

A significant proportion of information is taken from non-peer reviewed unpublished sources or is presented for the first time in the Handbook. This is both an advantage, as it allows inclusion of recent information, and a disadvantage, as it includes some information which may not stand closer scrutiny. For example, the lists of islands on which each species occurs are incomplete as they include only those known to have the mammal. Many other islands within swimming distance of the mainland undoubtedly have rodents and stoats but no one has checked. Similarly, the claim that the Department of Conservation's mouse control campaign on Mana Island is the only such anti-mouse action in the wild in the world is wrong – the Australians spend considerable money on controlling wild house mice to protect crops.

The references (some 1700 are listed) are not up to the high standard of the rest of the Handbook. About 21% of the 400 I checked were incorrectly cited. Most errors were trivial or minor and would not affect a reader's ability to find the original. However, three references (Myers and Poole, 1963; Silvester, 1964; and Wallis and James, 1972) actually refer one to a different journal. I presume the editor relied on her authors to check their own references, and most did not – a pity.

Despite these quibbles, the Handbook of New Zealand Mammals is a worthy successor to Wodzicki's 1950 survey of introduced mammals and will undoubtedly be a much-used reference book, a spur to future research directions, and a stimulus to debate where authors and readers disagree. As such, no one with a professional or amateur interest in the New Zealand environment can afford not to have access to a copy.

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## **'Prospects for Australian Forest Plantations'**

This book, edited by John Dargavel and Noel Semple, was published by the Centre for Resource and Environmental Studies, of the Australian National University, Canberra in 1990. (\$A30).

The book presents edited versions of a set of papers presented at a conference organised jointly by the Centre for Resource and Environmental Studies and the Department of Forestry at the Australian National University in August 1989. The object of the conference was to assemble a record of the current state of knowledge and experience of growing forest plantations in Aus-

tralia, so that two major proposals for the substantial expansion of the Australian plantation resource might be the focus of more informed debate.

The two proposals were the "Forest Industries Growth Plan", put forwarded by the Forestry and Forest Products Industry Council in December 1987, and the "Conservation-oriented Forest Industry Strategy", put forward by the Australian Conservation Foundation in May 1988.

In spite of the extremely polarised views of these two Australian interest groups, both proposals had advocated a substantial expansion of the plantation estate.

The first, involving an investment of \$A49 million, had proposed the addition of 523,000 ha of pine plantations, and 76,000 ha of eucalypt plantations to the existing estate of 900,000 ha by the year 2030. The proposal was based on the conviction that Australian wood-using industries could be internationally competitive with respect to the domestic, and selected export markets, as long as new mills were of "world scale". The new plantings would be complementary to existing plantations and to ongoing access to managed natural forest.

The second proposal was aimed at stopping all "high intensity" clearfelling of native forest in Australia over the next 15 to 30 years, and at meeting all of the domestic demand for pulpwood, and most of the demand for sawntimber, from plantations. The only logging that would remain in native forest would be the low impact harvesting of high-value timber for the furniture and veneer industries. This goal was to be achieved by planting an additional 200,000 to 350,000 ha of eucalypt plantations and another 230,000 ha of pine plantations over the next 30 years.

Only a brief outline of each proposal is included in this collection of papers, which concentrates on the presentation of information, based on experience and research, which is relevant to the evaluation of the technical feasibility, the likely commercial viability, and the social and environmental impact of further plantings of introduced conifers and indigenous eucalypts, and to the establishment of processes for resolving the conflict between the advocates of development and conservation.

The conference was well structured and its papers have been well chosen to include contributions from a broad range of authorities with relevant knowledge and experience. All of the State forestry and conservation agencies, the major private forestry companies, several divisions of CSIRO, several departments of the major universities, and representatives of a number of conservation and industry interest groups

have contributed, and there are papers from invited overseas authors covering the international market for wood products (R.A. Sedjo, USA), the effective use of mediation in environmental disputes in North America (Alana S. Knaster, USA), and privatisation in New Zealand (D.J. Evans, NZ).

There is concise introduction by John Dargavel which describes the circumstances which have led to the bitter public and political conflict over the practice of forestry in Australia, and John contributes a final chapter which discusses the strengths and weaknesses of the knowledge which should be the basis for the analysis of development proposals, and the formulation of plantation policies.

The conference papers are organised into chapters covering:

**POLICY AND PROPOSALS**, which covers a history of plantations in Australia, a discussion of the rationale for plantation policies and the concentration on coniferous softwood production for general purpose sawlog production, an overview of the economic issues which have, in the past, and which should, in the future, influence public and private investment, and presentations promoting the two major plantation proposals from representatives of the Australian Conservation Foundation and the Forests and Forest Industries Council;

**INTERNATIONAL AND TRADE SETTING**, which covers an overview of the global trade in forest products and the emerging dominance of plantation resources in the Pacific Basin, a description of the status of the forestry sector in New Zealand, its recent restructuring and the Government's Asset Sale, a discussion of approaches to the marketing of the future increase in Australia's plantation production, and an argument in favour of the potential of an expanded forestry manufacturing industry;

**THE AUSTRALIAN EXPERIENCE**, which includes papers presented by representatives of the State forest services of NSW, Queensland, South Australia, and Tasmania, and of the two major private forest growers, APM and APPM. These cover Australian operational experience in the establishment and silviculture of both coniferous and eucalypt plantations. They reveal the generally low rates of return achieved and expected by State agencies (3 to 4% real), and an emerging interest in eucalypt pulpwood crops, especially by the private forest growers;

**IMPLICATIONS OF RESEARCH**, which provides a comprehensive coverage of the status of Australia research into the breeding, establish-

utilisation of coniferous and eucalypt plantations, and which presents much technical information which will be of interest to New Zealand readers, especially with respect to the management of eucalypts;

**LAND AND IMPACTS**, which covers the availability of land for forest plantations, the lack of information upon which social impact can be predicted, landscape considerations, and the need to be concerned for populations of rare and endangered fauna;

**PRIVATE PLANTATIONS**, which covers the contribution of non-industrial forest growers, the adequacy of incentives to support their efforts, and the general lack of interest in tree plantations on farms in spite of potential benefits;

**RESOLVING THE CONFLICTS**, which covers the intense community opposition to the planned expansion of plantations in Victoria, and approaches to the resolution of this conflict, and which covers the successful use of mediation in environmental disputes in USA.

This set of conference papers is valuable as a comprehensive record of Australian plantation experience, and as an expression of its forestry sector's attitudes and aspirations at one point during a period of significant change.

The conference was held shortly after the Wesley Vale pulpmill project in Tasmania was abandoned by the NBH-Norander joint venture. This had demonstrated the strength of the environmental movement's political influence on both State and Federal Governments. The pulp and paper industry was facing increasing environmental constraints and bureaucratic procedures at a time of boom in world markets, which was stimulating investment in new plantations and manufacturing capacity elsewhere in the world. This optimism in the pulp and paper industry was possibly the catalyst for the awakening of interest in the eucalypts as plantation crops. The enthusiasm and optimism of researchers in the eucalypt programmes is apparent in several of the conference papers.

But investment in plantations in Australia has been even more dominated by the taxpayer than in New Zealand (the area of State owned plantations made up 70% of the Australian total in 1987), and the expected return on investment in new plantations is substantially lower for sawlog crops (3 to 4% v 10+% real before tax). It is implicit in both the FAFIC and the ACF "major" plantation proposals that the taxpayer will again be expected to be the dominant source of funding for these expansion projects. While the influence of the cost of capital is raised in a few papers, there is little evidence of concern that the changes then occurring in New Zealand, and in

fact reported by Evans at the conference, would shortly be affecting the forestry sector in Australia. The increasing cost of debt, and an increasing lack of confidence in the efficiency of government businesses, is now apparently also influencing some of the Australian State Governments to seek to withdraw public support for afforestation and to consider privatisation of their forestry businesses.

The conference papers therefore reflect the state of a sector at the end of a long period of public investment in

afforestation. The set of statistics attached as an appendix in the book demonstrate the remarkably steady increase in the rate of afforestation in Australia since the mid 1960s. In spite of all the debate and soul searching that has surrounded the Australian involvement in plantation forestry, State foresters have clearly been remarkably successful at not letting it affect their planning programmes, until now that is.

D.A. Elliott

## Evaluating resource use in the NZ Regional Economy : IMPLAN

Dr Patrick Aldwell\*

The Forest Research Institute has recently acquired IMPLAN (Impact Analysis for PLANing), a PC-based input-output program produced by the United States Forest Service. This program is widely used for evaluating impacts of resource-based industries. It was used extensively in the Northern Spotted Owl issue in the Pacific Northwest.

IMPLAN is currently structured according to inter-industry and inter-regional trade relationships in the United States. The objective at FRI is to strip the model of its US content and replace it with New Zealand content before conducting a series of validation and updating trials. This costly and time-consuming process is expected to take three to five years. However, it is hoped to have a demonstration version available in about two years.

A useful feature of the model is that it

will show inter-industry transactions at the sub-national level. Once modified, the New Zealand version will have many applications. These include:

- (i) **Industrial market studies:** Identification of potential markets – by industry and by region.
- (ii) **Economic impact assessment:** Estimation of changes in regional income, employment and total value-added associated with changes in industry composition, final demand and resource use.
- (iii) **Strategic planning for venture capital financing:** Identifying sensitive businesses, product cycle bottlenecks and competitive position.
- (iv) **Natural resource policy analysis:** Analysing the impacts of resource and planning policies on industries, communities, and employment.

IMPLAN has been designed to incorporate user-supplied data at each stage of the model building and application process. Thus, the initial data supplied in

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