

Fashioning Australia's Forests

Dargavel J. (1995) *Fashioning Australia's Forests*, Oxford University Press, Melbourne.

It is rather too easy for New Zealanders looking across 'the ditch' to effect a superior attitude when it comes to forest history, reflecting the prevalence of forests as a 'natural' vegetation type in New Zealand and the significance of spars and mast gathering in the early contact period, the importance of the colonial timber industry in the nineteenth century, the boldness of State and private sector afforestation in the 1920s and 1930s and the increasing contribution of forest products to the export profile of the country. John Dargavel's book is a timely reminder that such a view is flawed. Not only does he recover Australia's forest economy (using the term in its widest sense) but he also offers a theoretically informed account that is overlain by a carefully-crafted narrative.

The volume is most attractively produced and a tribute to the publishers and the author. In ten chapters, Dargavel covers Australia's forest from the mid 19th century to the present and concludes with a 'prospects' chapter looking towards the next century.

The volume is notable on several scores. Firstly, it continues a cycle of forest history authorship from pioneering statements by trained foresters (e.g. Fernow's *History of Forestry* dating back to 1907) giving way to a range of disciplinary studies typically from the humanities and social sciences, and more latterly a further generation of studies by foresters. Peter McKelvey acknowledged such a sequence in the preface of his *Steeplands Forests* published in 1995 (p 9) noting also that "perhaps one indication of a [Forestry] technology having attained a measure of maturity is when it becomes of interest to historians, and that has happened to New Zealand forestry". McKelvey's most recent volume and Dargavel's demonstrate, however, that foresters continue to occupy a crucial place in the writing of forest history.

Dargavel draws together the insights of two decades' work on the structure of forestry to provide a theoretically informed account, freely written and sharply focused. This enables him to

encompass the timber industry, forest management and environmentalists' concerns, the private sector, the State and NGOs in the past and in the present. His use of forest management regimes also enables him to transcend the difficulties that Australia's federal system poses for forest historians, which tends to result in separate narratives for each State (see, for example, Les Carron's *A History of Forestry in Australia*).

Dargavel describes a forest resource management regime as those sets of social and political relationships "whose purpose is to manage people in their use of environmental resources". He observes that "the structure of rights and duties which characterises the relationships between individuals or between individuals and the State, varies between resources ... and that the nature of the regime determines how the resources are used and hence how they are used, and hence how they are spatially and environmentally fashioned". This framework underpins his account. Dargavel's own comparative work on British Columbia and Tasmania and this reviewer's understanding of the New Zealand scene suggests that as a framework it would also serve as a starting point for reassessing and re-interpreting New Zealand's forest history.

The strength of Dargavel's analysis is that he is able to address with alacrity the past and present forestry scenes. His discussion of what sustainable development will mean in the context of economy, industry, people and State as well as environment in the future is correspondingly pertinent and constructive. In this respect John Dargavel has done those with an interest in New Zealand's forest history a real service in terms of providing an exemplary model for future efforts on this side of the Tasman. This is a happy coincidence in view of the moves currently underway to discuss an appropriate organisational footing for forest history in New Zealand.

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Modelling Forest Growth and Yield

Modelling Forest Growth and Yield: applications to mixed tropical forest by Jerome K. Vanclay. Published by CAB International, 1994. ISBN 0851989136.

This book is an important one for New Zealand foresters and any others who are interested in objectively quantifying the growth and yield of mixed forests. Our

performance in this regard needs to be substantially improved, particularly now that legislated requirements for assessing sustainability have to be met.

Dr Vanclay is to be congratulated on making a most worthy early attempt to fill a major gap in forestry technology. But he himself acknowledges that he has been handicapped by a dearth of tropical examples and a limited amount of temperate mixed forest experience, in contrast to the many more publications in recent years on modelling growth of even-aged, single-species stands.

New Zealand is one of many countries that has neglected proper growth estimation of its native forests as part of routine management inventories, preferring instead to rely on the overly simplistic and mistaken assumption that current annual or periodic growth in stands of natural forest exactly matches regular mortality. Researchers such as, for example, Frank Hutchinson, Dudley Franklin, John Wardle and Mark Smale have all shown that a wide range of measured growth occurs in our native stands, while misconceptions even among researchers about how to analyse growth measurements correctly still persist, as can be seen from perusal of an article by Glenn Stewart in a recent issue of this journal. But, the crucial issue here is how New Zealand practitioners such as Timberlands West Coast and forest owners of mixed forests under sustainable forest management plans, together with their consultants, can adapt suitable methodology from the useful examples in Dr Vanclay's book to suit individual situations in this country. Luckily, he has chosen to review a wide range of options rather than prescribe a narrow set of procedures, but that, in turn, necessitates our careful study, evaluation and adaptation rather than being provided with a source of cookbook dogma.

The book comprises 13 chapters, 11 of which are directed at tree and stand level analysis, while only chapters 12 and 13 refer to that at the forest level. On two counts, therefore, the implied emphasis on forest growth and tropical examples is a little misleading. In reality, much of the book's text and its useful list of references deal with even-aged and temperate mixed species stands. Nevertheless, it is clear from Dr Vanclay's review of growth modelling methodology that there is an urgent need for forestry researchers and analysts to come to grips with this gap in our technology. The extent to which he capably demonstrates this lack, is the book's strength.

The book also contains a great deal of helpful practical advice, from which various types of readers can benefit. But that very feature creates added difficulties,

because there are two main and distinct audiences (managerial practitioners and researchers) at which the book is directed and their individual messages are sometimes inextricably mixed together. Thus, there is a danger that some parts are of little interest to one group or the other. This should not deter all readers from careful study of the book's contents, but rather requires them to be selective about where to focus attention in order to embrace the author's messages *in toto*.

The introductory chapter sets the scene for what follows and reaffirms the author's sensible intention to focus on empirical rather than process models. Chapters 2, 3 and 4 deal in turn with whole stand, size class and single tree together with tree list models respectively. I was personally disappointed that the Queensland experience with tree list modelling of tropical forest stands did not get an airing in chapter 4 among the mostly North American mixed forest examples.

Chapters 5 and 6 deal with topics particularly important to researchers, namely those of data requirements and model construction. There is much sage advice in both these chapters, although I would have welcomed a clearer separation of the more comprehensive data requirements for researchers from the reduced set needed by managers wishing to implement researchers' recommended methodologies. In constructing models, the strict rules of classical statistics may need to be stretched further in the interests of expediency than Dr Vanclay is prepared to recommend, provided, of course, that certain safeguards are always taken. The author evaluates the problem of quantifying site differences in chapter 7, in which he rightly creates an impression of unease regarding the forestry profession's unhealthy obsession with simplistic indices (so-called site index in particular), which reflect the performance of a crop rather than the intrinsic growing capabilities a site possesses.

Chapter 8 deals with tree diameter increment, chapter 9 with the perennially troublesome mortality and merchantability functions, and chapter 10 with regeneration and recruitment models. Queensland experience features in the last of these three, further elaboration of which I would have welcomed hearing about.

Chapter 11 on evaluating and re-calibrating models is one which both researcher and practitioner groups should study very carefully. This is a facet sadly neglected too often in routine research and management practice. It is indeed heartening to see the prominence accorded this topic in the book. Similarly, chapter 12 on implementing and using models enunciates some fine ideals, but ones such as

transparency of and ease of changing computer coding will wring wry smiles from those of us having to adjust to user-pays research.

The final chapter, chapter 13, speculates on future directions, always dangerous to an author in revealing his or her personal philosophy. Dr Vanclay makes a compelling case for his choice, but readers in general will express many different opinions. If nothing else, however, it reinforces the need for a much increased amount of research, together with enhanced awareness and articulation by forest managers. This book is surely worth reading if only to stimulate debate on where we should be heading with estimating growth and yield of mixed forest, be it tropical or temperate. I have thoroughly enjoyed the challenges that Dr Vanclay has thrown down, and also those in some interesting exercises he sets at the end of most chapters, particularly as I did not always agree with some of his recommended solutions. I strongly urge, therefore, researchers and practitioners in New Zealand to study and digest the contents of this book and hope that they will analyse carefully the many valuable messages it contains. We definitely need to.

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Ecology of the Southern Conifers

Ecology of the Southern Conifers. Edited by Neal J. Enright and Robert S. Hill. 1995 Melbourne University Press, Carlton South, Victoria, Australia. Hardcover. 342 pp including a 33 page list of references. \$NZ90. \$A80. The Southern Hemisphere's conifer flora holds a special interest for many foresters working in the region, even for those who mainly work with northern hemisphere conifers like radiata pine or Douglas-fir. Hence this book is welcomed. This book give us an excellent overview of the various families, genera and most of the species, with, as the name suggests, a strong ecological flavour. It is also an excellent reference for those who wish to catch up with the latest nomenclature or who are interested in the latest ecological thought.

Twenty-three researchers from six countries, some of them well known to New Zealand readers, have had input to this book. The book covers the origin, evolution and quaternary history of the southern conifers before looking at their ecology on a country or regional basis. Neal Enright from the University of

Melbourne and John Ogden from the University of Auckland conclude with a synthesis of the ecological concepts arising out of the regional studies and compare these concepts with northern hemisphere conifers and angiosperm trees.

Academic Treatise

This book is an academic treatise of the subject and so contains a lot of detail. But there is a lot of fascinating information within it which will intrigue the practising forester. For example, I did not know there was a parasitic conifer or that the tallest tropical tree is *Auracaria hunsteinii* with a maximum recorded height of 89 m. Many readers may not be aware that *Fitzroya cupressoides* (Alerce) in Chile has been aged at over 3600 years. Did you know that in October 1994 David Noble, a National Park employee, was abseiling in Wollemi National Park 200 km west of Sydney and discovered a new conifer? Known as the Wollemi pine, it appears to be more closely related to Cretaceous and Early Tertiary fossil plants such as the *Araucarioides* rather than either *Araucaria* or *Agathis*. There are only 24 mature trees – they grow to 40 m tall. The species was so recently discovered that it has not been possible to go into it in depth in this book, although it is mentioned.

Individual chapters differ in the depth and way they tackled their subjects. This is to be expected from a multi-authored book, particularly as the depth of research varies round the southern hemisphere. The chapter dealing with New Zealand was written by John Ogden and Glen Stewart and I found this was an excellent review of our species and of community dynamics. It is recommended reading, particularly if you have not been able to keep up with ecological thought in this country.

Excellent Coverage

In contrast, I was a little surprised that the authors of the chapters dealing with prehistoric aspects did not discuss or describe the role of continental drift in depth. However, overall the book's coverage is excellent and the reader ends up with a good overview of current knowledge.

Who should purchase this book? Obviously it is an important book for libraries, forest ecologists and other students of ecology. What about the practising forester? Well that depends on your interests. I am certainly pleased to have a copy on my bookshelf and consider it good value.

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