



TRILEPIDEA

Newsletter of the New Zealand Plant Conservation Network

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Deadline for next issue:
Friday 15 December 2023

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The sexual propagation of kaikōmako manawa tāwhi/*Pennantia baylisiana*—and preparation of seedlings for repatriation to Ngāti Kuri at Ngātaki, Te Hiku-o-te-Ika

Robyn Simcock and Jessica E. Beever, Manaaki Whenua–Landcare Research

Introduction

This article reports sexual propagation from the cutting-grown tree at the DSIR, Mount Albert site (now the Plant & Food Research campus), by mycologist, botanist, and ecologist Ross Beever in the 1980s (Fig. 1). One of two trees grown from these seeds by nurseryman Geoff Davidson (Oratia Native Plant Nursery) produced fertile seeds without intervention, enabling the whakapapa of the rākau mokemoke to continue through the hundreds of plants cultivated. We also report the preparation of 140 seedling progeny at Manaaki Whenua–Landcare Research (MWLR) for planting by Te Ringa Māui hapū, Ngāti Kuri in June 2019, that will enable uri (descendants) of the tree to be together in the Ngāti Kuri rohe.

Kaikōmako manawa tāwhi/ Three Kings kaikōmako (*Pennantia baylisiana*) is a dioecious tree endemic to Manawatāwhi/ Great Island, the largest of the islands forming the Manawatāwhi/ Three Kings Islands and lying 60 km off Te-Hiku-o-te-Ika (Northland) at the northern tip of Te Ika-a-Māui (the North Island). The 2017 threat assessment of vascular plants assigned a NZ Threat Classification System conservation status of ‘Threatened – Nationally Critical’,¹ and at one stage it was in the Guinness Book of Records as the rarest tree in the world. A single individual tree was one of the ‘novelties’ (along with *Tecomanthe speciosa* and *Elingamita johnsonii*) found by Professor G.T.S. Baylis in 1945² as surviving ‘in small numbers beyond goat browse range’³ on Manawatāwhi/ Great Island (Fig. 1), and it has been referred to as the ‘rākau mokemoke’ (lonely tree). In 1945 and 1951, Prof. Baylis took cuttings from sucker shoots of



Figure 1. Ross Beever examining the rākau mokemoke on Manawa tāwhi/Great Island in November 1997. Photo: Jessica Beever.

¹ With suffixes of Conservation Dependent (CD), Island Endemic (IE), One Location (OL) and <250 mature individuals(A1). See: <https://www.doc.govt.nz/documents/science-and-technical/nztc22entire.pdf>

² Oliver, W.R.B. 1948. The flora of the Three Kings Islands. Records of the Auckland Institute and Museum. 3: 211-238.

³ See: <http://www.mzih.org.nz/pages/pennantia.htm>

this tree to the mainland for propagation. A few public places have these cutting-grown plants, propagated by George Smith, chief propagator at Duncan & Davies from the 1950s to 1970s. These include Ōtari-Wilton's Bush in Wellington, the Auckland University grounds, and the former DSIR Mount Albert site, Auckland. The DSIR Mount Albert plant arrived from Duncan & Davies in 1967 (Ross Beaver, unpublished note).

Research to deliver viable seeds

The oldest *Pennantia baylisiana*¹ growing at the current Mount Albert Plant & Food Research site flowers and develops young fruit each year, but the fruit never reach maturity. Flowers have a well-developed female pistil in the centre, with rather deformed stamens around (Fig. 2 Left, upper image). In the 1980s Ross Beaver noticed that each year a few fruit looked promising, but then the whole infructescence withered and died, even when he tried to assist the process with paintbrush pollination. Pollen examination using a scanning electron microscope showed the pollen appeared to lack germ pores (Fig. 2).² However, it did give a positive reaction with a cytological test for viability. When pollen from the mainland species, *Pennantia corymbosa*, was applied to female flowers, viable F1 hybrid seed was produced, indicating the tree could function as a female parent.

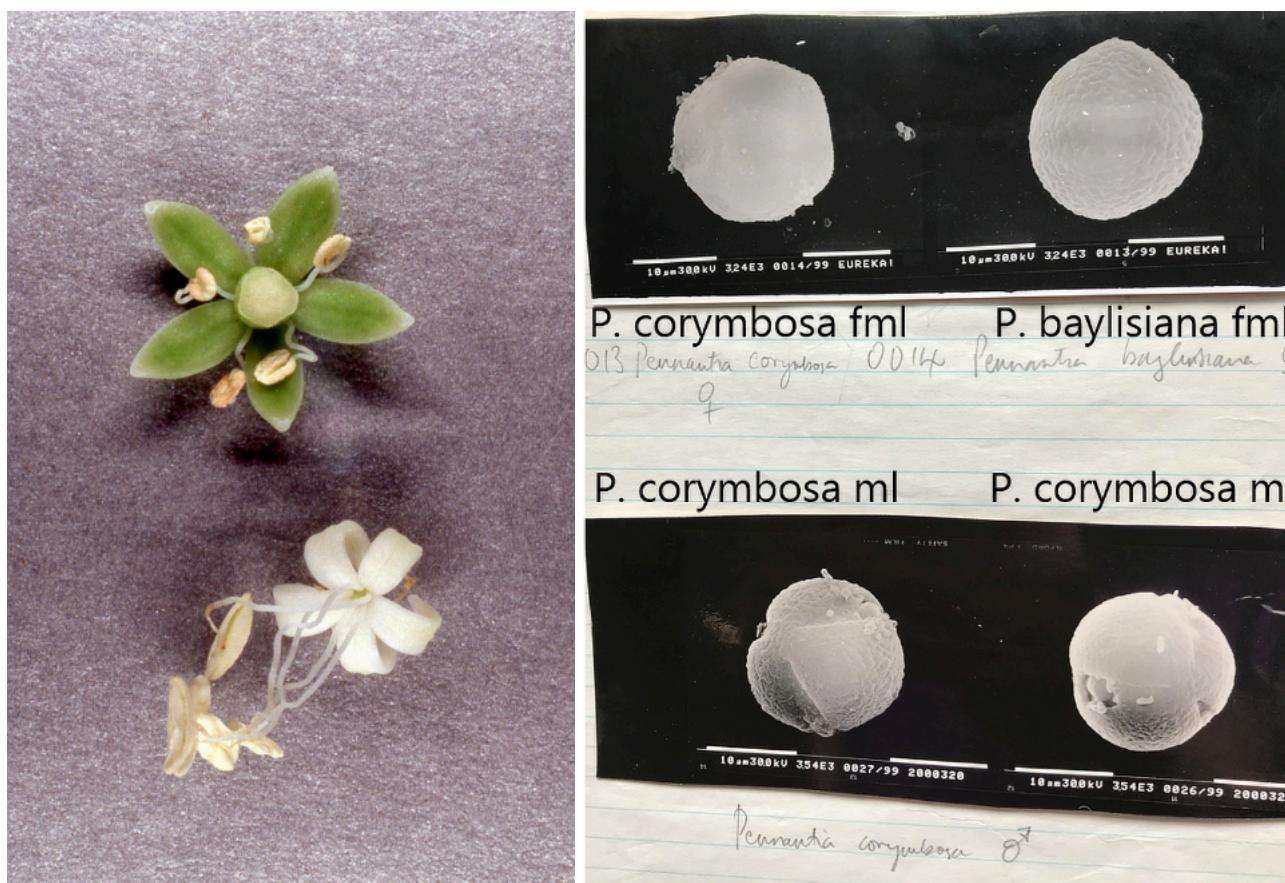


Figure 2. Left: *Pennantia* flowers: Top: *P. baylisiana* flower with well-developed pistil and deformed anthers (sourced from the tree at Mount Albert); Bottom: Hybrid between *P. baylisiana* female \times *P. corymbosa* male. The hybrid has white petals, very long filaments on the stamens, and absent pistil. Photo: Ross Beaver.

Figure 2. Right: Scanning electron micrographs of pollen from male (ml) and female flowers (fml) of dioecious *Pennantia* spp. Top: Pollen from the malformed anthers of female plants of both *P. baylisiana* and *P. corymbosa* shows an apparent lack of germ pores. Bottom: Germ pores are present in *P. corymbosa* male (two views). Photo: Ross Beaver.

¹ There were at least five trees in the grounds in 2023, including the studied tree, which is to botanists the nomenclatural type of the species.

² An elegant explanation of the complex role of auxin in enabling normal pollen wall development, using male-sterile mutants, has been described by Yang et al. 2013

In December 1983, Ross shielded developing inflorescences from cross-pollination and then selfed the flowers by applying the tree's own pollen to the stigmas. One of two plant hormones was then applied—gibberellin or auxin—with water as a control treatment. Over the following 2 months, the infructescences sprayed with water or gibberellin withered (Fig. 3). However, those sprayed with auxin were retained on the plant. In 1985 Ross germinated seed from mature fruit and three seedlings were given to Geoff Davidson at Oratia Native Plant Nurseries for growing on, of which two grew to maturity (Fig. 4).



Figure 3. Inflorescences photographed on 31 January 1984 following spray application in December 1983. From left to right: Water spray, gibberellin spray, auxin spray. Photo: Ross Beaver.

One of the two progeny grown by Geoff Davidson at Oratia Native Plant Nurseries (nicknamed 'Martha') produced copious viable seed, without human intervention. Geoff subsequently produced hundreds of saplings at Oratia from these seeds. Seedlings were each provided with a unique number and named tag, with information on 'Project Pennantia', highlighting the three conservation projects to which proceeds of sales were given (Fig. 5) and asking recipients to look for male flowers (none have been reported). Over the years, seedlings have self-established under mānuka/kānuka shrubland in the Oratia area. They are probably dispersed by birds as the seeds are highly palatable and rarely stay on the plant when ripe at Oratia (Geoff Davidson, pers. comm., 2019) and at the Manaaki Whenua – Landcare Research site at Tāmaki in Auckland. Whether these are hybrids with *P. corymbosa* has not yet been established, but they have the form of *P. baylisiana* with strongly incurved leaves in exposed locations.



Figure 4. Left: Infructescence with developing fruit, those turning purple are nearly ripe and have viable seed (smaller seed are non-viable). Photo: Geoff Davidson, February 2019. Right: Seed-grown 'Martha' from Ross Beaver's experiment in wine-barrel container with Geoff Davidson at Oratia Native Plant Nursery c. 1995 at about 10 years old. Photo: Ross Beaver.

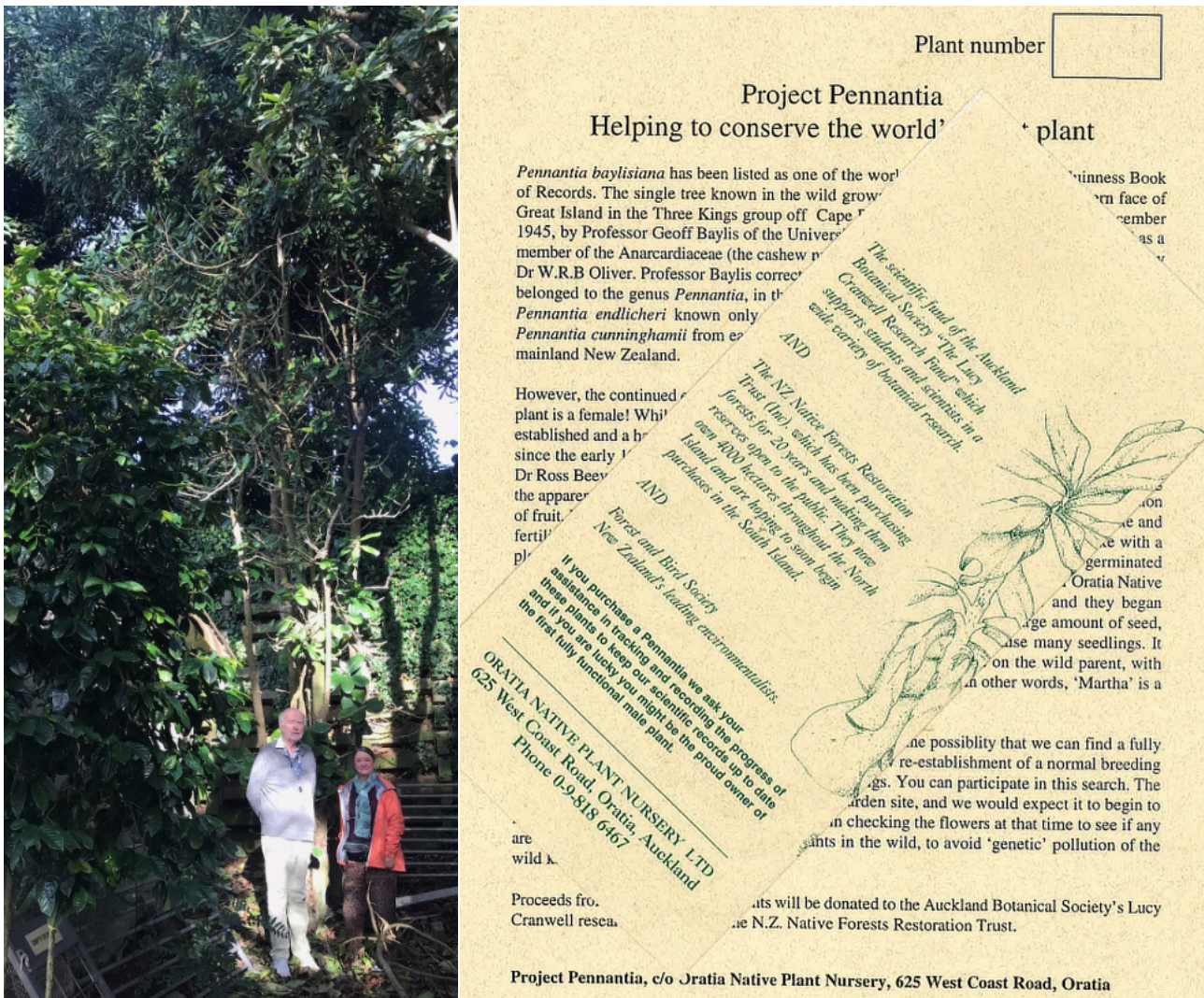


Figure 5. Left: Ross Ferguson and Jessica Beever in front of ‘Martha’s mother’, the tree studied by Ross Beever, Mount Albert Research Centre c. 2019. Photo: Robyn Simcock. Right: The pamphlet and information sheet provided to purchasers of seedlings. Image: Geoff Davidson.

Return of seedlings to Ngāti Kuri

In 2018 the Oratia Native Plant Nursery closed and MWLR purchased the remaining seedlings to return to Ngāti Kuri in recognition of the twin roles of DSIR in: a) removing plant material without consultation or permission of Ngāti Kuri; b) sustaining the species through Ross Beever’s research. These seedlings were all grown from seed collected in 2014 (Geoff Davidson, pers. comm., 2023) but were not ‘forced’, so had a wide range of sizes up to 1.6 m height (Fig. 6). The largest showed typical resprouting from near the base with ‘spikes’ more than 1 m long. These seedlings had been grown in small clearings under a 6–8 m high kānuka/mānuka canopy. This meant they had large, relatively flat leaves.¹ Geoff potted up the seedlings before delivery into plastic bags: PB5s (seedlings to about 1 m height) and PB12s (seedlings of 1–1.5 m height). Wētā, stick insects, and a tiger slug were removed. On arrival at the MWLR Tāmaki site on 20 Feb 2019 potting bags and seedlings were washed and inspected; minor *Marchantia* spp. liverwort was removed from the substrate. Seedlings were then placed on weed mat over crates to prevent ground contact, then treated with foliar and soil fungicides and insecticides.² The MPI Nursery Stock Import Heath Standard³ was adapted by using drenches and

¹ *Pennantia* spp. leaves are reduced by c.50% in area in exposed conditions and become rolled and thickened.
² The fungicide applied as a drench was Aliette (<https://www.kiwicare.co.nz/product/root-protect-aliette/>) applied in May and June 2019; the insecticide, applied as a spray, was Pyrethrum (<https://www.yates.co.nz/products/organic-garden-ing/pest-disease-weed-control/natures-way-pyrethrum/>) applied three times in May 2019. Chlorpyrifos and Abamectin insecticides were scheduled but application dates were not recorded.
³ <https://www.mpi.govt.nz/dmsdocument/1152/direct>

foliar sprays rather than fully immersing bare-rooted plants in chemicals, because of concerns that this might kill the seedlings. For the same reason hot-water treatment was not applied.



Figure 6. Left: Female inflorescence of Kaikōmako Manawa Tāwhi at MWLR Tāmaki campus in Auckland. Photo: Brad White. Right: Jessica Beever with the seedlings showing their large, flattened leaves. Photo : Chris Winks.

Rainbow (plague) skinks (*Lampropholis delicata*) are present at the MWLR Tāmaki site. Although this exotic pest species is recorded in the Far North on iNaturalist, skinks were discouraged by keeping the plants in the shade and watering daily to keep ground conditions inhospitable for skinks. Seedlings were given a final clean and visual check before Department of Conservation biosecurity pest control dog ‘Harper’ checked each plant for plague skinks. Harper signalled on three seedlings. Although no skinks or eggs were found, those plants were not sent north.

The journey was described by Ngāti Kuri executive director Sheridan Waitai in these words: ‘*Manaaki Whenua bringing our mokos home is around reconciliation and forgiveness, and through that, what we’ve learnt together, is that taonga on the brink of extinction, together we can bring them back. So with science, and with Mātauranga Māori, with lots of aroha, we can actually bring back the life to this land.*’¹



Figure 7. Inflorescences and fruit developing on a tree at the MWLR Tāmaki site in 2019 showing the different sizes of fruit and withering of inflorescence with unfertilised flowers: Left to right: developing inflorescence; infructescence with immature and mature fruit; withered infructescence with no viable seed above an infructescence with few viable seed; viable, ripe fruit. Photo: Robyn Simcock.

¹ Source: Kaikōmako manawa tāwhi (*Pennantia baylisiana*) returned to iwi » Manaaki Whenua (landcareresearch.co.nz)

Acknowledgements

We acknowledge Geoff Davidson, Koro Te Pania (Tāmaki Makaurau Ngāti Kuri), and MWLR staff who assisted with the 2019 seedling transfer: Stan Bellgard, Peter Buchanan, Suzette Howe, Zane McGrath, Frank Molinia, Delwene Pupuo, Katarina Tawiri, Bradley White, Chris Winks, and Bill Malcolm (Micro-Optics Press). We also thank Geoff Davidson, Paula Godfrey, and Gretchen Brownstein for discussions in 2023.

The article is based largely on the following resources:

- Beever JE, Simcock R, Bellingham P, Waitai S, Hohaia H. 2019. Te Hokingamai ō Kaikōmako Manawa Tāwhi – the restoration of *Pennantia baylisiana*. Session 3a. ASBS & NZPCN Joint Conference, Wellington, 24–28 November 2019.
- Ross Beever Memorial Tree plaque at the Tāmaki office of MWLR : 'Memorial for Ross Beever' and 'Te Hokingamai, The Restoration' – a living memorial planted on 3 November 2010 at the MWLR Tāmaki site; te reo by Matua Koro Te Pania.
- Records kept by Ross Beever and Jessica Beever.

References

- de Lange, P.J.; Rolfe, J.R.; Barkla, J.W.; Courtney, S.P.; Champion, P.D.; Perrie, L.R.; Beadel, S.M.; Ford, K.A.; Breitwieser, I.; Schonberger, I.; Hindmarsh-Walls, R.; Heenan, P.B.; Ladley, K. 2018: Conservation status of New Zealand indigenous vascular plants, 2017. New Zealand Threat Classification Series 22. Department of Conservation, Wellington. 82 p
- Oliver, W.R.B. 1948. The flora of the Three Kings Islands. Records of the Auckland Institute and Museum. 3: 211-238.
- Baylis, G.T.S. 1997. *Pennantia baylisiana* New Zealand's rarest tree – its discovery and propagation. *Journal of the Royal Institute of Horticulture* 2(1):12–13.
- Yang, J., Tian, L., Sun, M-X., Huang, X-Y., Zhu, J., Guan, Y-F, Jia, Q-S., and Yang, Z-N. (2013) Auxin Response Factor17 is essential for pollen wall pattern formation in *Arabidopsis*. *Plant Physiology* 162: 720–731.

NZ Favourite Plant vote 2023

Megan Ireland (megan.ireland@wcc.govt.nz)

As I write this article we are seven days into the NZPCN favourite plant competition!

The votes are coming in and there is a great level of engagement with the votes and associated media. People have been avidly championing their favourite species and voting for their favourite plant. One week in and the leaderboard is currently:

- | | |
|---|------------------------------------|
| 1. <i>Clianthus maximus</i> | 6. <i>Clianthus puniceus</i> |
| 2. <i>Gentianella calcis</i> subsp. <i>manahune</i> | 7. <i>Metrosideros excelsa</i> |
| 3. <i>Fuchsia excorticata</i> | 8. <i>Pseudopanax crassifolius</i> |
| 4. <i>Myosotidium hortensia</i> | 9. <i>Ficinia spiralis</i> |
| 5. <i>Wurmbea novae-zelandiae</i> | 10. <i>Vitex lucens</i> |

With 3 weeks left it's all to play for!

Clianthus maximus, *Gentianella calcis* subsp. *manahune*, and *Fuchsia excorticata* have been battling it out in the top three spots this week but *Clianthus maximus* is pulling away to a clear lead.

Voting closes Friday 15 December. Head to the NZPCN website, find your plant with the name search, and click on the vote button to vote. We will announce the winner via Facebook, and on the NZPCN website.

A full write-up of the 2023 competition and the winners will be in the next issue, so keep a lookout and may your favourite plant win.

Small is beautiful!

Jesse Bythell, NZPCN committee member and QEII National Trust Regional Rep for Southland, lover of language and general plant geek of southern flora.

2023 Favourite Plant candidate: *Wurmbea novae-zelandiae* (syn. *Iphigenia novae-zelandiae*), Threatened – Nationally Endangered.

Why I have selected this species: Over the last year I have had the opportunity to get to know this tiny plant in more detail by assisting with plant survey and some monitoring work in Southland. This plant is absolutely tiny and springs up only for a few short months each year making the task of spotting it quite challenging! To compound things, it tends to hide itself amongst a few other superficially similar looking plants like sky lily (*Herpolirion novae-zelandiae*) or *Carex breviculmis*.

Searching for this wee plant amongst all the other botanical treasures of a gravel outwash plain habitat in Southland has been a challenge and a pleasure, especially since I get to work alongside other people who take equal delight in the challenge of spotting this tiny lily. It can be frustrating trying to convey to the wider public the rich diversity that occurs within seeming ‘wasteland’ habitats like gravel outwash plains – these ecosystems and their occupants are not obviously charismatic in the way ancient forests are.



Figure 1 Searching for (and finding!) *Wurmbea novae-zelandiae* in the Eyre Mountains near the Oreti River (November 2022).

Distribution: Historically this species occurred both in the North Island and South Island (east of the Main Divide) but may now be extinct in the North Island. Extant disjunct populations occur in Southland, Otago and Canterbury.

Wurmbea is described as occurring in swamps, tarns, lake margins and in damp seepages within tussock grasslands ranging from lowland to subalpine. My experience with Southland populations is this plant favours highly stressed sites where competition from other plants is suppressed, such as blow-out zones in gravel outwash plains and terraces. These infertile and excessively drained areas are prone to dry conditions in summer, but sometimes may also be waterlogged in winter. Stressed sites characterised by mosses or bare earth where the organic horizons are absent seem to be favoured (but this could be partly that it's comparatively easier to spot the plants in these areas).



Figure 2. Close up of *Wurmbea* flowering, Southland, November 2023.

Current population: It is unclear to me how large the populations of this species are as it is highly cryptic and seldom monitored. At least one of the populations in Southland contains upwards of 1,000 individuals.

Threats: Like many small cryptic plants of similar habitats, *Wurmbea* suffers from being overlooked and undervalued. Due to its diminutive size *Wurmbea* is easily outcompeted by larger species or taller vegetation which can shade it. Occupying stressed sites brings some relief from competition however land uses such as planting exotic forestry species or over-sowing with exotic pasture species, cultivation, fertiliser application and irrigation for pastoral farming represent major threats.

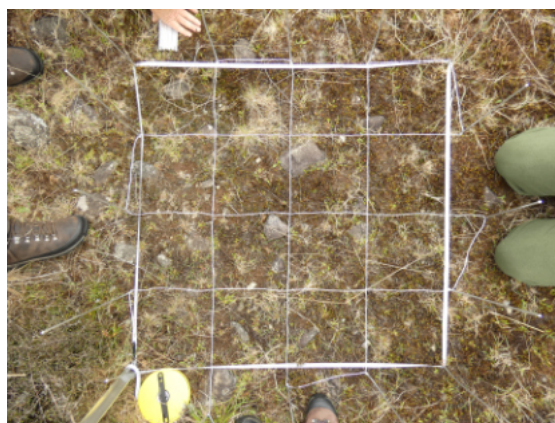


Figure 3. Counting individual plants in a monitoring plot established in a seasonally wet deflation hollow, Southland.

2023 Plant of the Year - Vote for *Spiranthes australis* – Lady’s tresses orchid

Matt Ward, NZPCN Council Member, orchid botherer...

Firstly, why wouldn’t you vote for this plant as your favourite for 2023? It’s rare, its endangered, it’s delicate, its gorgeous, and it’s even ‘hot pink’!! Let’s investigate it a bit so you will see the value in such a plant to employ your vote.

Spiranthes australis, formerly known as *S. novae-zelandiae*, is a stunning example of modesty and intricacy. Standing up to 1 metre in height when in bloom (Fig.1), it would be regarded as large in the realm of New Zealand orchids, yet that flowering stem may consist of as many as 60 flowers spiralling gracefully around a central stem. Blooming in the early months of the year, the flowers are actually tiny (Fig.2) 4–5 mm long × 3–4mm wide in size which would make them easy to miss aside from the fact they are deep to bright pink in colour, occasionally being white, simply wonderful. These beauties are resident in wetlands which predominantly are acidic and peaty, which of course presents a problem as far as this species survival is concerned.



Figure 1. A healthy airport plant in bloom.
Photo: Matt Ward 2010.



Figure 2. *Spiranthes australis* flowers up close.
Photo: Matt Ward.

Spiranthes australis, is a plant under pressure, in 2004 this species was regarded as Not Threatened, by 2009 it was evaluated as Threatened – Nationally Vulnerable, and as of the last evaluation in 2017 it is listed as At Risk – Declining. This depicts a species disappearing at a worrisome rate. The vast 90% decline of our natural wetland health and existence in New Zealand, is the main driver for this species waning.

As an orchid botherer I have only met this species a handful of times, in three different locations in the lower North Island. The first meeting in 2010 was its confirmation of persistence in a remnant wetland at the Paraparaumu airport in Kapiti. They are no longer there, last seen in 2014. Then in 2012 I was lucky enough to discover the largest known population at the time in the Tararua foothills (Fig.3), which was stunning with more than 100 specimens. The last time I visited that find was 2017 and there were only maybe 20 specimens, but that may have been seasonal of course. My last encounter was a find of just a few plants in a paddock inland of Hokio beach in 2014. They have not been seen since, despite checking every year thereafter. With this in mind, I have written a Haiku.

Ode to our *Spiranthes*

Oh, to see the tresses

Hence six years gone by without

A crown may help plight.

So, I call all who are willing to vote for this suffering and most deserving candidate to be your favourite plant of 2023 MOOSAYFTY!! Make Our Orchid *Spiranthes australis* Your Favourite This Year, MOOSAYFTY – MOOSAYFTY – MOOSAYFTY!!!



Figure 3. The big find, a sample of the colony of *Spiranthes australis* in the Tararua Ranges. Photo: Matt Ward 2012.

Reference

de Lange, P.J. (2023): *Spiranthes australis* Fact Sheet (content continuously updated). New Zealand Plant Conservation Network. <https://www.nzpcn.org.nz/flora/species/spiranthes-australis/> (accessed 20 November 2023)

NZPCN website taxonomy update

Alex Fergus, Peter de Lange, Marley Ford

The NZPCN uses a subcommittee (the above authors) to approve any taxonomic changes proposed to the subcommittee or by the wider NZPCN committee. Below is a summary of changes that have been accepted in the period between the last issue of *Trilepidea* being published and the current one. This purpose of this update is to foster transparency and flag taxonomic changes that have been actioned on our website.

Current taxon name: *Corokia buddleioides* var. *linearis*

New name: *Corokia buddleioides*

Reason: Analysis of leaf characters has shown that the distinguishing characters of *Corokia buddleioides* var. *linearis* (leaf length and width) falls within the natural variation of *C. buddleioides* (Heenan 2023). Therefore Heenan (2023) concluded that *C. buddleioides* var. *linearis* does not warrant taxonomic recognition and should be treated as a synonym of *C. buddleioides*.

Corokia buddleioides var. *buddleioides* is an autonym. Autonyms are created with the recognition of comparable infraspecific rank names, in this case *Corokia buddleioides* var. *linearis*. In eliminating the variety *C. buddleioides* var. *linearis*, the autonym *C. buddleioides* var. *buddleioides* is redundant.

Reference

Heenan, P.B. 2023: Taxonomic notes on the New Zealand flora: the status of four varietal names in *Brachyglottis* (Asteraceae), *Corokia* (Argophyllaceae), *Mida* (Nanodeaceae) and *Teucrium* (Labiatae), *New Zealand Journal of Botany*, (published online November 2023) DOI: [10.1080/0028825X.2023.2276282](https://doi.org/10.1080/0028825X.2023.2276282)

Current taxon name: *Isolepis marginata*

New name: *Ficinia marginata*

Reason: To achieve monophyly of *Ficinia*, a subset of *Isolepis* species grouped from a nuclear phylogeny, have been reclassified as *Ficinia*. These species were resolved outside the core *Isolepis*, though they lack a gynophore (a stalk or stipe raising the base of the ovary above the level of attachment of the perianth), a diagnostic for *Ficinia*, the authors felt it was better to place them in that genus.

Reference

Muasya, A.M., Larridon I. 2021: Delimiting the genera of the *Ficinia* Clade (Cypereae, Cyperaceae) based on molecular phylogenetic data. *PeerJ* 9:e10737 DOI [10.7717/peerj.10737](https://doi.org/10.7717/peerj.10737)

Current taxa name: *Juncus*

New names: See below.

Reason: Pročková et al. (2023) have proposed a taxonomic segregation of *Juncus* into six genera based on molecular and morphological evidence. Whilst it has long been recognised that the current circumscription of *Juncus* includes morphologically divergent taxa—reflected in the recognition of numerous subgenera and sections, the consensus view of the NZPCN website taxonomy subcommittee, taking into consideration advice from Australian *Juncus* expert Dr Karen Wilson (NSW Herbarium) and others in Europe is that the generic segregations proposed need further consideration and testing. Accordingly, it has been decided to maintain the current broad circumscription of *Juncus*, but to include all new names as synonyms in factsheets. We thank, in particular, Dr Wilson for her helpful comments.

Reference

Pročková J., Závěská Drábková, L. 2023: A revision of the Juncaceae with delimitation of six new genera: nomenclatural changes in *Juncus*. *Phytotaxa* 622(1): 17–41.

Segregation of *Trichomanes*

Current taxon name

Trichomanes caudatum

Trichomanes colensoi

Trichomanes endlicherianum

Trichomanes elongatum

Trichomanes humile

Trichomanes strictum

Trichomanes venosum

New name

Abrodictyum caudatum

Polyphlebium colensoi

Polyphlebium endlicherianum

Abrodictyum elongatum

Crepidomanes humile

Abrodictyum strictum

Polyphlebium venosum

Reason: There is now increasing world-wide acceptance of the segregation of *Trichomanes* into multiple genera—as was foreshadowed by the acceptance of the treatment of Ebihara et al. (2006) by the PPG (2016). For Aotearoa New Zealand the changes result in the recognition of three genera, *Abrodictyum*, *Crepidomanes* and *Polyphlebium*.

References

Ebihara, A.; Dubuisson, J.-Y.; Iwatsuki, K.; Hennequin, S.; Ito, M. 2006: A taxonomic revision of the Hymenophyllaceae. *Blumea* 51: 221–280.

PPG 1: The Pteridophyte Phylogeny Group 2016: A community-derived classification for extant lycophytes and ferns. *Journal of Systematics and Evolution* 54: 563–603

A few orchids from the West Coast and Arthur's Pass

Bill Campbell (billcampbell@xtra.co.nz)

I recently had the opportunity to participate in a NZ Native Orchid Group tagalong tour on the West Coast of the South Island, where the weather was untypically kind, with only one half day lost to rain. A good number of orchids species were observed, with several out of the ordinary finds in the mix.

The most significant finds were of flowering plants of *Drymoanthis adversus* near Hokitika, a colony of more than 80 plants of the rarely observed *Pterostylis paludosa* near Charleston and a small colony of an undescribed *Corybas* (spider orchid).in the *Corybas trilobus* aggregate near Arthur's Pass Village.

Further to a previous article in the May 2023 issue of *Trilepidea* detailing a range extension for *Corybas obscurus*, more colonies of this species were observed also, further extending the known range.

All in all it was a very enjoyable trip, thanks in no small part to my guide and chauffeur Max Hill and the other dozen or so tagalong tour participants. A few photos of the more memorable and uncommon finds are included.



Pterostylis paludosa in pakihi wetland near Charleston
20 November 2023.



Townsonia deflexa near Arthur's Pass Village, 20
November 2023.



Pterostylis venosa near Arthur's Pass Village, 20
November 2023.



Undescribed *Corybas* sp, near Arthur's Pass Village, 20
November 2023. Photos: Bill Campbell.

Addition of Wetland Plant Indicator Status Rating and National Pest Plant Accord information to species pages—Updated

New Zealand wetland plant indicator status ratings information (Clarkson et al., 2021) has been added to our website on species pages/factsheets. This information was prepared to assist councils in delineating and monitoring wetlands and categorises plants by the extent to which they are found in wetlands and not 'drylands'. The indicator status ratings are OBL (obligate wetland), FACW (facultative wetland), FAC (facultative), FACU (facultative upland), and UPL (obligate upland).

Where it exists, wetland plant indicator status rating information can be found beneath Habitat information on species pages and will also appear in Plant Lists when they are downloaded as CSV files.

If you wish to make suggestions for any future wetland plant indicator status rating lists, please contact Neil Fitzgerald. (wetlanddatabase@landcareresearch.co.nz).

WETLAND PLANT INDICATOR STATUS RATING ?

OBL: Obligate Wetland

Almost always is a hydrophyte, rarely in uplands (non-wetlands).

Clarkson BR, Fitzgerald NB, Champion PD, Forester L, Rance BD 2021. New Zealand wetland plant list 2021. Manaaki Whenua - Landcare Research contract report LC3975 for Hawke's Bay Regional Council.

NB: This article originally appeared in the October 2023 issue of *Trilepidea* but has been updated with new contact details for suggestions.

2024 Lucy Cranwell Student Field Grant for Botanical Research

Auckland Botanical Society is pleased to announce that applications are now open for this field grant – with awarded grants consisting of up to \$2500 per student, enabling assistance in fieldwork towards Botanical Research.

Further details and application forms are on our website or available from the Secretary.

Applications will close on 20 December 2023 at 5.00pm; submit by email to aucklandbotanicalsociety@gmail.com.

Lucy Cranwell Travel Grant Application

A Travel Grant award is available to one of our younger Bot Soc members (at the beginning of their careers), who is a suitable applicant:

- To attend an Auckland Bot Soc long weekend camp or extended field trip to other parts of New Zealand, or overseas,
- To attend Botanical field workshops such as Fungal Foray, Bryophyte Workshop or BIOL305 Practical Field Botany course.
- To attend/give a presentation (verbal or poster) at a botanical conference or symposium in New Zealand.

This award is funded from the Lucy Cranwell Fund and could include enrolment fees and travel costs up to a maximum of \$1000.00. Details and application forms are available on the ABS website <https://sites.google.com/site/aucklandbotanicalsociety/> or from the secretary Kirsty Myron at aucklandbotanicalsociety@gmail.com.

The first New Zealand book devoted to the iconic genus *Celmisia*

Pre-order now!



MOUNTAIN DAISIES

A guide to *Celmisia*
in Aotearoa/New Zealand

JANE GOSDEN

Getting to grips with the iconic and diverse (mostly) alpine genus *Celmisia* – the third largest in the flora of Aotearoa/New Zealand – can be a challenge. This comprehensively illustrated guide makes it easy to identify species, subspecies and varieties.

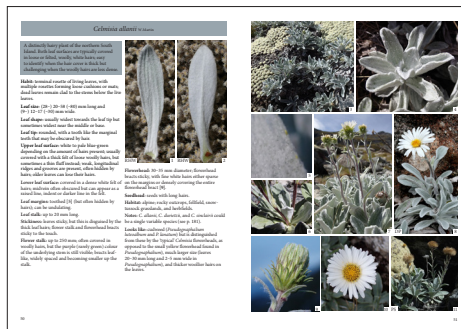
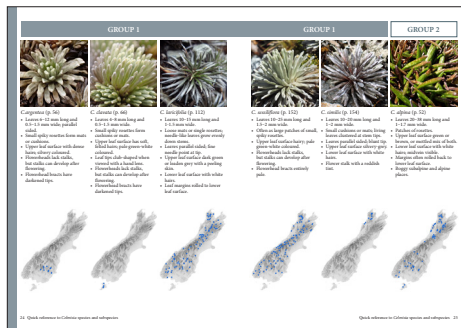
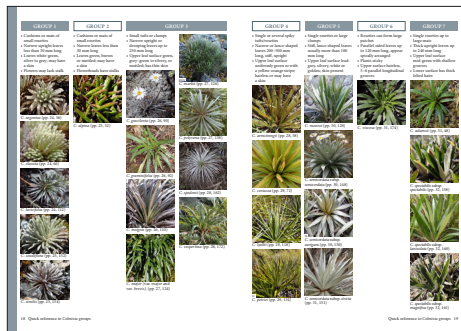
Aimed at everyone with an interest in our alpine plants, this handy field guide takes a novel approach. Following an informative introduction, the first section identifies 17 broad groups based on plant form and leaf characteristics that can be seen in the field without magnification.

The second section applies more detailed criteria to distinguish the species and subspecies within these groups. Often the distinguishing feature may be its distribution, and maps showing the geographical range could provide a quick identification.

Species-by-species descriptions (including varieties, and with separate entries for subspecies) make up the bulk of the book. With over 900 photographs, most features described in the text are illustrated.

The vexed questions of hybrids, unnamed entities and challenging lookalikes are also addressed.

- 78 species, subspecies and varieties described and illustrated
- A5 format, 186 pages
- More than 900 high-quality photos
- Distribution maps for each species and subspecies
- Quick identification reference to recognisable groups (available free)
- \$30 (incl. p & p)
- Also to be available as an electronic publication



HOW TO ORDER

Printed books will be available in mid-December (\$30 incl. p&p).

The book will also be available in electronic form (date to be advised). Please indicate your interest on the order form.

The quick identification guides that make up the first two sections of the book will be available from the end of November FREE as a PDF from:

<https://www.manukapress.co.nz/mountaindaisies>

This is a handy PDF that can be taken into the field.

Please complete the order form on the Manuka Press website:

<https://www.manukapress.co.nz/>

You will then receive an invoice with payment details (direct credit preferred; PayPal with credit card option available for overseas orders). Books will be dispatched immediately stock is available after payment is received. A 10% discount for orders of two or more books (including other Manuka Press titles) is calculated at the time of order and will be applied to the invoice sent.

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UPCOMING EVENTS

If you have events or news that you would like publicised via this newsletter please email the Network (info@nzpcn.org.nz), prior to the published copy deadline, with details of meetings, field trips or other events taking place during the following month or later. The deadline for copy for the following month's *Trilepidea* is at the top of the front page of each issue.

If you intend to participate in one of the advertised botanical society meetings or field trips please check with the relevant society beforehand to confirm that the published details still stand.

Auckland Botanical Society

No further meetings until 6 March 2024.

Field Trip: Saturday 2 December to Parry Kauri Park, Warkworth, for pot luck picnic. **Meet:** At Parry Kauri Park at 10.00am.

Leader: Maureen Young, email youngmaureen@xtra.co.nz.

Rotorua Botanical Society

Field Trip: Sunday 3 December to Ottawa Trig from Rocky Cutting Road. **Meet:** Rotorua carpark at 8.30am or at the Rocky Cutting Road carpark at 10.00am. Grade: Medium.

Leaders: Graeme Jane and Gael Donaghy, email gtjane@kinect.co.nz, ph. 07 570 3123.

Wellington Botanical Society

Field Trip: Thursday 7 December and Saturday 9 December for rata walk, Lower Hutt. **Meet:** Thursday at carpark on eastern side of Woburn Station at 6.00pm and on Saturday at 9.30am.

Leader: Kate Jordan, email kateljordan@gmail.com, ph. 027 899 0018.

Nelson Botanical Society

Field Trip/Meeting: Please refer to the website: <https://www.nelsonbotanicalsociety.org/trips-meetings>.

Canterbury Botanical Society

Meeting: Monday 4 December at 7.30pm. **Speaker:** Ilse Bre-itwieser, Plant Systematist, Manaaki Whenua – Landcare Research. **Topic:** *Craspedia* taxonomy is complicated.

Venue: St Albans Community Centre, 1049 Colombo Street, Christchurch.

Field Trip: Saturday 9 December to Mt. Hutt ski field. **Meet:** At the McLennan Bush Road/Rosehill Road intersection at 10.00am.

Leader: Jane Gosden.
