

Book Review

Flora of New Zealand, Volume III, Adventive Cyperaceous, Petalous and Sathaceous Monocotyledons, by A. J. Healy & Elizabeth Edgar, Government Printer, Wellington. Price \$18.50.

Those of us who by choice or necessity struggle to identify weeds and aggressive ornamentals must give a warm welcome to the latest instalment of the *Flora of New Zealand*, which deals with adventive "cyperaceous, petalous and sathaceous" monocotyledons, i.e. introduced wild plants belonging to the rush, sedge, lily, iris, arum and related families. Despite the laudable aim to choose a positive rather than a negative formal title, this volume (paralleling Volume II) is undoubtedly destined to be casually known as "introduced monocots except grasses".

The excellent preface traces the development of the "separatist" philosophy regarding floristic treatment of introduced plants in New Zealand, and its current decline, a trend all field botanists must welcome. Apartheid in botany, as in human life, is impractical as well as philosophically difficult to defend. As Volume II already covers the native monocotyledons belonging to the same groups it was not sensible to produce a fully integrated treatment in this volume, so a somewhat awkward compromise was adopted. The main key includes all families and genera of monocotyledons (excluding grasses) represented in New Zealand, whether by indigenous or adventive members or both. Likewise the family keys include both indigenous and adventive genera. However, descriptions are not given for families and genera represented only by indigenous species, as these are already covered in Volume II. In the eight genera represented by both indigenous and adventive species all the species are keyed out, but the adventive species (distinguished throughout by asterisks) are described fully and the indigenous species only briefly, to avoid repeating the descriptions in Volume II. The opportunity is taken, however, to record name changes of indigenous species and alter distributions where more information has become available. As the preface states, this is in the nature of a transition volume, and the same approach will presumably be adopted with the adventive dicotyledons. The first fully integrated taxonomic treatment will be that of the grasses, keenly awaited.

Two major questions which immediately arise when an adventive flora is undertaken are the definition of adventive versus indigenous, and what categories of adventive plants to include. Because of New Zealand's comparatively long isolation from human influence, the first question is easier for us to answer than for most other countries. Accidental or deliberate introductions by European settlers can usually be recognised (although *Hypoxis hookeri* has traditionally been treated as indigenous, and some

sedges and rushes such as *Cyperus eragrostis* and *Juncus articulatus* became thoroughly naturalised very early). Those by Polynesians may not always be quite so obvious, and what of the species that appear to be "natural" arrivals in European times? It is noted in passing that five species of Australian orchid which have only been found once or a few times may have arisen from recent wind-blown seed. Are they to be treated as casual adventives, or as potential "natives" in the process of establishment? Much of our existing orchid flora may have arrived the same way. As with the white-eye last century and the welcome swallow this century, man may indirectly assist the establishment of new species which arrive unaided by modifying the habitat, just as he has provided habitats for the foreign plants (desirable and undesirable) he brought himself. In the last analysis man cannot entirely be separated from other ecological factors affecting the spread of plants, and why should he?

How established must an introduced plant be to have a claim to be included in an adventive flora? In this volume an adventive is defined as "anything growing spontaneously outside a fenced area, or as a weed in a sown or planted community". This presumably implies reproduction (either vegetative or by seed) without man's protection and cultivation, even if the initial establishment was deliberate. Whereas the majority of the less showy plants treated in this volume were accidentally introduced, a large group of ornamentals (particularly Liliaceae, Amaryllidaceae and Iridaceae) have become established as horticultural escapes or discards. Garden escapes have to be collected more than once to be regarded as "persistent horticultural outcasts" worthy of inclusion in an adventive flora. (Those found only once receive brief mention, however.) They also have to escape outside the garden or cemetery gate, or persist after these protections have passed away. Of the ornamental monocotyledons which multiply unaided in my naturalistic garden (obviously, by definition, a "waste place") alstroemerias, freesias, scillas, *Iris foetida*, *Arum italicum*, arum lilies, *Alocasia*, *Polygonatum*, *Agapanthus*, belladonna lilies, *Colchicum*, *Narcissus* and *Leucojum* are regarded as established members of the adventive flora: *Iris japonica* and *I. unguiculata*, *Zephyranthes* and *Nerine* are not.

Much the largest groups in the book are the rushes and sedges, the latter made particularly big by the inclusion of the 73 native species of *Carex* as well as the 22 adventive species. The combining of both native and introduced rushes in one key will be extremely helpful to those unfortunates who have to identify these difficult plants. Adventive species outnumber natives by about two to one in this group. A small but very important group are the monocotyledonous water weeds, which often pose environmental problems. In all, 168 adventive species in 68 genera are described.

There are some alterations in format since Volume II, notably larger pages with wider margins for annotation, and stiffer, more opaque paper. A centrepiece of colour photographs is an attractive feature, as is the bold paper cover by Keith West showing representatives of four common families of adventive monocotyledons. Service sections include a bibliography of first records and a welcome continuation of the *Annals of Taxonomic Research* on native vascular plants.

This volume continues the consistently high standard of the series, and is a "must" for anyone seriously interested in the New Zealand flora as it exists today.

M. B. FORDE

Book Review

Flowering Plants of the World by V. H. Heywood, Consultant Editor, Oxford University Press, Oxford, 1978, 355 pp. Price \$21.55 N.Z.

This large beautifully illustrated book gives the general reader a thorough introduction to the diversity of form and structure to be found among the world's quarter-million species of flowering plants. Forty-four authors, most of whom are well-known British botanists, contribute concise taxonomic descriptions of the flowering plant families and their more prominent genera together with information on distribution, ecology and economic uses. The illustrations were specially commissioned so that the variation within each family could be properly displayed; many tropical plants are shown and will be new and interesting to most readers.

In an introductory chapter V. H. Heywood outlines flowering plant morphology and classification and presents the Cronquist-Stebbins grouping of 306 families in ten evolutionary alliances, which gives the family arrangement used in the main text. He states that this grouping is used for convenience and not because of any general belief that it might best represent the course of flowering plant evolution. This agnostic attitude towards evolutionary relationships prevails throughout the book and vague or unsupported claims concerning such matters (e.g. "primitiveness" and "advancement") are refreshingly rare.

A glossary follows, and fails to include only a few chemical, genetical and palynological terms used in the text.

Three Kew-associated artists contributed the illustrations, which are superb. The sepia tone of this watercolour work is restful and appropriate, and together with colour highlighting of a single plant or structure in each plate prevents the illustrations from appearing excessively formal or detailed. A half-page plate heads the account of most families, showing flowering or fruiting shoots, usually of several species, and numerous smaller paintings of taxonomic detail. Floral dissections are most prominent; apparently because of the limited space other diagnostic features, e.g.