

BOOK REVIEWS

Forest Soils of Tasmania

Forest Soils of Tasmania – a handbook for Identification and Management, by J.C. Grant, M.D. Laffan, R.B. Hill and W.A. Neilsen, Forestry Tasmania, 1995. 189pp.

Forest Soils of Tasmania is an immediately attractive book. The clever cover catches one's attention, and interest is sustained by the clear layout and colour pictures of soil and vegetation. Although written for forest managers, as stated in the Introduction, this book should have wide appeal to those concerned with soils and land use, both in Tasmania and beyond. This is helped rather than hindered by the addition of some sedge land, healthland and scrub soils, not strictly forest, but part of Tasmania's native vegetation. The book builds on the tradition of such books as the 1983 Idaho Soils Atlas, but goes further by interpreting soils and site characteristics for forest use.

Right at the start, the user is told how to identify relevant soils, with their associated forest management information. Primary keying out is by underlying geology. Specific soil characteristics and the types of native vegetation that the soils support are the other criteria used to identify which of the 34 listed soils may occur at a particular site. The potential difficulties of dealing with soil variation are clearly stated here, and the possible problem that a geological map may not show recent surficial deposits is also largely overcome. A key is provided in tabular form to lead the user to the relevant page where the soil is illustrated.

Following the introduction are 24 pages describing soil formation, soil profiles and properties, mapping, land classification, soil degradation potential and forest soil management. Little or no prior knowledge of soils is assumed, although a background in environmental science is desirable when reading these sections. A glossary is provided (pp. 108-112), but is rather hard to find, as it precedes the bulky appendices.

Generally, the background sections are clear and concise. A minor omission is any reference to metamorphic rocks as soil parent material, although examples occur in Table 2. Also, there is no idea given of the proportions of forested land area covered by each of the broad rock types; information which would be help-

ful in understanding the overall soil pattern. In the section on **soil organisms**, there is no reference to the widely different sorts of leachates which result from the different forest types. Some awkward wording under the heading 'The Soil Profile' implies that the suffix 'm' refers to the accumulation of aluminium in a horizon. It could be argued that too much detail is given here for an introductory text, and that reference to the Australian Soil and Land Survey Field Handbook should be made earlier.

The Soil Properties section does not seem to be in an order that agrees with either the keys or other parts of the text. Despite this, the subsections are well written and adequately referenced, except that finding Table 6 presents a small problem as it does not appear until 16 pages further on!

Soil Mapping

The Soil Mapping section is of particular interest, although this handbook deliberately stops short of giving detailed soil distribution data. No mention of rainfall information is made here, despite it being an important factor in the establishment of soil/vegetation relationships discussed elsewhere (e.g. Fig. 2). The description of soil associations as map units is somewhat confusing from a New Zealand standpoint; in this country they have been used as compound units, with two or more symbols linked by a + sign indicating a known linkage of the soils to topography. In the Tasmanian example given, it appears that an association is dominated by a single named soil profile class (Fig. 3), although the text above suggests similarities with New Zealand usage. It is also slightly frustrating not to have information on just how much of Tasmania's forested area is actually covered by soil mapping – but perhaps this information is commercially sensitive.

The Soil and Land Classification section deals principally with soil and site hazards to plantation forestry. They are then related to various forest management procedures and requirements in the following section, which includes a classification of site productivity and a method for assessing land suitability for plantations. Site productivity is in terms of four growth rate classes (mean annual volume increment in m³/ha/year) for *Eucalyptus globulus* and *E. nitens*. It is said that the ratings can also be applied to native forests and radiata pine plantations, but that they are then less precise. Subsections on slash burning and prescribed burning emphasise the different conditions across the Tasman, but attention given to erodibility, topsoil retention and avoidance of

compaction highlights the similarities. Assignment to a productivity class is linked to suitability classes which are basically limitation driven, with increasing degrees of severity in the lower production classes. The method is broadly similar to those in use in many parts of the world, but has been adapted specifically to the local species and conditions. While a number of the criteria are still qualitative, continuing research will add more precision to such systems with time – if the research is allowed to continue.

34 Soils

Having dealt with the background, the reader now has the pleasure of sorting out his or her soils from the 34 on offer on the following 68 pages. Or of just browsing through to admire examples of the soils of almost half of Tasmania. This section, with good colour pictures of vegetation/landscapes and soil profiles, together with boxed information stressing important facts for soil and forest management, is particularly easy to assimilate. More meaty, factual information on each of the soil profile classes has been lodged in a monster Appendix, which also takes up 68 pages of the handbook. Almost lost between the two are a glossary previously referred to, and the comprehensive list of 84 references.

While heartily endorsing the approach taken with the colour picture presentation, I have a very few minor quibbles (apart from the absence of forest in the first photo!). There is a lack of consistency in the use of white markers which show horizon boundaries beside the tape in the soil profile photos. On page 43, the word 'landslides' should be in italics to match its fellows. The site photos can obviously only show a tiny proportion of the vegetation listed; however it would be nice to know which the major species illustrated actually are, perhaps by underlining them in the species list. Otherwise, full marks!

Appendix 1 is a significant part of the book, and could easily be regarded as Part 2, rather than as something tacked on at the end. The information in it is substantial and important, explaining variability, giving additional references, a fuller profile description (although not an identifiable type locality, unfortunately), and providing selected chemical and physical analyses. In addition, there are ratings of land qualities for assessing site productivity and land suitability for plantations, also a vegetation species list. The latter list is not explained in the accompanying notes, and partly duplicates that given with the individual soil descriptions.

A small outline map of Tasmania accompanies each variability and location