

***Seeds of New Zealand monocotyledons* by Colin J Webb,
Manuka Press, 2019**

Reviewed by

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This book is a companion to *Seeds of New Zealand Gymnosperms and Dicotyledons* by Colin J Webb and Margaret JA Simpson, Manuka Press, 2001. Together they complete the illustration of the seeds and disseminules of all the native plants.

These are beautiful and necessary picture books. Just as we have bird books, and illustrated catalogues of postage stamps, so we botanists need atlases of skilfully photographed plant parts accompanied by detailed descriptions to enable us to identify one from another, and to marvel at their seemingly perfect adaption for dispersal of their regenerative material.

To produce this volume has been a tremendous work requiring access to vouchered seed collections and to the skill of several laboratories in both light microscopy, and scanning electronic microscopy. Later in his career the skills of Colin Webb in science management took him from Landcare Research, Lincoln, to Wellington to work. So it fell to the proven skills of Debby Redmond in the Allan Herbarium, Lincoln, to select suitable seed material for despatch to Colin in Wellington. Her work is warmly acknowledged. Similarly the photographic skills of workers in several Landcare Research laboratories is individually highlighted.

The term seed here includes those parts which surround the ripened fertilised ovule and may be dispersed with it, or cause its dispersal. It is these parts which give the species their distinguishing shapes and patterns. From here the whole structure may be called disseminule.

The families of indigenous Monocotyledons are arranged in alphabetical order and the seeds of each species are described and keyed out on characters illustrated in the adjacent photographs. In total 577 species in 25 families are treated.

Aids to identification are cleverly explicit: the glossary of some 95 nouns with numerous tantalising adjectives; charts of shapes, of seed wall patterns, and colours - which range from light yellow to dark henna.

The index distinguishes text pages from plate numbers in bold type. Full details are given for voucher specimens examined, plate number, herbarium accession number, locality, collector, and date of collection.

In recognition that the user may be restricted to a hand lens x10 or at most a stereoscope microscope, the actual magnification is given with every

photograph. To adequately represent the dust-like seeds of most orchids and a number of other species, magnification of x100 is necessary (Fig. 1).

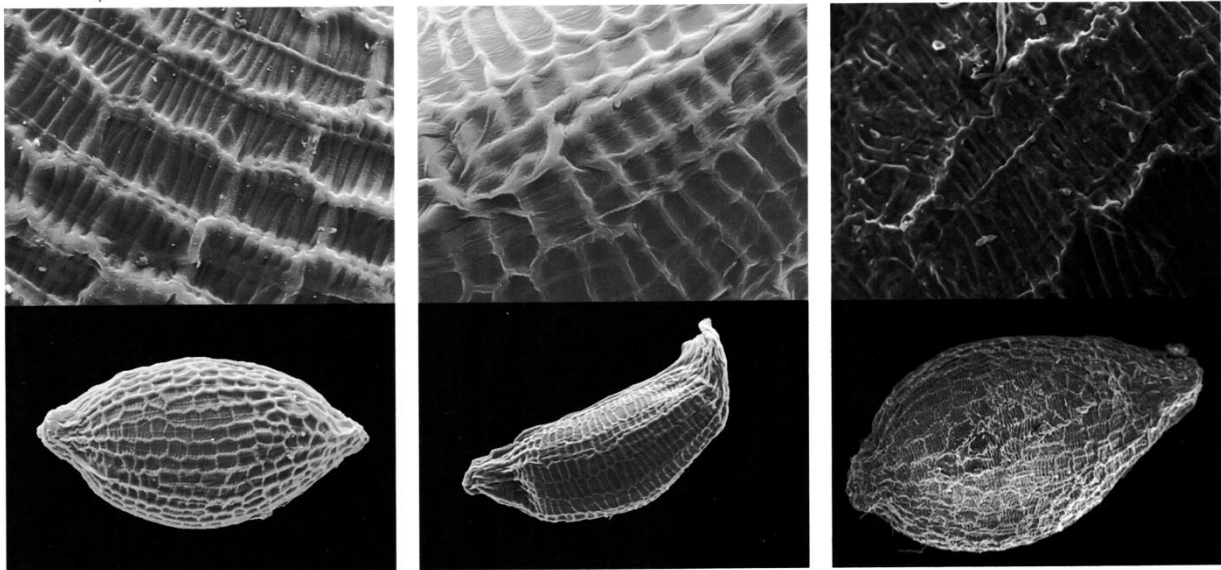


Figure 1. Left to right: seeds of *Juncus pusillus*, *Juncus sarophorus*, and *Juncus scheuchzerioides* at (top row) x500, and (bottom row) x100 magnification. Permission to reproduce Plate 39 of *Seeds of New Zealand monocotyledons* by Colin J Webb kindly granted by Manuka Press.

In the case of four large families, explanatory material is set out in synopses or tables which avoid the difficulty of the user getting “lost” in a long dichotomous key. These families are:

- the sedges Cyperaceae
- the rushes Juncaceae
- the orchids Orchidaceae
- the grasses Poaceae

It is interesting to note that forms of plants that are recognised as distinct in the wild do not always show distinguishing seed characters. Examples are given in *Luzula*, *Dianella*, *Prasophyllum*, and *Phormium* (flax).

Two colour plates are given: one, the frontispiece, depicts an arrangement of seeds representative of the 12 main groups, which are easily matched up with their monochrome treatments. Plate 106 on page 247 shows the intact heads of *Spinifex* comprised of numerous disseminules at rest on a sandy beach. Advantage is taken of a full-colour painting on the front cover, of a mature infructescence of *Typha* (raupo), to depict in the foreground several disseminules, which are minute seeds attached to long parachute-like hairs. On page 283 is a fine portrait of the author, attributed to Peter Johnson, a long-time colleague.

Pen and ink line drawings of monocotyledon disseminules have been provided for previous volumes in the flora series by Nancy Adams and Bruce Irwin (Moore and Edgar 1970) and Sabrina Malcolm, Patricia Brooke, Peter Johnson and Keith West (water colour of *Rytidosperma*) (Edgar and Connor 2000). This

intricate work bears comparison with its photographic counterpart here under review.

Some of the reasons for studying seeds are due to their resistance to weathering, or digestion, so providing information about the diet of animals and about past soils. They are relatively conservative in evolutionary diversification and so are useful in plant classification. This is exemplified in this volume in that following each group which is today the subject of keen investigation, as in the Orchid family, we can expect an expert contribution, and rigorous taxonomic application of names.

References

- Edgar E, Connor HE. 2000. Flora of New Zealand Volume V Grasses. Lincoln: Manaaki Whenua Press.
- Moore LB, Edgar E. 1970. Flora of New Zealand. Volume II. Indigenous Tracheophyta: Monocotyledons except Gramineae. Wellington: New Zealand.
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Leptinella nana in Christchurch Botanic Gardens

Luke Martin

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Leptinella nana (pygmy button daisy) is a very small, perennial herb that forms very low open mats. It is one of New Zealand's most threatened species (Fig. 1, p. 93). It has a disjunct distribution and is known from only three sites: Mount Pleasant, Port Hills (Canterbury) discovered by A. Wall in February 1918, Titahi Bay coast (Wellington), and Rai Valley (Marlborough). Populations at the Port Hills and Titahi Bay comprise only a few plants and extend over extremely small areas, whereas at the Rai Valley site the species is scattered along 15 km of river margin.

Being that *Leptinella nana* is so rare and inconspicuous, it is difficult to follow changes in population size. Even detecting change in the number of plants in a population has proven hard because it is a challenge to determine what constitutes an individual plant. Mount Pleasant *L. nana* is found in two locations, both along a walkway. The first location is c. 20 m x 4 m, the 4 m being the track width, where *L. nana* is confined to a very narrow strip on the track edges. The second location is also of similar dimensions and is found c.