

# Australians first in line to see T.rex ancestor that links dinosaurs to birds

August 28 2013, by Sunanda Creagh

---



Guanlong wucaii, meaning “crown dragon”, is an ancient forefather of T.rex.  
Credit: Australian Museum

Australia will be the first country in the world to display publicly specimens of *Guanlong wucaii*, a relative of *Tyrannosaurus rex* that helped confirm the link between dinosaurs and birds.

The specimens are on show at the Australian Museum in Sydney, as part

of [Tyrannosaurs – Meet the Family](#), an exhibition of fossils, casts and multimedia projections all about T.rex genealogy.

Among the specimens on show is 160 million year-old Guanlong wucaii, meaning "crown dragon", a tyrannosaur with feather-like structures that lived around 90 million years before its much bigger relative, T. rex.

Guanlong wucaii, which measured 1.1m tall at the hip and 3m in length, [was discovered in 2002 in Northwestern China by Chinese palaeontologist Xing Xu](#) and colleagues, fossilised in layers of [volcanic ash](#), shale and mud stone.

Dr Meng Qingin, Director of Beijing Museum of Natural History said Guanlong wucaii was an incredible discovery.

"It was generally accepted that birds were descended from dinosaurs. People had found many dinosaurs that shared striking similarities with [early birds](#), yet a few things didn't quite fit. The time sequence didn't seem to be correct, for instance," he said.

Most bird-like dinosaurs were from the Cretaceous, from 145 million to 66 million years ago, but the earliest known bird, Archaeopteryx, was from the Jurassic, 201 million to 145 million years ago.

"Also, if birds were descended from dinosaurs, you would predict that their dinosaur ancestors should have feathers or feather-like structures. These fossil finds now link these two theories."

Specimens on show in the exhibition include ancient T. rex relatives like Guanlong wucaii, Alioramus, Tarbosaurus, Daspletosaurus, Albertosaurus, Appalachiosaurus, Gorgosaurus and Teratophoneus.

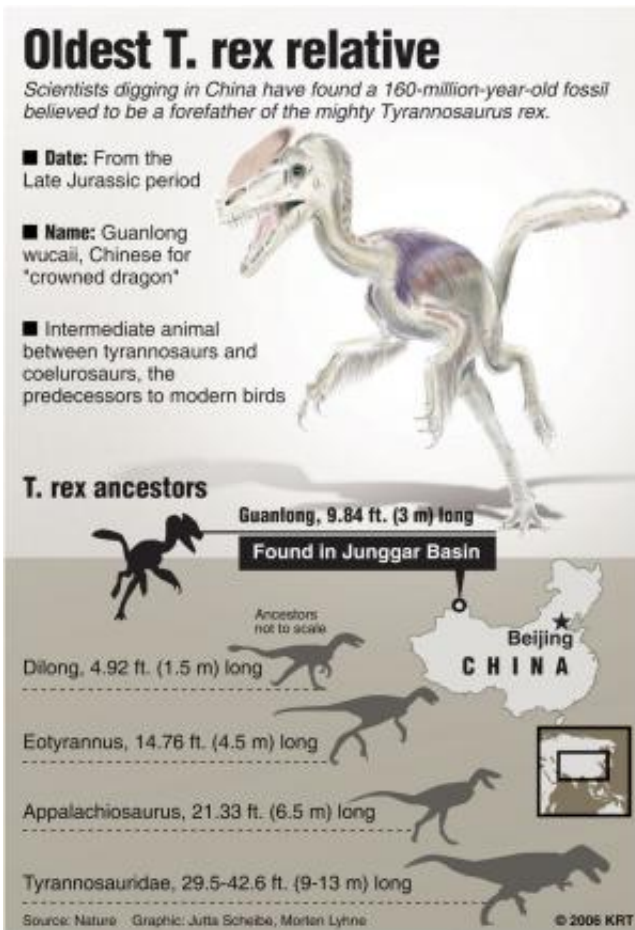


Illustration of oldest T. rex forefather, the Guanlong wucaii, with map locating site where it is found in China, ancestor illustrations. Credit: AAP Image/KRT

## Family ties

Stephen Wroe, Associate Professor at University of New England and a [palaeontologist](#), said the exhibition helped demonstrate the complexity of evolution and of the tyrannosaur family tree.

"Over the last 10 years, and especially with respect to material emerging from China, Russia and the UK, the whole family tree for the tyrannosaurs has really been fleshed out," he said.

"You have T.rex, which is your ultimate terrestrial predator but animals such as T.rex don't just pop up. Tyrannosaur evolution stretches over 100 million years, with unexpected twists and turns, and T.rex was just the last of the tyrannosaurs."

Tyrannosaurs share certain obvious characteristics—all are carnivorous, long-tailed and bipedal—but range in size from smaller than a human to the terrifying T.rex.

"T.rex had this enormous head and bone-crunching, devastating teeth," said Associate Professor Wroe.



The exhibition will also include a multimedia show featuring large-scale, immersive projections of dinosaurs running through Sydney streets. Credit: Australian Museum

Associate Professor Wroe said there was now no doubt among the majority of scientists that birds evolved from a group that was fairly close to tyrannosaurs.

"Guanlong wucaii helped cement that, as well as pushing the age of the oldest bird-like [dinosaurs](#) right back. It likely had feather-like structures as its Chinese tyrannosaur relative, Dilong (also in the exhibition) certainly did. Although, exactly what the function of these structures was, we are not entirely sure. It would seem likely it had something to do with insulation."

Associate Professor Wroe said tests on proteins from a T.rex showed that it was more closely related to a bird than an alligator.

Mike Lee, Senior Research Scientist, Evolutionary Biology at the University of Adelaide, said Guanlong wucaii was an important specimen.

"It might be hard to imagine how Tyrannosaurus, with its huge size and famously tiny arms, could be related to [birds](#). But Guanlong demonstrates earlier relatives of Tyrannosaurus were much more avian – more lightly built and with longer forelimbs," he said.

Tyrannosaurs – Meet the Family runs from 23 November 2013 to 27 July 2014 at the Australian Museum.

*This story is published courtesy of [The Conversation](#) (under Creative Commons-Attribution/No derivatives).*

Source: The Conversation

Citation: Australians first in line to see T.rex ancestor that links dinosaurs to birds (2013, August 28) retrieved 9 April 2024 from

<https://phys.org/news/2013-08-australians-line-trex-ancestor-links.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>
--