BOOK REVIEWS

FOREST AMELIORATION

by O. Riedl and D. Zachar

"Developments in Agricultural and Managed Forest Ecology"
No. 14, Elsevier Science Publications, Amsterdam, The Netherlands. 1984. 624 pages.
ISBN 0-444-99613-3 (Vol. 14). US$113.50.

An up-to-date, authoritative book is badly needed on techniques for using forest and other vegetation, sometimes in conjunction with simple mechanical structures, to reduce erosion, conserve soil and water, and reduce avalanche hazard. One that integrated material available in English-language publications with that in other languages would be especially valuable. Unfortunately, "Forest Amelioration" is very wide of the mark on most of these counts.

The book opens with chapters on hydrology, hydraulics, and erosion, in which the selection of topics is patchy, and even idiosyncratic in parts. The reader could be forgiven for concluding that only Czech or Russian authors had ever published any work in either hydrology or hydraulics. Each chapter covers some material in excessive detail and gives only the briefest mention to other topics of considerable importance.

The fourth chapter discusses the role of forest in the water budget and soil protection. Logically, this should have been the opening chapter of the book. Much of the broad philosophy in this chapter is strongly affected by the influence of predominantly deciduous forests on the water budget of central and western Europe. In these regions annual rainfalls are small compared with the bulk of the world's forested areas. and there is frequently a summer maximum of rainfall, unlike most higher rainfall temperate forest areas which have a winter rainfall maximum. The relative importance of transpiration and interception in the water budget, and the hydrologic influence of forests in general, in western and central Europe and other areas with similar climates is in large part an artefact of the climate. The relevance of the underlying philosophy of Chapter IV to temperate high-rainfall forests and to tropical forests is highly dubious at best.

Chapters V to XIII, making up slightly more than half of the book, describe specific amelioration and protection techniques for Torrent Control, Gully and Landslip Control, Avalanche Control, Riparian Stands, Afforestation of Barren Soil, Protective Forest Belts (shelter belts), The Role of Forests in Land Reclamation and Improvement, The Technology of Forest Improvement Operations, and Constructions. These chapters are the most useful part of the book in that they describe particular methods and make available much information from non-English-language publications. For these chapters alone, the book is probably a worthwhile acquisition for reference purposes.

There is no summary or concluding chapter. The list of references does not contain all the material referred to in the book and reveals how little recent material has been

used in the book's compilation. Of the 69 references listed, 35 are in Czech or Slovak of which only three postdate 1973; 17 are in German with the most recent dated 1971; eight are in Russian with the most recent dated 1965; eight are in English with the most recent (except another 1982 book by the authors) dated 1964; and one is in French, dated 1965.

Over-all, the book is seriously flawed in philosophy, structure, and organisation, and is not up-to-date, even in non-English-language literature. It should not be used as a textbook. Nevertheless it does make available a summary of non-English work in a field in which little is published in English, and thus has significant reference value.

A. J. Pearce

PLANT BREEDING IN NEW ZEALAND

Edited by G. S. Wratt and H. C. Smith

Butterworths New Zealand, in association with DSIR, 1983. 309 pages.
ISBN 0-409-70137-8. NZ$39.50

The book presents 34 articles, or chapters, in the names of 38 authors with 28 senior or sole authorships, which the editors managed to elicit without the inducement of air tickets. It addresses all areas of [higher] plant breeding in New Zealand, and finishes with a glossary, a cultivar index, and a general index.

The articles are organised into four sections: Cropping (eight articles), Horticulture (12), Forestry and Soil Conservation (three), and Pasture (11). The Cropping, Horticulture, and Pasture sections each begin with excellent overview chapters. Of the remaining articles, 18 are on single genera, nine on groups of genera, and four are on more general topics. The general topics are Novel Genetic Techniques in Plant Breeding (representing the one article that looks primarily to the future), Plant Breeding in the Seed Industry, Cultivar Management, and Breeding for Disease Resistance. At the end of each article is a brief list of Further Reading.

To finish with general vital statistics, there are 36 colour photos and about twice as many black and whites, plus a sprinkling of tables, graphs, flow charts, and line drawings.

The coverage of breeding has a strong historical emphasis, but with the help of the historical development there emerges a very clear picture of the present state of breeding and what varieties have been produced. Basic genetic principles are largely taken as read, but there should be few problems for the non-specialist reader. Much more emphasis is placed on the contexts in which the breeding programmes have developed. The statistics produced, while not heavy going, contain a formidable amount of reference information.

In keeping with the diversity of plant breeding, there are various historical threads. The contribution of the Department of Agriculture began in the 1890s with introductions which led into actual breeding. Lincoln College soon became involved, too, then Massey College, and various Government agencies have been joining in right up till the last few years. From very early days some private nurseries were doing their