

## Accepted Manuscript

Why Australasian vertebrate animals are so unique - a palaeontological perspective

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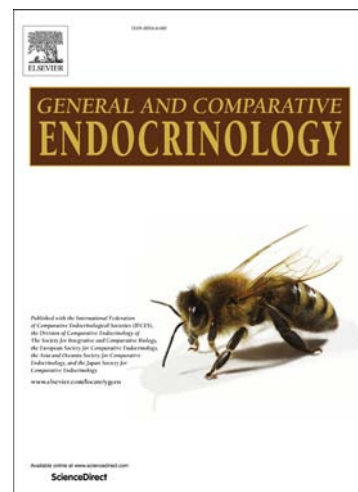
PII: S0016-6480(16)30160-5  
DOI: <http://dx.doi.org/10.1016/j.ygcen.2016.06.002>  
Reference: YGCEN 12419

To appear in: *General and Comparative Endocrinology*

Received Date: 3 December 2015  
Revised Date: 20 May 2016  
Accepted Date: 2 June 2016

Please cite this article as: Long, J.A., Why Australasian vertebrate animals are so unique - a palaeontological perspective, *General and Comparative Endocrinology* (2016), doi: <http://dx.doi.org/10.1016/j.ygcen.2016.06.002>

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## **Why Australasian vertebrate animals are so unique - a palaeontological perspective**

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### **Abstract**

Australasia has a unique fauna of living vertebrates, which include the oldest known species on the planet (the lungfish *Neoceratodus*) as well as many diverse, highly endemic families of fish, amphibians, reptiles, birds and mammals. The origin of most of the Australian vertebrate fauna has developed from two phases. Firstly, when Australia was subsumed within the greater Gondwana landmass, migration of animals from one region to another was possible by a land connection. Many of our most primitive forms of reptiles and mammals probably entered the country at this time, such as varanids, madtsooid snakes, monotremes and basal marsupials. Secondly, following the breakup of Gondwana, the isolation of Australia for its last 40 million years and subsequent changing climatic conditions drove the radiation of marsupial, reptile and amphibian families within the continent. The gradual aridification of central Australia further divided the landmass into discrete regional areas characterised by rainfall, vegetation, and climatic zones.

### **1. Introduction**

Australia is the smallest of the seven continents but is home to many unusual kinds of vertebrate animals, such the Queensland lungfish, the egg-laying platypus and echidnas, and a great variety of unique families of marsupials. Even more enigmatic is the notable absence of animals in Australia that are found on most of the other continents, such as newts and salamanders, large ungulate mammals, and birds of many varieties. How did this happen?

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