

Uncovering the truth behind the largest marsupial to walk the Earth

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University of Queensland research is uncovering the truth behind the largest marsupial ever to walk the earth – the 2.5 tonne wombat-like Diprotodon.

Standing 1.8 metres tall and reaching up to 3.5 metres in length, this huge beast lived more than 100,000 years ago, and despite being one of the most celebrated examples of Australia's Pleistocene “megafauna”, there is very little known about them.

That is about to change thanks to work by Redbank Plains scientist Dr Gilbert Price, from UQ's Centre for Microscopy & Microanalysis, who has turned conventional wisdom on its head by discovering there was only one species of the massive animal.

“Traditionally it was thought that as many as eight species existed,” Dr Price said.

“But my research, which has taken me to many of the world's leading museums, demonstrates there was only one species all over Australia.

“Even though Diprotodon occurred from literally creek to coast, spread from as far south as King Island in Bass Strait, to Far North Queensland, to Western Australia, and everywhere in between, they were all the same species.”

Dr Price, who started his research into Diprotodon while a post-grad student at the Queensland University of Technology, said most of the confusion stemmed from the fact the animal came in two distinct sizes – large and extra large.

“The problem was compounded because many early descriptions were based on fragmentary fossil remains,” he said.

“So most of my research was based on going to museums such as the British Museum of Natural History, trawling through draw after draw of fossils

and examining every specimen.

“This led me to conclude that while the Diprotodon can be extremely variable in size and shape, they were all of the same species.”

He said the two distinct sizes was also easily explained.

“Just like many modern animals, the difference in size comes down to sex,” he said.

“This one is just much more pronounced with females almost two-thirds the size of the males.”

Despite having just a pile of broken bones to work with, the new study also revealed significant insights into the lifestyle of the Diprotodon.

“Most living marsupials and mega-mammals that exhibit sexually-related size class differences have polygynous breeding systems, and the males tend to be loners in the populations,” he said.

“It's likely that Diprotodon also exhibited a similar breeding strategy.

“The fossil evidence is also beginning to show that there was some gender-segregation too, with most fossil populations examined being dominated by females, with the males probably off doing their own thing.”

Dr Price said the jury was still out on the possible timing and causes of the extinction of the Diprotodon and other megafauna such as enormous super-goannas, gigantic birds and 2.5 metre tall kangaroos.

“Most researchers are content to agree that natural climate change, or the first human colonisers, contributed to the extinction of Diprotodon, sometime in the last 50,000 years,” he said.

“But realistically, we need more data – more fossils and more dates – before we can come up with firm conclusions concerning the processes involved in megafauna extinction.

Fortunately for the Diprotodon, the new research shows only one species, rather than eight, suffered extinction alongside the other megafauna.

“Although that number is not as drastic as first thought, sadly, the Diprotodon was the last of its kind,” he said.

“It's like the old saying ‘the bigger they are, the harder they fall’, and that was certainly the case for Diprotodon.”

Dr Price's research was published recently in the *Zoological Journal of the Linnean Society*, and was supported by the University of Queensland, Queensland University of Technology and the Australian Research Council.

Source: Queensland University

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