

JOURNAL of the ADELAIDE BOTANIC GARDENS

AN OPEN ACCESS JOURNAL FOR AUSTRALIAN SYSTEMATIC BOTANY

flora.sa.gov.au/jabg

Published by the

STATE HERBARIUM OF SOUTH AUSTRALIA

on behalf of the

BOARD OF THE BOTANIC GARDENS AND STATE HERBARIUM

© Board of the Botanic Gardens and State Herbarium,
Adelaide, South Australia

© Department of Environment, Water and Natural Resources,
Government of South Australia

All rights reserved

State Herbarium of South Australia
PO Box 2732
Kent Town SA 5071
Australia



Board of the
Botanic Gardens and
State Herbarium



BOOK REVIEWS

Plant science for everyone: Kosciusko's new alpine 'Flora'

Costin, A.B., Gray, M., Totterdell, C.J. & Wimbush, D.J.
'Kosciusko Alpine Flora', 1979, C.S.I.R.O. & Collins.

'Kosciusko Alpine Flora' is a book of which the authors can feel justly proud. The depth and breadth of coverage of the current knowledge of taxonomy, biology and ecology of their subject has been surpassed in Australia only in the small and better known animal groups, such as the birds and mammals. Of the Australian Floras of current times the 'Flora of the ACT' (ca. 1300 spp. in ca. 2,000 square km) and 'The Flora of the Sydney Region' (ca. 2,500 spp. in ca. 20,000 square km) are the smallest, and in their 450 and 725 pages, respectively, it has been impossible to include other than the briefest descriptions and additional data for each species and minimum of other information. Kosciusko's alpine region, about 100 square km in area, is tiny in comparison, but bears a rich flora of about 230 well-defined taxa (including at least 27 naturalized aliens and 21 endemics). In a volume of the size of this work there is much room for additional fare of wider appeal, and the authors have provided this admirably.

The book is divided into three main sections. In an introductory chapter Dr Costin details the physical and climatic character of the region and its evolution, and the history of human influence on the vegetation, starting with the earliest evidence of aboriginal occupation only 4,000 years ago, and ending with the resurrection of the flora by the cessation of more than 50 years of grazing sheep and cattle and the new dangers of increased tourist activity. Among the early European visitors to the region are the botanical collectors, among whom Ferdinand von Mueller deservedly rates a lengthy mention. As is typical of the whole text, Dr Costin avoids the superficial dogmatic approach to his subject which detracts from some popular works. Thus in the discussion of the geomorphological development of the region he introduces the reader to the way in which various bits of evidence have been pieced together to provide our picture of the past and present-day of the region. The text is supported by ample illustrations, maps and diagrams, but the plates in this chapter are unfortunately un-numbered and not referred to in the text.

The second chapter, "The plants and plant communities", written by Dr Costin and Mr Wimbush, initially deals with adaptations of the plants to habitation of their general alpine and local environment (growth form, life form and habit, physiological attributes). The systematic affinities with other regions of the world and the means by which the strong southern and cosmopolitan links were attained are touched on. The main plant communities are then described, using text, tabulation with predominant species and local physical distribution, and photographs and diagrams. Examples of the dynamic nature of the vegetation are given.

The final and largest chapter is the taxonomic treatment of the alpine flora by Mr Gray, which takes up 151 pages of text and 289 separate colour plates, one for almost all species described. The text is written for the professional, although the uninitiated are invited to learn to use the keys and descriptions rather than simply resort to the alternative of matching with the plates. Some technical words used in the text are not included in the glossary, e.g. placenta (p. 209), papillate (p. 209, 225: papillose appears in the glossary), pyrene (p. 225), but most used seem to have been included. There is no explanation of the bracketed rare extreme range of variation in quantitative characters. The explanatory notes relating to the Flora were found with some difficulty by the reviewer under the heading "Identification and description" within the previous chapter. It would seem much more appropriate to place this section at the start of the Flora treatment where the explanation of the use of keys is located.

Other annoying features are the removal of basionyms and relevant synonyms to the index. With so much blank space and large type within the Flora treatment, there would have been no increase in the number of pages in accommodating them there. The method of referring to colour plate numbers is difficult to understand, when the usual abbreviation "pl." would have taken little more room overall and saved several readers considerable time working out what was meant - it was particularly frustrating for one person initially happening upon them on pp. 74 and 83 where they appear inexplicably in captions to the unnumbered black and white plates. Generic treatments are absent, which is perhaps justifiable in so small a flora, but data on distribution might have been of interest to the general reader.

All these criticisms, however, are minor. The lay-out of the Flora treatment is very clear. The marginal headings in the descriptions for distribution, notes and habitat are an innovation worth noting for future Floras, although it does take up space.

Descriptions are admirably detailed, including chromosome numbers and characters such as flower and fruit colour arising from the author's extensive field knowledge. Many references are given to scientific literature on the groups. In addition to the usual notes on distribution and local ecology, there are a wealth of notes outlining or providing reference to available knowledge on breeding systems, growth characteristics, physiology, hybridism, affinities, affect of cessation of grazing pressure, etc. Clear dichotomous keys are given to taxa at all levels, often with several characters in each lead (commonly including vegetative ones).

Most importantly Mr Gray has made the reader aware of the deficiencies in our knowledge. A wide array of problems, cited in about 10% of the taxa, exist in this small flora. These are described by notes, non-treatment at species level of two genera (*Cardamine*, *Celmisia*), and a usual preference for avoiding misapplication of names to undescribed species, which are nevertheless treated separately with full descriptions and notes. This approach is vital in Flora writing, for Floras can so easily give the impression that everything taxonomic is known.

The book abounds with illustrations, mainly colour plates, but also black and white plates, maps and diagrams. The photographs, almost entirely by Mr Totterdell, form a beautiful collection. A certain flatness in reproduction of the colour plates is evident. Only a few plates show significant lack of colour-registration. It is annoying that where up to 7 plates occur across a two-page spread, they are often not consistently arranged in the order of numbering.

This is a book which will have a wide appeal. For the inquiring mind, it will be pleasurable to read from cover to cover and provide a wealth of up-to-date information supplemented by many references to additional literature. The notes under the Flora treatment made this chapter a delight to read. For those who enjoy a well-illustrated book it provides a splendid, varied and well-annotated pictorial fare. To be sure these four Kosciusko alpine enthusiasts have realized their aim "to combine scientific merit and popular appeal". As one who shares their love of Australia's alpine regions, I believe they will help to win over many converts to the conservation of these delicately balanced areas.

Costin, A.B., Gray, M., Totterdell, C.J. & Wimbush, D.J. 1979 (November 5*). 'Kosciusko Alpine Flora', pp. 408, 351 numbered colour plates, 6 numbered figures, 5 tables and many additional un-numbered colour and black/white plates, figures and maps. (Simultaneously published by Commonwealth Scientific and Industrial Research Organization, East Melbourne, and William Collins, Sydney.) Hard-bound \$25.00; paper-bound, referred to inside front of dust-jacket but not produced in first printing*.

W. R. Barker
State Herbarium of South Australia

*From letter from B.J. Walby, Editor-in-Chief, CSIRO Editorial and Publications Service, 29 November, 1979.

The lichens of South Australia

Filson, R.B. & Rogers, R.W. 'Lichens of South Australia' 1979
Government Printer, South Australia.

As a result of the growing interest in lichens in South Australia during the past decade, it has become obvious that there has been a lack of information on this group and very often difficulty in finding what relevant information has been published. This book not only brings together a great deal of what is already known about South Australian lichens, presenting it in a form in which it is accessible to a wide public, but also includes much hitherto unpublished information.

The chapter "Structure of lichens" is well presented and written in such a form that it should be easily understood by anyone wanting to develop a knowledge of lichenology. The text is supported by very good line-drawings and detailed photographs (pp. 12 and 14).

Further chapters deal with such chemical tests as are essential for the identification of some lichens, with lichen ecology, with the collection and curation of lichens and finally with the classification.

The principal part of the text deals not only with nearly two hundred species known to occur in South Australia but also with many other genera and species thought likely to be found there in the future.

Three keys are given, one to families and two to genera. The second key to genera is the most practical, and has useful divisions into sections, according to the thallus type. Descriptions are arranged by genus in alphabetical order. Keys are provided to the species. The text of the descriptions of the species is condensed but easy to follow, including the appropriate chemical reactions in addition to the necessary morphological characters.

Distribution is provided only in the form of lists of specimens examined. The small number of such specimens cited is partly an indication of the very limited field work done in this State on lichens. Some localities were, however, overlooked through the authors not making full use of the collections in the State Herbarium of South Australia. It is to be regretted that the localities are not grouped into geographical regions to assist the user in visualising the known range or that distribution maps were not provided. A map "showing principal localities mentioned in the text" does little to assist the reader unfamiliar with South Australian place names.

Black and white photographs are of a very good quality and detailed; however, the colour plates are unfortunately not of the same quality. The glossary is compiled in such a manner that it may be comprehended without difficulty.

As the first handbook on lichens to be published in Australia, this book should have a wide use throughout the southern parts of the country and the authors are to be congratulated on this excellent and important work.

Filson, R.B. & Rogers, R.W. 1979 (November 1). 'Lichens of South Australia', pp. 197, 16 pp. colour plates, 12 pp. monochrome photographs, 10 plates of line-drawings, 7 maps. (Published by Handbooks Committee, printed by Government Printer, South Australia.) Paperbound \$10.50.

N. N. Donner
State Herbarium of South Australia

Colonial landscape architecture

Tanner, H. & Stringer, R. 'Converting the Wilderness: The Art of Gardening in Colonial Australia', 1979, Australian Gallery Directors Council.

There has been, in the past 20 years, a quickening of interest in historic gardens, their design, their plant content and their conservation in Europe, North America and Australia. The Garden History Society, formed in 1965, is one of the driving forces in Europe together with the practical experience accumulated, and enthusiasm demonstrated by the British National Trust. In Australia the publication of Howard Tanner and Jane Begg's 'The Great Gardens of Australia' (1976) complemented Beatrice Bligh's 'Cherish The Earth; The Story of Gardening in Australia' (1973) and both may be taken as an overdue token of increasing national awareness of historic and heritage gardens.

The National Heritage Commission of Australia has, in the past two years, provided funds to State National Trusts in order that surveys of historic gardens may be carried out, the data being included in the National Estate inventory. In 1979 at a meeting convened by the Heritage Commission, held in Launceston, Tasmania, representatives of these survey teams agreed to investigate the foundation of an Australian Garden History Society.

The Australian Gallery Directors Council have showed vision in deciding to mount a travelling exhibition on colonial gardens and is to be applauded. The well produced catalogue to this exhibition comprises, in its own right, a useful text on colonial Australian gardens. The Guest Curator of the exhibition and author of the *Catalogue*, is Howard Tanner who is referred to above, and is an architect based in Sydney. The photographic illustrations are largely those of Richard Stringer, who is Guest Photographer to the exhibition.

After a preface by the Chairman of the Heritage Council of New South Wales, R.M. Hope, and a short introduction by Brett Rogers, Exhibitions Co-ordinator of the Australian Gallery Directors Council, the text of the *Catalogue* is arranged under the headings, "The first gardens", "Gardens for propagation and scientific purposes", "Arcadian landscapes", "The picturesque landscape", "Gardens of the Victorian Era", and "Private nurseries and horticultural handbooks". These headings, together with the titles listed in "References" and "Selected bibliography", bear witness to the main weakness of the *Catalogue*, which is an undue emphasis on landscape architecture at the expense of plants. There is only a sporadic and passing mention of commoner garden plants, including "*Victoria regia*", p. 19, which has long been more correctly *Victoria amazonica*, and but passing mention of the reciprocal sea trade between Australia and Europe which on the one hand did much to determine (even today) the range of exotics grown here, and on the other stimulated European-based research into the cultural requirements and botany of Australian native plants to the extent that George Bentham was able to write the only "Flora" of Australia, still to be superceded; yet he never visited the country! Colonial gardens were basically gardens in which exotic plants were grown and species and cultivar lists, however brief, would have been helpful in this *Catalogue*.

Tanner's writing will have lasting significance for Australian garden history as a subject, and it is to be hoped that his projected full history of gardening in Australia will contain more adequate and informed treatment of plants *per se*, and also be more comprehensive in its geographical coverage. The present *Catalogue* reflects Tanner's researches in being better documented in New South Wales, Victoria, and perhaps Tasmania, than other states. While it is probably true that these eastern states hold the most significant part of Australia's garden heritage, the erroneous information on, for example, Adelaide Botanic Garden was avoidable.

As an example of the 'gardenesque' style, Adelaide Botanic Garden in Schomburgk's era was remarkable and contrary to the *Catalogue* statement, p. 19, perfectly good photographic prints in the Archives of that institution show what the Garden looked like in the 1870's. On the same page, James Shaw's painting dated 1865, for all its historical interest, hardly shows the extent of "Schomburgk's endeavour" as Schomburgk was only appointed in that year!

Similarly no mention is made of the not unattractive glasshouses at Adelaide prior to the erection of the still extant Tropical House, the date of opening of which is in error, 1877 not 1874. The Adelaide Victoria House was opened in 1868 not 1860, and the Museum of Economic Botany with its memorable stencilled ceiling in 1881 not 1880. The year of establishment of the Adelaide Botanic Garden was 1855, as stated on p. 19, not 1862 as stated on p. 24.

On p. 29 *Melia azedarach* var. *australasica*, not "*australiasia*" as stated, was not the only deciduous tree in Australia even excluding monsoonal species: a few others include *Nothofagus gunnii* from Tasmania. On the same page *Macleaya* is not a variety of *Bocconia*: both are accepted as different genera in the Papaveraceae, although *B. cordata* is a nomenclatural synonym for *M. cordata*.

William Robinson, p. 62, was not born in England, but in Ireland where his first job was as garden-boy to the Vicar of Stradbally, Sir Hunt-Jackson Walsh. England was where Robinson made his fortune and became famous together with Gertrude Jekyll, for advocacy of the well orchestrated wild-garden and herbaceous border. No mention is made of Robinson's "The English Flower Garden" (1883) which I suspect influenced Australian pleasure gardens at the turn of the century, as had the Loudons earlier in the nineteenth century. Robinsonian garden elements are still evident today.

Tanner, H. & Stringer, R. 1979. 'Converting the Wilderness: The Art of Gardening in Colonial Australia', pp. 95, monochrome endpapers, coloured cover, 12 coloured plates, 138 monochrome illustrations. (Australian Gallery Directors Council, Sydney.) Paper-bound \$4.00 (available from exhibitions in Brisbane, October 1979: Ballarat, November-December 1979: Sydney, January 1980: Melbourne, February 1980: Launceston, March 1980: Hobart, April-May 1980: Adelaide, June 1980 or A.G.D.C., P.O. Box 369, Royal Exchange, Sydney, 2000).

Brian Morley
Botanic Gardens, Adelaide.

Australian native plants

Wrigley, J.W. & Fagg, M., 'Australian Native Plants', 1979, Collins.

During the past few years a number of books have appeared concerning the cultivation and propagation of Australian plants. These have ranged from a quasi-ecological approach to the more empirical listing of species and evidence concerning their requirements under cultivation.

A bench mark has now been established by the appearance of the long awaited volume by John Wrigley entitled 'Australian Native Plants'. His writings have been supported by a magnificent series of coloured plates by Murray Fagg. Over 2500 species are described together with more than 140 colour photos and 300 black and white plates and line drawings.

Chapter headings include "Why Native Plants?", "Collection of Material" - which rightly draws attention to the importance of correct techniques - "Propagation" (with excellent drawings of the life cycle of the fern), "Landscape", "Pests and diseases" and "Plant management". In addition the bookmark provided explains the symbols used in descriptions, which is a novel and useful feature.

Then follows nine chapters covering all the information the home and professional gardener wants on the utilisation of native plants. The descriptions are first class, detailed and clear, with notes on the propagation and the uses of the particular species. It is pleasing to see major chapters devoted to water and container plants, two groups of native plants almost neglected by most writers.

Considerable care has been taken over the nomenclature (although with the numerous revisions by botanists at present taking place it is virtually impossible to be totally up to date). This is borne out on at least two occasions, namely *Acacia oswaldii* and *Pittosporum phylliraeoides*. Neither spellings are generally accepted and in spite of the derivation of the last name the spelling is different from that recorded.

The text is clearly set out; no obvious errors were noted, although the lack of a title under some of the black and white photos within the text could be confusing and a few of these lack definition (pp. 86, 361, 388, 389). Overall the black and white photos are of poor quality which contrast markedly with the colour. It is a pity that pot-grown specimens had to be photographed; these generally are of poor quality. However, there are some very good black and white illustrations, e.g. pp. 90, 138 and 233. The photograph of *Araucaria* on page 309 appears to be out of vertical.

Under the planting notes on page 49 no mention is made of possible later planting in frost affected areas, i.e. planting in spring, although elsewhere reference is made to frost protection.

It is surprising that very few of the lower rainfall species of *Eucalyptus* are listed; an obvious omission is *Eucalyptus pyriformis*. There are numerous others of the "gold field mallee group" which are traditionally planted in South Australia and which have been omitted. *E. 'Torwood'* is also widely grown in the arid parts; the greatest collection to be seen is probably at Leigh Creek and Woomera. Also only one species of *Xanthorrhoea* is mentioned; a species which can either lack or have a short trunk, and yet there are numerous other species cultivated all of which always have a trunk.

It is pleasing to note that cultivars have been thoroughly dealt with and undoubtedly these will cause some confusion to growers of Australian plants. It is a pity that there is a restricted use of common names, especially as these have tended to become standard over the past decade or so; they are helpful to gardeners.

Overall the book will remain for many years to come as the most important handbook and all growers of Australian plants will be grateful to John Wrigley for making available the results of his numerous researches; to quote one example, the use of *Westringia* stock for prostantheras which allow these to be grown in *Phytophthora cinnamomi* affected soils. It is to be hoped that all will use this information to improve their collections of native plants and so increase the pleasure they derive from growing them.

Wrigley, John W. & Fagg, Murray. 1979. 'Australian Native Plants', pp. 222, 25 pp. index, 140 colour plates and 300 black and white plates and line drawings. (Published by Collins, Sydney.) Hard-bound \$30.00.

T.R.N. Lothian
Botanic Gardens, Adelaide.