

## Book Review

### **Biogeography Comes of Age Down Under: Review of *Reinvention of Australasian Biogeography – Reform, Revolt, and Rebellion*, 2017 by Malte Ebach.**

CSIRO Publishing, Clayton South, Victoria.  
180 pages.

<http://www.publish.csiro.au/book/7438/>

John Grehan

One sign that Australasian biogeography has come of age is that it has now become the subject of a history. With Malte Ebach's intriguing new book, the science of biogeography in Australia and New Zealand may be said to have reached this threshold. Its geography may suggest that Australasia is a remote backwater, but Ebach's book shows that its biogeography is well established, diverse, dynamic, controversial, and above all an integral part of the major theories and practices of global evolutionary biology.

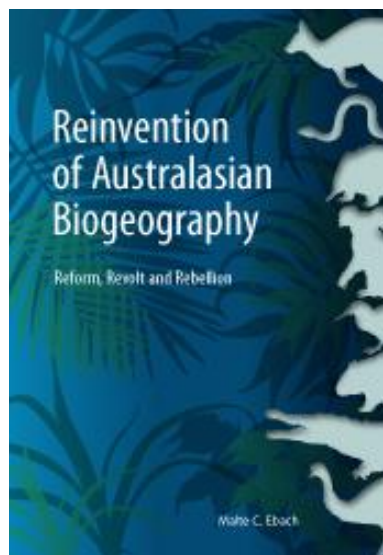
Malte Ebach is a biogeographer at the University of New South Wales and has a long history of investigating the theory and methods of biogeography and systematics (see <http://mcebach.net/>).

In *Reinvention of Australasian Biogeography*, Ebach avoids a linear narrative and focuses on the way the work of many biogeographers, including many in the present, have only repeated earlier mistakes or problems. Biogeography is one of those subjects in which nearly all natural historians have a strong opinion, and it is probably impossible to ever write a truly dispassionate account. Ebach's book begins by presenting the thesis that establishing a natural biogeographic classification is essential for a scientific biogeography. *Reinvention of Australasian Biogeography* then illustrates the diversity of efforts to create natural biogeographic regions in

Australasia and the inherent difficulties in identifying criteria for recognising biogeographic areas that are truly natural. Ebach shows how the construction of these various areas, regions, and biomes has been strongly influenced by theories about where and how ancestors originated. The development of biogeographic classification has been a major concern for many prominent Australasian biogeographers, including the influential works of Sir Charles Fleming in New Zealand, although panbiogeographers have focused on biogeographic nodes rather than on defining areas.

The biogeographic classifications of Australasia that were made in the 19<sup>th</sup> and early 20<sup>th</sup> century provide a historical context for the chapters of Ebach's book that examine three principal themes in Australasian biogeography. The first theme is the increasing acceptance of cladistic principles by Australian researchers in the 1970s and 1980s that led to the equal treatment of fossil and living taxa in the construction of phylogenetic trees and the analysis of biogeographic patterns. The second theme concerns the development of panbiogeography in New Zealand beginning in the late 1970's. Ebach recognises this approach, with its focus on distribution patterns, as a major effort to avoid the history of biogeographic reinvention. He notes that despite its wide development and application, particularly among research students, the approach was successfully stifled by established scientists.

The third of Ebach's themes is the continued prominence of dispersalism in New Zealand biogeography. This theory is maintained in a new form, 'neodispersalism', which relies on fossil-calibrated molecular clocks to provide actual dates of origin, and assumes that the location of endemics is explained by their physical movement. While the involvement of molecular technology in neodispersalism gives the appearance of progress, *Reinvention of*



*Australasian Biogeography* illustrates how its application to Australasia actually represents a reinvention of a twentieth century notion: the idea that all endemic plants and animals in New Zealand must have arrived from somewhere else. Ebach draws attention to the latest, molecular-enhanced version of this theory, the idea that New Zealand was entirely submerged in the Oligocene and so all its biota must have dispersed to the islands. Nevertheless, it is now clear that there is no supporting biogeographic and or geological evidence. Ebach concludes that rather than advancing biogeography, adopting such molecular approaches has meant that neodispersalism simply reinvents the theory and practice of early twentieth century palaeontology.

Ebach concludes his book by returning to a theme presented at the beginning, namely that the future of biogeography lies in moving away from creating narratives to developing an analytical framework. His preferred framework is to identify the relationships between areas as represented by the phylogenetic relationships of their taxa. Conflicting patterns of relationships for multiple taxa indicate the existence of artificial areas (such as Australia or New Zealand), while matching (congruent) patterns support the existence of actual areas. While this method is described in its broad outlines, its detailed application to the biogeography of Australasia remains for the future.

Naturally a book that focuses on the perspectives of biogeographers as well as actual practice is going to arouse strong responses - whether positive or negative. While I do quite strongly disagree with some of the views expressed in this book, I found the attempt to outline the theoretical themes connecting individual biogeographers to be refreshing. Perhaps the principle weakness, though, was the attempt to assess the contributions of panbiogeography (particularly with respect to the extensive analyses of Australasian, New Zealand, and pantropical patterns) in relation to those of area cladistics, the method that Ebach favours. Whatever one's perspective may be on this and other issues, this book will provide excellent material for further debate, perhaps assisted by a good *kiwi* beer.

## Articles

### Lake Hāwea Lakeside Reserve: botanising in my new neighbourhood

*Helen Clarke*

This article discusses the importance and complexity of a (mostly) native species reserve close to an urban environment.

Two and a half years ago my partner John and I retired to Lake Hāwea village on the southern shore of Lake Hāwea. The village was established following the building of an earth dam at the river outlet in the 1950s. This dam raised the lake approximately 20 m affecting all of the natural shoreline. The village and a strip of land, now “foreshore reserve”, occur on elevated land above the new southern lake shoreline.

The reserve separates the shoreline from the houses and gardens of the residents. It features significantly in the lives of many of the Lake Hāwea residents. It is used for recreation of all sorts and for access to the lake edge. A popular walking/cycling track traverses it. The Te Araroa trail is through it.

The area includes kānuka forest with occasional mānuka, north-facing gravel slopes, some seepage areas within the kānuka, and remnant turf / fescue communities. Possibly about 30% of the area is open, regularly mown pasture but these areas continue to allow some of the turfland species to survive

Some exotics were planted by the Electricity Department after the dam was built, mostly in the western area where earth was removed for the dam. As the village developed, a group of locals fought to retain and preserve the strip of land and its natural vegetation cover. For 30+ years they have volunteered their time; weeding, maintaining and planting mostly native plant species in the reserve. Supported by the Hāwea Community Association they lobbied to obtain reserve status for the area. This group is known today as the “Thursday Group”.