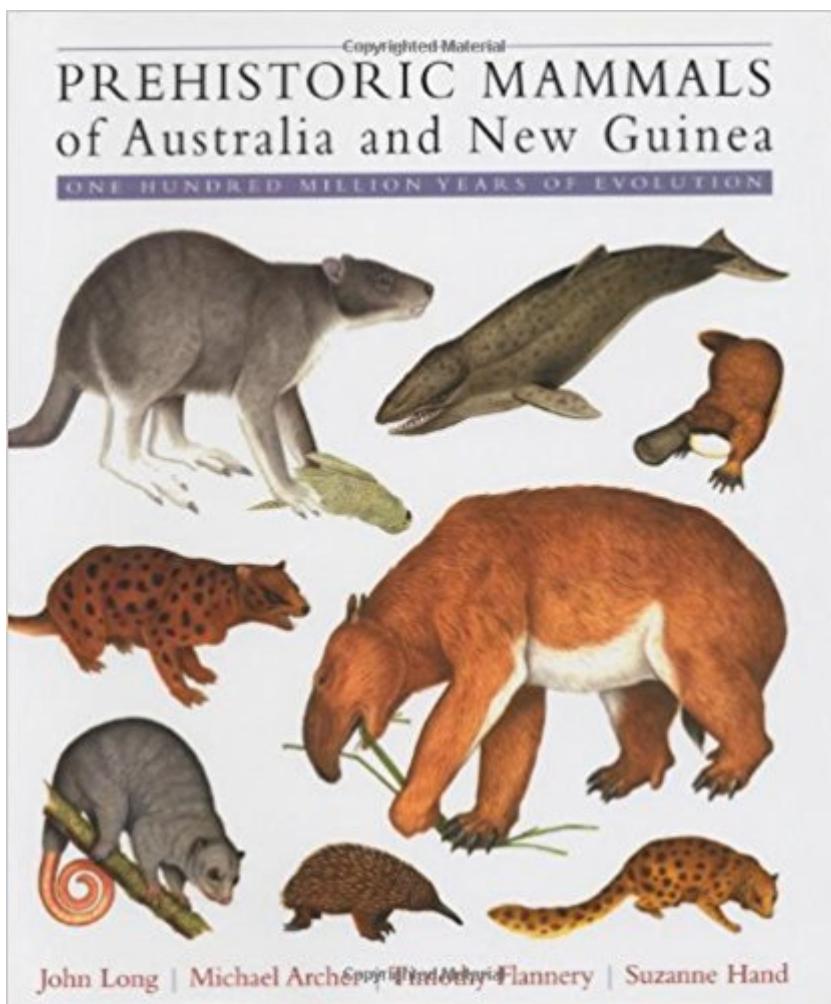


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# Prehistoric Mammals Of Australia And New Guinea: One Hundred Million Years Of Evolution



## **Synopsis**

From kangaroos and koalas to the giant Diprotodon and bizarre "thingodontans," prehistoric mammals evolved within the changing and sometimes harsh environments of Australia. As part of Gondwana, Australia was the first landmass to be isolated from the supercontinent Pangaea. In *Prehistoric Mammals of Australia and New Guinea*, four respected paleontologists present a history of the development of modern mammals from the unique evolutionary environment of Australia and New Guinea. The authors describe both what is known about prehistoric Australian mammals and what can be reconstructed from the fossil evidence about their appearance and behaviors. This accessible reference work offers facts about how each mammal got its name and provides a description of how the fossil mammal resembles its modern descendants. Over 200 four-color illustrations enhance the text, which describes the age, diet, and habitat of these extinct mammals. The authors also detail how each mammal evolved and is now classified. Diagrams showing skeletal features and tooth structure and a glossary of technical terms are also included.

## **Book Information**

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## **Customer Reviews**

"We are just beginning to understand the history of the Australian mammalian fauna. The authors of this volume have devoted their professional lives to the painstaking task of breathing life into old bones. They here provide a compendium of the most current information on the fossil taxa, how they resemble their closest relatives, and what may be inferred about their way of life. Readers will not only find this book to be a guide to the past mammalian fauna of Australia but also a means of

understanding how scientists work at deciphering this story." (from the Foreword by Ernest L. Lundelius Jr.)

John A. Long is the curator of vertebrate paleontology at the Western Australian Museum and the author of *The Rise of Fishes*, also available from Johns Hopkins. Michael Archer is the director of the Australian Museum in Sydney and a professor of biological science at the University of New South Wales. Timothy Flannery is the director of the South Australian Museum in Adelaide and an acclaimed author. Suzanne Hand is the senior project scientist in the School of Biological Science at the University of New South Wales.

The good news first: This book succeeds in the almost impossible task of being both an attractive coffee-table book and a valuable scientific reference. Within its purview, every known species is carefully and exactly defined, and the book is full of superb illustrations, not just of life reconstructions, but of the actual fossils themselves. The book is aimed at Australians, and readers from elsewhere should familiarize themselves with the continent's living mammals (not just the famous ones) before reading it. It helps a great deal to know what a dibbler or a bettong is and does before attempting to confront their ancestors. Which brings us to the bad news. The species descriptions focus on tooth morphology to the almost total exclusion of all other factors, and beyond the illustrations there is little attempt to deal with what these creatures actually looked like or how they behaved. Admittedly, the whole foundation of mammalian taxonomy lies in the teeth--but that is the beginning of paleontology, not the end of it. Diet, kinematics, reproduction, ecology, behavior--paleontology of late has gotten better and better at dealing with these things, but there's almost nothing of that here. Even in the relatively few cases where substantial postcranial material exists, there is no attempt made to discover the real animal that lies behind the fossils. This seems to have extended even to the life reconstructions, which are displayed in a neutral stance and largely without expression, against the white background of the page, as if the creatures were stuffed and mounted in an exhibition hall. Yes, a carnivorous kangaroo may be shown with a dead galah at its feet--but it is not doing anything so indecorous as to actually be eating it. If the bird were removed, there would be no way of knowing it had ever been there. These spookily poker-faced creatures seem determined to convey as little as possible to the viewer--not even the fact (in every picture but one) that they are marsupials! Because of the lack of context there is no way to judge size, with the result that all the wombat-like grazers look almost exactly alike, from the sheep-sized *\*Silvabestius\** to hippo-sized *\*Diprotodon.\** The minuteness of various extinct possums is conveyed

much more vividly by their fossil jaws shown next to matchheads than by any of their reconstructions. And one final cavil: more than a few of the reconstructions have been concocted out of thin air, based on nothing more than a fragmentary jawbone and a few teeth. This was a bad habit of paleontological illustration a century and a half ago, but was long ago overcome. Or so I thought. One beast is even reconstructed from a single tooth! This is just irresponsible.

Well illustrated book with all the facts needed to visualize these extinct mammals of Australia! Very good read with understandable facts.

A nice volume that covers many rarely cited prehistoric mammals from Australia & New Guinea. Recommended for anyone interested in vertebrate paleontology.

I have mixed emotions about this book. It starts out with a very good set of chapters introducing Australia's mammals. It talks about how they developed, how they were found and the constraints that living on a small and mostly desert continent puts on them. That part is almost worth the cost of the book. The rest of the book is a mixed bag from the point of view of the interested non-specialist. It has very good illustrations and lots of them. Some of the species descriptions are written in such a way that an intelligent layperson can get the gist of them. Others probably have something profound to say, but not to the non-specialist. For example: "Distinguishing features of Diprotodon include: its large size; relatively small P3 (compared to the molars); P3 shearing blades which unite to form a horse-shoe shaped crescent open on the buccal side; bilophodont molars without conspicuous midlinks; molar enamel with a rugose, punctuate surface--"I think almost everyone reading that would join me in saying 'huh?' That's not meant so much as a criticism as a caution. Non-specialists will find parts of this book irritating because they want to find out more about the animals involved, and that information is undoubtedly in there if you can extract it from the jargon it is encased in. Our knowledge of Australia's fossil record has improved considerably in the last couple of decades, but there are still rather large gaps. There are a few fossil mammals from the early Cretaceous--between 125 million and 100 million years ago. There is then a gap of over 50 million years. The next fossils are dated at around 55 million years ago. Many of the species from that era consist only of enigmatic isolated teeth that make it difficult to figure out even which order the animal was from. One of the fossils that can be identified is from a Microbiotherid, an opossum-like critter with a long history in South America which still has one living species there. The South American connection isn't surprising. Australia was connected to South America through Antarctica until

Australia broke away sometime between 38 million years ago and 45 million years ago. Microbiotheres fossils have also been found in Antarctica. Finally at around 26 million years ago, a reasonably coherent fossil record appears. At that point, ancestors and relatives of the current Australian marsupials can be identified, along with a few lines that became extinct. Australia was going through a warm and wet phase when this first good fossil record was being deposited, and the diversity of species was very high. Australia started to dry out around 15 million years ago, and has gradually been experiencing drier and drier average climate ever since. One interesting tidbit: the Tasmanian wolf or Thylacine was the last survivor of a surprisingly large and diverse family of carnivores, some of which were somewhat larger than the recently extinct form, and some of which were considerably smaller. This is a book filled with tantalizing tidbits of information and excellent illustrations mixed in with animal descriptions that are simply not very accessible to the average reader.

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