

'Lightning Claw' dinosaur identified in Australia

September 14 2015, by Bob Yirka



Credit: *Gondwana Research*, doi:10.1016/j.gr.2015.08.004

(Phys.org)—A team of researchers from Italy and Australia has identified the fossilized remains of a previously unknown megaraptorid dinosaur—they've called it "Lightning Claw" after the large claw it sports and in honor of the place it was found. In their paper published in the journal *Gondwana Research*, the team describes the dinosaur remains and the time period during which it lived.

The fossils, which are mostly blue due to being formed of non-translucent opal (there is also some precious opal, which is brightly colored), were originally discovered in the 1990's by workers at an opal mine. They were eventually donated to the Australian Opal Centre, a museum that displays opalised [fossil](#) material found at the site. In this new effort, the fossils were finally put under study to determine their origins.

The team reports that their investigation has revealed that the dinosaur was likely approximately seven meters in length when alive, and that it lived approximately 110 million years ago, during the mid-Cretaceous period, when Australia was still part of the supercontinent, Gondwana. The fossils consisted of a lower leg part and hip, a rib, metatarsal and forearm and a 25cm claw. The claw would have been useful, the researchers note, as the dinosaur lacked a large head and big teeth—the claw could have been used to secure prey, like a grappling hook, while it was slowly torn apart by sharp teeth. The fossils were all found near the town of Lightning Ridge, in Queensland, in the South East part of the country, and represent the largest carnivorous dinosaur known to have lived in Australia.

The fossil find also suggests, the team claims, that megaraptorid [dinosaurs](#) may have originated in Australia, moving across Gondwana and eventually to other continents, though they believe the later relatives of the fossil they found died out long before the massive extinction that took the rest of the dinosaurs. Other theories have suggested an opposite path—that dinosaurs living in Australia came there from elsewhere. Because of the harsh landscape, few [dinosaur fossils](#) have been found in that country—thus far just 12 well defined species have been identified as living there.

The team is holding off giving the dinosaur an official name until it can be proved that it is unique, by finding more similar fossils.

More information: A large-clawed theropod (Dinosauria: Tetanurae) from the Lower Cretaceous of Australia and the Gondwanan origin of megaraptorid theropods, *Gondwana Research*, Available online 5 September 2015. [DOI: 10.1016/j.gr.2015.08.004](https://doi.org/10.1016/j.gr.2015.08.004)

Abstract

Megaraptoridae comprises a clade of enigmatic Gondwanan theropods with characteristic hypertrophied claws on the first and second manual digits. The majority of megaraptorids are known from South America, although a single genus (*Australovenator*) plus additional indeterminate material is also known from Australia. This clade has a controversial placement among theropods, and recently has been interpreted alternatively as a carcharodontosaurian or a tyrannosauroid lineage. We describe new fragmentary but associated postcranial remains from the opal fields of Lightning Ridge (middle-Albian, Griman Creek Formation) in north-central New South Wales. The new unnamed taxon exhibits a number of unusual features that suggest the presence of a hitherto unrecognized Australian megaraptorid. From an Australian perspective, the Lightning Ridge taxon predates *Australovenator* by c.10Ma and is minimally coeval with megaraptoran material reported from the Eumeralla Formation of Victoria (but potentially 6.1–9.5 Ma younger). It is also notable as the largest predatory dinosaur yet identified from Australia and is only the second theropod known from more than a single element. A Bayesian phylogenetic approach integrating morphological, stratigraphic and palaeogeographic information tested both the carcharodontosaurian and tyrannosauroid placements for Megaraptora. Regardless of the preferred placement among Tetanurae, rigorous palaeobiogeographic analyses support an Asian origin of Megaraptora in the latest Jurassic (about 150–135 Ma), an Early Cretaceous (about 130–121 Ma) divergence of the Gondwanan lineage leading to Megaraptoridae, and an Australian root for megaraptorid radiation. These results indicate that Australia's Cretaceous dinosaur fauna did not comprise simply of immigrant taxa but was a

source for complex two-way interchange between Australia-Antarctica-South America leading to the evolution of at least one group of apex predatory dinosaurs in Gondwana.

© 2015 Phys.org

Citation: 'Lightning Claw' dinosaur identified in Australia (2015, September 14) retrieved 10 April 2024 from <https://phys.org/news/2015-09-lightning-claw-dinosaur-australia.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--