

Kosciusko Alpine Flora*A. B. Costin, M. Gray, C. J. Totterdell and D. J. Wimbush*

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The 'snow country' in south-eastern Australia (including Tasmania) occupies only 0·15% of the continent's area; and, of this small percentage, about one-tenth is truly alpine, i.e. land above the altitudinal limit of tree growth. Alpine plant life must be adapted for survival on shallow soils exposed to high winds, insolation, freezing temperatures and burial under snow for months on end; yet it exhibits surprising diversity, many of the flowers being colourful or scented. Above 6000 feet (1830 m), in the Kosciusko Primitive Area of the Snowy Mountains, about 100 sq. km of treeless ridges, crags, screes, cirques, glacial lakes and gentler valley slopes has been termed 'the major alpine region of Australia' and, indeed, its environmental resources are far greater than its limited size might suggest. Here are to be found such plant communities as alpine heathland, herbfields, tussock grassland, fen and bogs, each with distinctive floristics, the total number of indigenous vascular species being about 200, 10% of which are endemic in this minuscule area (e.g. three kinds of buttercup).

Most people think of Kosciusko as a prime venue for winter sports, and by 1960 the yearly tally of skiers had risen to 100 000; but summertime now sees an increasing number of visitors who take pleasure in the magnificent scenery, invigorating air, rock forms, plant life and fauna—it is also a walker's paradise. Much has been written about the fascinating natural features present on this 'roof' of Australia, both scientific and popular articles. In 1962 the Kosciusko State Park Trust published a small attractive book, 'The Alpine Flowers of the Kosciusko State Park', for which Dr A. B. Costin and Mr D. J. Wimbush provided the leading article, 'A Unique Flora'; Mr D. Baglin's transparencies were the basis for 16 fine colour plates of typical flowers. At the time, it was hoped that this would be only the forerunner of a much more comprehensive, definitive and useful treatise on Kosciusko vegetation. Those two authors together with Messrs M. Gray (botanist) and C. J. Totterdell (photographer), all imbued with a deep interest in and appreciation for plants of our high alps, rose to the challenge a decade ago. How well their teamwork succeeded is apparent in the splendid book now under review.

Superlative comments can be applied to every aspect of 'Kosciusko Alpine Flora' which has certainly been worth waiting for. The covers, paper quality, choice of type, colour printing and general lay-out leave little to be desired, and due praise must be accorded the producers, CSIRO Editorial and Publications Service. The book reflects that degree of excellence which one has come to expect from such experienced writers as Alec Costin and Max Gray, while the superb photography of Colin Totterdell is a sheer delight. Of the 408 pages, 170 are devoted to Totterdell's colour

plates, varying from one to three per page; his close-up studies of floral structure share crystal clarity, and the beautiful landscape shots are all artistically and sensitively composed. The richly illustrated text is a mine of information, taking us briefly through geological structure and evolution in Tertiary and Quaternary epochs of the high Kosciusko terrain, leading into a section on human history and its drastic effects on vegetation. The next chapter, 'Plants and Plant Communities', lists the whole vascular flora with indications of growth form and characteristic habitats, then discusses in some detail the distribution of species according to structural units—feldmark, herbfield, heath, fen etc. Diagrams of plant sequences with variations in site conditions (altitude, soil, exposure etc.) are illuminating.

Of most concern to the taxonomist is Gray's long chapter on 'The Alpine Flora', wherein are keys to plant families, genera and species, adequate descriptions, notes on general distribution, habitats, and references to important literature, all arranged according to the Englerian system. Advantage has been taken of recently published revisions (e.g. *Poa*, *Luzula* and *Plantago*), but some caution is apparent, for instance retention of the name *Celmisia longifolia* in its wider sense (p. 364), although D. R. Given in *N.Z. J. Bot.* 7(4): 397–8 (Dec. 1969) had restricted *C. longifolia* Cass. to the Blue Mountains and restored *C. asteliifolia* Hook. for the Kosciusko, most Victorian and most Tasmanian populations of *Celmisia*. A coloured illustration is provided for every one of the 200 species, not omitting the tiniest grass and sedge, and that must have proved a stupendous field effort for the hard-working photographer!

This book concludes with an impressive bibliography, glossary of botanical terms and very full index (embracing synonyms and vernacular names). Thanks to meticulous proofreading, typographical slips are virtually non-existent, though on page 402 of the index *Asperula 'gunii'* should read '*gunnii*'; while the date of Baron von Mueller's death (p. 35) was not 1897, as stated, but 10 Oct. 1896. To date, this is unquestionably the best monograph concerned with a restricted portion of Australia, one that every plantsman, and particularly any lover of our alps, will be proud to have as a reference work—useful also in the highlands of Victoria and Tasmania. It sets a very high standard for future regional writings, and may confidently take its place in the same category as W. H. Pearsall's classic 'Mountains and Moorlands' (Collins 'New Naturalist' series, London, 1950); one can not imagine its ever being superseded as a specialist text for the Snowy Mountains.

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