

FAQs for Primary School students

*With contributions from the Year 6 and Year 7 classes,
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<http://kangaroo.genomics.org.au>

MARSUPIALS

(1) How long ago did the first marsupial evolve?

To answer this question, it is important to remember that marsupials are types of mammals. The first mammals appeared a long, long time ago – about 220 million years. This was even before dinosaurs were on earth! Then for a long time (about the next 100 million years or so), mammals remained just a small and rather insignificant part of all the animals on earth. During this time, the continents were all still joined into one big landmass called *Pangaea*, which allowed these early mammals to slowly spread out to all parts of the land.

We know from studies of the earth, that about 200-to-140 million years ago, the single landmass split into the two 'super continents' of *Laurasia* (made up of Europe, Asia, and North America) and *Gondwana* (made up of South America, Africa, Madagascar, India, Australia, and Antarctica). Of course, this also caused the mammals on the two 'super continents' to be separated from each other, allowing them to develop and evolve independently. The website by Christopher Scotese at <http://www.scotese.com/earth.htm> shows maps of the earth through geological time, demonstrating showing how the continents have separated through this period.

From fossil evidence, scientists believe that the first marsupials may have evolved between 120 and 100 million years ago. This is based on studies of those fossils, which revealed teeth patterns, limb and feet structure, and the presence of certain other bones that are only found in marsupials and monotremes. Over the last 50 million years or so there has been a great diversification of marsupials in Australia. For more information, refer to: http://kangaroo.genomics.org.au/public/tammar/?Marsupials:Marsupial_evolution_and_Biogeography

(2) Are there any other countries with native marsupials today?

There are "Australian" marsupials in the islands of Papua/New Guinea including tree kangaroos, and also monotremes – long billed echidnas. About 10,000 years ago the sea level was lower and these islands were connected to the Australian mainland, allowing the animals to naturally spread northwards from Australia. South America has its own distinctive groups of marsupials (but no monotremes), and one of these, the Virginian opossum is also widespread in Northern America.

(3) Are all Australian marsupials endangered? Could you please tell me which ones are truly in danger of extinction and what can be done?

Most Australian marsupials are not endangered. The ones at risk tend to be the smaller ones that suffer from predation by foxes and cats. Habitat loss is another major problem. For more information, check out:

<http://www.environment.gov.au/biodiversity/threatened/publications/action/marsupials/>

Also try <http://www.iucnredlist.org/> and search for 'marsupial'. Lots of good data there.

(4) We (Year 7) are researching the evolutionary history of Australian marsupials. Can you give me some places on the web I can get information about our marsupials and their evolution? (P.S. We've already been to the Australian Museum's website.)

http://www.aqua.org/downloads/pdf/AsktheAquarium_Marsupials.pdf

<http://palaeo.gly.bris.ac.uk/Palaeofiles/Marsupials/index.htm>

Try searching Wikipedia – e.g. <http://en.wikipedia.org/wiki/Marsupials>

There is also a long list at http://www.naturalworlds.org/marsupialring/marsupial_sites.htm

(5) What is Diprotodon and when did it live?

The diprotodontids were part of the Australian Megafauna (mega = big, fauna = animal) that lived many thousands of years ago. The diprotodons and the other Australian megafauna evolved about one million years ago may have become extinct only 15,000 years ago. Diprotodon fossils have been found in many places across Australia, and more than one female skeleton has been found with a baby lying in her pouch.

[Source: <http://museumvictoria.com.au/prehistoric/mammals/diprotodontids.html>_ Accessed: 18th March 2009]

(6) Is Diprotodon like any of Australia's living marsupials?

These animals were vegetarians and there were several species, all ranging in size: they could be as small as a sheep or as large as a rhinoceros. The largest species was the *Diprotodon optatum*, which was three metres long, two metres tall, and weighed as much as two tonnes. The closest surviving relatives are the wombats and the koala.

[Source: <http://museumvictoria.com.au/prehistoric/mammals/diprotodontids.html> Accessed: 18th March 2009]



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<http://kangaroo.genomics.org.au>