

After the Greening: The Browning of Australia

Mary E. White

Kangaroo Press 1994

A book review by [Danny Yee](http://dannyreviews.com/) © 1999 <http://dannyreviews.com/>

After the Greening is a lavishly illustrated botanical and geological history of Australia over the last two hundred million years. It is a scientific synthesis which goes into considerable detail (about specific plant taxa and geological formations), but it is never dry or boring. White is a paleobotanist herself, but she takes a multi-disciplinary approach, always keeping the broader historical and ecological context in view. There is a good selection of maps and diagrams, the glossary helps with the occasional technical term, and the photography is informative and well-integrated with the text as well as attractive. *After the Greening* will be a pleasure for amateur geologists and botanists, conservationists, and many others.

The story begins with the separation of Australia from Gondwana, a process that started some 160 million years ago and took more than a hundred million years, with slow stretching and then rifting as Australia rotated away from Antarctica. White describes the differing fates of the Gondwanan forest in Antarctica, South America, Africa, New Zealand, and Australia (with *Nothofagus* as a key indicator of climate), deep weathering and the formation of duricrusts and "inverted" landscapes, and the formation of the major divides and the "beheading" and reversal of rivers. Special attention is given to the history of features such as the Great Artesian Basin, mound-springs, and opal deposits.

During the next fifty million years, during the Eocene, Oligocene, and Miocene, Australia drifted northwards more rapidly. The fossil record reveals the changes in vegetation accompanying gradual cooling and drying, a result of the refrigeration of Antarctica and global climatic changes. Geological features given special attention include the Murray basin, Ayers Rock and the Olgas, and the Nullarbor, and White digresses to look at the role of Miocene climatic change in hominid evolution.

The period from 2.4 million years down to the present saw an increasingly variable climate, with glacial/inter-glacial cycles driving fluctuations in dune building and lake and sea levels. The overall progression was towards increasing aridification of Australia's centre and the spread of dunefields. Topics given special attention are the history of the Willandra lakes (Lake Mungo), the ecology and unusual distribution of nitre bush, and the Henbury meteorite craters.

The descent from the last glacial maximum, some 18000 years ago, brings us to the present, the last two hundred years. White surveys the major vegetation types of Australia: the domination of *Eucalyptus* and *Acacia*; the mulga, mallee, and spinifex of the arid lands; tussock grasslands and open shrublands; the high-rainfall areas of the north; open forests and woodlands; remnant Gondwanan rainforests and wet sclerophyll forests; and coastal heathlands. She also analyses some of the key factors influencing the landscape and vegetation: the flood and drought cycles of El Nino/ENSO, changing fire regimes, salt and salination, and feral animals.

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