardian.com

Scientists say new dinosaur species is largest found in Australia
www.bbc.co.uk

Scientists confirm discovery of Australia's largest dinosaur, two stories tall and a basketball court long
edition.cnn.com

Australian titan joins giants of the dinosaur world
www.thetimes.co.uk

New Dino Species Was the Largest Animal to Ever Roam Australia
www.yahoo.com

The Biggest Dinosaur Ever Found in Australia | 7 Days of Science
www.youtube.com

NEW DINO SPECIES WAS THE LARGEST ANIMAL TO EVER ROAM AUSTRALIA
nerdist.com

Australia's Newly Discovered Giant Dinosaur Could Challenge Crown For World's Largest
www.iflscience.com

One of the biggest dinosaurs to ever walk the Earth discovered in Australia
www.cnet.com

Meet Australia's largest dinosaur: Australotitan, the southern titan
phys.org

Meet Australia's largest dinosaur
cosmosmagazine.com

Fossils: Huge Dinosaur The Same Length As A BASKETBALL COURT Roamed Australia 96 Million Years Ago
whatsnew2day.com

Queensland Museum confirms discovery of Australia's largest dinosaur near outback Eromanga
www.abc.net.au

Introducing Australotitan: Australia's largest dinosaur yet spanned the length of 2 buses
theconversation.com

Largest dinosaur discovered in Australia a true world heavyweight
www.brisbanetimes.com.au

Meet Australotitan, Australia's largest dinosaur!
blog.qm.qld.gov.au



Subject Areas

[Biodiversity](#), [Evolutionary Studies](#), [Paleontology](#), [Taxonomy](#), [Zoology](#)

Keywords

Titanosauria, Cretaceous, Winton Formation, New species, 3-D modelling, Fossil, Dinosaur, Sauropoda, Australia

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