

## BOOK REVIEW

*Southern Beeches*. A.L. Poole. Science Information Publishing Centre, Wellington, 1987. 148 pp. NZ\$27.50.

In his preface to 'Southern Beeches', A.L. Poole makes it clear that this is a story told 'as far as possible in non-specific terms', but drawing on a great deal of scientific literature 'to make it as accurate and complete as possible', even though only 'some of the key references' have been given. As such, this informal sketch of the morphology, distribution, ecology, origins and affinities of *Nothofagus* is worth reading.

The first two chapters include an introductory account of the use, discovery, identification, classification, distribution, and origins, of Fagaceous trees, a brief description of *Fagus*, concentrating on the uniformity of the genus, and theories on the common origins of it and *Nothofagus*.

Chapter 3, dealing with the New Zealand species of *Nothofagus*, is, as might be expected, the most thorough. It compares their morphology and ecology, presents a detailed description of reproduction, briefly discusses the relationship of beech forest and other vegetation types, gives an account of beech distribution, and introduces the concept of silvicultural management.

Chapter 4, on the Australian beeches, outlines the similarities between these and their New Zealand relatives, and explores the possible affinities both of the beeches and of their accompanying floras. There is a brief account of the distribution and ecology of each of the three Australian species.

Chapter 5 starts with a description of the first collections of the South American species, then follows with a brief outline of the vegetation of western South American and some supposition about ancient links with Antarctica, Australia, and New Zealand. There is a geographical account of the distribution of South America's nine beech species, with a more ecological look at some special features of distribution. Floristic affinities with New Zealand are explored, and regeneration and management are mentioned.

The content of Chapter 6, dealing with the New Guinea species, reflects their relatively recent discovery and the lack of information available about them. There are two sections dealing with the geographical relationships and floristic affinities of the New Guinea flora, and brief accounts of the distribution, ecology, and management of New Guinea beeches.

The genus in New Caledonia is described in Chapter 7. There are brief accounts of endemism in the flora, the effects of fire and soil type, floristic affinities with Australia, New Zealand, and New Guinea, and the distribution of New Caledonia's five beech species.

Chapter 8 ties together the distributions of *Nothofagus*, and outlines the role of Antarctica as an ancient link between the countries now supporting the genus. It presents theories about the origins and migration routes of southern beech. Morphological characters of the various *Nothofagus* species, and hybridisation possibilities, are used to demonstrate or discount common ancestry and rates of speciation.

'Southern Beeches' is idiosyncratic, subjective, and often evidently anecdotal. Although published by the DSIR's Science Information Publishing Centre, it is not really a scientific or scholarly treatise, and should not be compared, for example, with John Wardle's *The New Zealand Beeches* (N.Z. Forest Service, Wellington, 1984).

Poole's forest descriptions amply convey his enthusiasm for the subject. His forestry background is evident in his laudatory comments on forests composed of trees with tall, clear trunks, and his interest in management for timber production, soil protection, and recreation. However, one questions his perception of the intrinsic biological values of beech forest, particularly that with vegetation of lesser stature, as they receive not a mention.

The chapters are logical in sequence and content, but within each, the reader is jostled about by unruly paragraph order, sudden changes of topic, and, not infrequently, by a repetition of, or referral to, points made elsewhere in the text. In places enthusiasm and superlative lead to suspicions of exaggeration, particularly as most claims are not supported by references. The condensation of volumes of largely unsourced theory and fact into a few simple statements makes much of the text seem speculative.

There is a multitude of illustrations, but both drawings and photographs (all monochrome) are very variable in quality. Many are superfluous, and some bear little relevance to the text.

There are avoidable inaccuracies and errors of fact. For instance, Poole claims that, in their most representative states, New Zealand beech forests contain few species of trees and shrubs, and lack a defined understorey. This description is surely of forest modified by browsing mammals, not of beech forest in a natural state, except perhaps in the dry regions east of the main divide. In the absence of browsing, as seen in the Catlins, in eastern Otago, and

in parts of western Fiordland, there is a very distinct understorey of several shrub and small tree species. Poole also claims that browsing in Fiordland forests is 'not severe enough, except in localised areas, to affect greatly the natural forest processes at work.' In fact, there is evidence that beech forests throughout much of Fiordland have been damaged by browsing to the extent that natural forest processes have not been able to function for many decades.

The width of the Tasman Sea is given as 1000 km; in fact more than 1500 km separate Australia and New Zealand. Eucalypts are claimed to have been well-established in New Zealand, 'it is thought ... transported by the westerly winds and currents', 'before the ice age extinguished them'. In fact there is no consensus on the means of eucalypt dispersal to, or extinction in, New Zealand. 'Tanemahuta', a New Zealand kauri surrounded by kauri forest in Waipoua State Forest, is stated to be '... growing in splendid isolation surrounded by broadleaf trees and shrubs.'

Poole adheres to the outdated suppositions that New Zealand beech seed is ill-equipped for wind dispersal, that it travels only tens of metres from the parent plant except down waterways, and that cross-country dispersal is rare. Studies in north and south Westland and in south-east Otago have shown that beech seed is commonly dispersed a couple of hundred metres, even through forest, and that is probably carried several kilometres by wind.

The distribution records for the southern beech species in New Zealand and elsewhere suffer from inaccuracy and vagueness. For instance, Poole states that red beech is found at low altitude in western Fiordland, whereas in fact it occurs only in northern and eastern Fiordland, as confirmed by the

distribution map on p.27. It is not clear where mountain-red beech hybrids occur, other than on 'easier and lower country' eastwards from Fiordland (p.47). The 'eastern areas' where 'podocarps increase greatly and beech forest shares the terrain with podocarp-mixed broadleaf forest' are unspecified (p.49). The distribution of beech in eastern Australia is given only in general terms. There is a distribution map of the 'menziesii', 'fusca', and 'brassii' groups, including New Zealand and New Guinea, which is of little help in determining where the Australian species actually occur. Although the distribution of the South American species is better described than that of the Australian, the many place names are of little use without a clear distribution map, and only the latitudinal ranges of the species are illustrated.

The use of common names, particularly for the South American beech species (robel, ruil, hualo, rauli, coigue, coigue de Magallanes, coigue de Chiloe, lenga, nirre), is confusing. Poole uses Latin binomials, a more practical means of identification, consistently only for the New Caledonian beech species.

Who should read the book? Its lack of references and its conjectural nature render it of doubtful use to the serious student of biogeography or ecology. It is really too subjective to be used as an introductory text on *Nothofagus*. The style of text and quality of illustrations preclude its display on the coffee table. However, it is the first and only effort to bring together the southern beeches in a readable and interesting story; to make *Nothofagus* accessible to the layman. Borrow it from the library and decide for yourself.

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