

Arnoldia Reviews

Ecological Studies. Analysis and Synthesis, edited by J. Jacobs, Munich; O. L. Lange, Wurzburg; J. S. Olson, Oak Ridge; W. Wieser, Innsbruck.

Vol 1. Analysis of Temperate Forest Ecosystems, edited by David E. Reichle.

Vol. 2. Integrated Experimental Ecology. Methods and Results of Ecosystem Research in the German Solling Project, edited by Heinz Ellenberg.

A new series of concise books will attempt to provide prompt world-wide information on approaches to the analysis of ecosystems and their interacting parts. Ecological studies will bring together methods or techniques of sampling and investigation and present results as well as hypotheses. *Analysis* will include biological, physical and chemical approaches while *Synthesis* will draw together scattered and new information to answer or clarify specific questions.

The two initial publications are part of the International Biological Program, a cooperative effort on behalf of the world's scientists to understand, through research and synthesis, the basic processes of environmental systems which support life on this planet.

Volume 1, Analysis of Temperate Forest Systems, is a collection of well-edited and coordinated papers presented at a workshop-seminar held in Gatlinburg, Tennessee, in 1968. The objectives of this meeting were to summarize much of the existing data and to establish a conceptual framework for the analysis of an ecosystem while emphasizing the temperate deciduous forest. Eighteen papers by authors from nine countries are grouped into six basic topics, an analysis of an ecosystem; primary producers; consumer organisms; decomposer populations; nutrient cycling and hydrologic cycles. Well-selected bibliographies accompany each paper.

As an appendix the series editor has presented a geographic index of world ecosystem. The ecosystem outline ordination is slightly modified from that of the UNESCO Committee on Classification and Mapping. The end-papers are useful additions to the book. Inside the front cover is a map rendition in color, after Leith, of the predicted annual fixation of carbon for the land

masses and oceans of the world. The map inside the back cover is printed in black and white, with symbols and numbers modified from Bazilevich et al showing the continental ecosystem patterns and the reconstructed organic carbon in the live biomass prior to the Iron age.

Volume 2, *Integrated Experimental Ecology*, is subtitled "Methods and Results of Ecosystem Research in the German Solling Project." Solling is an area of forest and grassland near Göttingen, Germany. The research was begun in 1966 as one of the pilot projects of the IBP and involved scientists in a variety of disciplines. As the studies continue at the present time this series of papers by 33 German scientists represents a progress report and an opportunity to examine and compare the methods being used.

Both volumes are technical publications not designed for the browser. They are excellent summary publications of the methods of modern ecological studies and as such are fundamental for students investigating undisturbed units of vegetation. There is no indication of the eventual scope or duration of the series but one hopes that all of the work of the IBP program can be incorporated in this series for comparison with these excellent volumes on the temperate forest biome.

R. A. H.

Edited by David E. Reichle, *Analysis of Temperate Forest Ecosystems*. New York: Springer-Verlag. 1970. 304 pages, 91 figures. \$15.20.

Edited by Heinz Ellenberg, *Integrated Experimental Ecology*. New York: Springer-Verlag. 1971. 214 pages, 53 figures. \$16.80.

Flora of New Zealand, Vol. 2. Indigenous Tracheophyta. Monocotyledones except Graminaea, by Lucy B. Moore and Elizabeth Edgar.

New Zealand, although a small country, has a flora of great biogeographical interest and it is a pleasure to see in print the second volume of "Flora of New Zealand", making now available a modern floristic treatment of all, except the grasses, its indigenous vascular plants. On the death in 1957 of the late Dr. H. H. Allen, for many years director of Botany Division, Depart-

ment of Scientific and Industrial Research (D. S. I. R.), and prime mover behind the flora project, Dr. Lucy Moore of D. S. I. R. saw through the press the whole of volume 1 (dicotyledons and pteridophytes). She and her colleague, Dr. Elizabeth Edgar, have successfully produced an interesting and useful treatment of the monocotyledons.

The classification is based on that of Hutchinson and, apart from the grasses, there are included 22 families of monocots, the largest by far being the Cyperaceae with 167 species. For each genus and species there is a description and notes on distribution and for each species reference to the place of publication and citation of the most important synonyms. There is also a great deal of interesting information in notes, often lengthy, which might have been set in something larger than 6pt type. Reading these requires some concentrated effort. There are only 43 figures, 18 of these orchids drawn by Bruce Irwin, but the number of text figures and the rather extensive use of small type probably were dictated by the desire to keep the size, and price, down to a level at which the book could be readily available to students.

In addition to the keys, descriptions (based in general on both living and dried material), glossary and corrigenda to volume 1, there is a continuation from that volume of "Annals of Taxonomic Research on New Zealand Tracheophyta", a cross-indexed (by family and by author) bibliography of New Zealand systematic botany. Another valuable part of the book is an annotated list of chromosome numbers of native New Zealand plants.

The book has been nicely produced by the Government Printer and is well-bound with maps on both front and back end papers. In the preface it is noted that in 1965 the Botany Division library received from the New Zealand state lottery, the "Golden Kiwi", a grant of NZ£24,000 for the purchase of botanical periodicals, a truly enlightened use of lottery proceeds. The authors and the Government of New Zealand deserve congratulations on the production of this book.

E. A. S.

Lucy B. Moore and Elizabeth Edgar, *Flora of New Zealand*, Vol. 2. Wellington: Government Printer, 1970. NZ \$4.50.



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