

NEW ZEALAND BOTANICAL SOCIETY

NEWSLETTER

NUMBER 153

September 2023



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Subscriptions

The 2023 ordinary and institutional subscriptions are \$28 (reduced to \$25 if paid by the due date on the subscription invoice). The 2022 student subscription, available to full-time students, is \$15 (reduced to \$10 if paid by the due date on the subscription invoice).

Back issues of the *Newsletter* are available at \$7.00 each. Since 1986 the Newsletter has appeared quarterly in March, June, September and December.

New subscriptions are always welcome and these, together with back issue orders, should be sent to the Secretary/Treasurer (address above).

Subscriptions are due by 30 April each year for that calendar year. Existing subscribers are sent an invoice with the March *Newsletter* for the next years subscription which offers a reduction if this is paid by the due date. If you are in arrears with your subscription a reminder notice comes attached to each issue of the *Newsletter*.

Deadline for next issue

The deadline for the December 2023 issue is 25 November 2023.

Please post contributions to:

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Send email contributions to lara.shepherd@tepapa.govt.nz Files are preferably in MS Word, as a Microsoft Word document. Graphics can be sent as TIF JPG, or BMP files; please do not embed images into documents. Alternatively, photos or line drawings can be posted and will be returned if required. Drawings and photos make an article more readable so please include them if possible.

Cover Illustration

Carex goyenii by Eleanor Burton.

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NEWS

New Zealand Botanical Society News

▪ Call for New Zealand Botanical Society Nominations

Nominations are called for the following positions of Officers and Committee of the New Zealand Botanical Society for 2023:

- President
- Secretary/Treasurer
- 3 Committee Members
- Editor

Nominations for all positions open on 1 September 2023 and close on 20 November 2023.

Nominations shall be made in writing to the Secretary, c/o Canterbury Museum, Rolleston Avenue, Christchurch 8013, and shall be signed by the Proposer, the Seconder, and by the Nominee to indicate their acceptance of nomination. If necessary, ballot papers for a postal election will be circulated with your December Newsletter.

▪ Allan Mere Award

No nominations were received for this year's Allan Mere Award. A call for nominations for next year's Allan Mere Award will be made in the March 2024 New Zealand Botanical Society Newsletter.

Regional Botanical Society News

▪ Auckland Botanical Society

June meeting

The meeting began with Plant-of-the-month, *Kunzea amathicola*, where Maureen Young explained how observing the long pedicels on the inflorescences allowed her, finally, to manage to separate this species from *K. linearis* and *K. robusta* growing on the dunes in Northland. This was followed by a small ceremony to bestow Life Membership on Joshua Salter and Mei Nee Lee for their eleven years of service to the society as joint editors of our Journal. The main speaker, Yumiko Baba, showed beautiful pictures of the Japanese island, Shikoku, where she and her husband, Cameron Kilgour, lived before moving to New Zealand. The natural forests consist of broadleaf Lauraceae-Fagaceae dominated evergreen forests at lower altitudes, and mixed coniferous-deciduous forests at higher altitudes. A suggestion was made that she lead a Bot Soc trip there, but the hair-raising track to the highest mountain on the island looked rather formidable for all but the brave.

June field trip

A field trip was held in June to the bush-clad 4 ha property of Tony van Raat and Penny Sander at 129 Laingholm Drive, Laingholm. Sixteen people attended. The property is mainly second-growth kauri ricker forest, with a sprinkling of rimu, tanekaha, tōtara, kānuka, and rewarewa, and locally, kahikatea, a part of a larger expanse of this type of forest in Laingholm. The kauri greenhood orchid, *Pterostylis brumalis*, was prominent, and a drawcard for our photographers, and the cryptic *Corybas cheesemani* was found flowering in the leaf litter.

July meeting

The annual book auction was jazzed up by auctioneers Geoff Davidson and Dan Blanchon, and raised \$500 for the Lucy Cranwell Student Grant. This was followed by a botanical quiz where Rhys Gardner's sense of the ridiculous came to the fore.

July field trip

On this wettest of wet winters a ramble in the suburban Sylvan Park, next to Lake Pupuke, suited our requirements. Our leader for the day, Rhys Gardner, introduced us to Tabitha Becroft, who gave a short chat on the aims of the Pupuke Birdsong Project and their hopes for restoring the habitat to encourage more birds. We proceeded to survey the remnant pūriri forest, make a species list, and put forward our views on how this might be achieved.

August meeting

Both the speakers for the evening bemoaned the shortage of taxonomists and the lack of money available for taxonomy. Firstly, Dan Blanchon pointed out that the number of lichen taxa recognised for New Zealand has increased from 958 in 1985 to 2026 in 2017, and is growing; and most taxonomy is done by people in their spare time. He showed how some lichens are parasitised by fungi, which makes it difficult to extract DNA for identification.

Peter de Lange then spoke on that most annoying of subjects for amateur botanists, the constant changing of plant names. He pointed out which names must be accepted, which must be rejected, and which can be optional. He suggested that we do our homework before accepting new names, but this is difficult for those who don't have the means or the in-depth knowledge of taxonomy.

August field trip

With difficulty finding a track that was dry enough for a field trip after our dreadful winter, we fell back on that old favourite, Rangitoto. A good crowd assembled on the wharf, including our friend, Anthony Wright, up from Christchurch. It was great to re-familiarise ourselves with the special botany of the lava and scoria fields, and the new chums on the trip eagerly learned some of the features of the plants not usually seen elsewhere. After all the rain the kidney fern grove was a beautiful sight, but it was too early for new fertile fronds to be on display. However, with the promise of a chocolate fish, (metaphorical) sharp eyes spotted three of last year's fertile fronds, showing the little indusia "cups" that support the sporangia. The promised heavy showers turned out to just be misty, so all went home pleased with the day.

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■ Rotorua Botanical Society

August Trip -Tutaheke, Highlands Station

This trip was a continuation of exploration of the area visited last year, looking at a second block of forest adjacent to but at higher elevation than that last year. Using another track we started on the opposite side of the block to where we left off last year. At first we had to plod up a steep stock track through farmland to the highest point at Tutaheke Trig. Here we were rewarded with wide views from Tarawera to Tauhara. We then crossed the fence and began to meander down through forest. As before the forest had been heavily logged and modified by grazing before fencing and protection and is currently being damaged by wallabies and, to a lesser extent, deer.

The initial descent was steep through patches of tawa, rewarewa and supplejack. Here we noted *Psedowintera axillaris* and *P. colorata*, broadleaf and *Coprosma autumnalis*, our only records for the trip. The route then soon flattened off into extensive areas of tree ferns, mainly whekī and silver fern with intermittent māhoe and kaikōmako. The greatest diversity was in the ferns with rare emergents in a species poor forest due to the dominance of the tree ferns. Also, the long and current history of browsing has also impacted the shrub and ground cover. In one small area kaikōmako were tall trees

over 1 m in diameter. The only patch of *Raukawa edgereyi* seen, epiphytic on whekī, was heavily defoliated, probably (and unusually) by possums.

Our first tea break was in an open area surrounded by rangiora and tree tutu, on the forest edge in patches of bracken with only a few scattered foxgloves and ragworts. Lunch found us at the foot of a gully in sun with snow on the grass in the shade below us and a swathe of dead kamahi across the gully along the forest edge (spray drift or summer drought?).

From there we found an old road leading back uphill to perhaps the most interesting area of the block. With tall tawa forest overhead and a steep rocky face above the road, we found *Trichomanes enderlicherianum* and *Hymenophyllum flexuosum* and added several other new ferns. Near the forest edge John Hobbs relocated the solitary miro on the block. Here in one area we manage to see our first *Dendrobium cunninghamii* and *Drymoanthus adversus* on a few adjacent, scattered trees just outside the fence, along with numerous *Earina muconata*, and *E. autumnalis*. From there we returned to the trig, mostly along the forest edge seeing no new species.

FUTURE EVENTS

September 2 Woods Mill Rd, Mamaku
October 7 Motu River mouth and upstream
November 4 Western Bays track – Waihaha River
December 3 Ottawa Trig from Rocky Cutting

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■ Nelson Botanical Society

April Field Trip: Harwood's Hole

On entering the track, we soon spotted a plant not on the species list, a small specimen of *Aristotelia fruticosa*. Also on the ground nearby were *Rubus schmidelioides*, *Lagenophora pinnatifida*, *Nertera villosa*, *Austrolycopodium fastigiatum*, *Austroblechnum pennamarina*, and *Lobelia angulata*. On the right of the track was a mossy hollow, which immediately drew people to look for *Ourisia modesta*, and a large patch proved to be present. This Nationally Critical species is a small creeping herb that can be identified by its long, channelled petioles and wine-coloured 'stitches' around the leaf margins. There were also a number of other small creeping herbs at this spot, including *Ranunculus membranifolius* and *Viola lyallii*. We noted the difference between the opaque fruit of *Coprosma dumosa* and the small red, translucent red fruit of *C. decurva*. As we progressed we learned the difference between two astelias that were growing close together, *Astelia* 'nervosa broad' and *A. nivicola* var. *moriceae*. As we started to move through the marble rocks, *Myosotis forsteri* was spotted in a rock crevice. Along this section were some of the limestone/marble endemics such as *Melicytus obovatus*, *Pseudopanax macintyreii* and *Brachyglottis laxifolia*. Sitting on the edge looking down the steep drop into the gorge was a slightly nerve-wracking but exhilarating experience. Many of us spent quite a lot of time at that dramatic spot before also going to have a look at the enormous cavern that is Harwoods Hole, New Zealand's deepest vertical shaft, created by an ancient river that once flowed along the dry valley.

April Evening Meeting: 'Species on the brink', talk by Shannel Courtney

Shannel gave us a presentation on the New Zealand Threat Classification System concentrating on species designated as Nationally Critical and in particular a subset of these which are truly on the brink of extinction. The critical data required to assess threat status of a species are:

- Number of adult individuals
- Number of sub-populations
- Rate of decline (population trend)
- Area of occupancy

Many species cannot be assessed because of lack of this information, and these are classified as Data Deficient. For a species to be designated Nationally Critical, the criteria are:

- Fewer than 250 mature individuals (natural or unnatural) or:

- 250–1000 mature individuals and 50–70% decline over 10 years or 3 generations
- Any population size with a greater than 70% population decline over 10 years or 3 generations. If a population size is difficult to estimate, then the number of sub-populations or area of occupancy (< 1 ha) is also used. There are also a number of qualifiers such as Range Restricted or Conservation Dependent that also need to be taken into account.

In 2020, in response to three possible species extinction events during lockdown, Shannel created a spreadsheet listing a subset of Nationally Critical, Data Deficient or not-yet-assessed taxa that are likely to be on the brink of extinction. According to this data, 124 NZ taxa are on the brink of extinction and of these 95 are plants: 87 vascular and 8 non-vascular (mosses and liverworts). The extinction status of these 95 species is as follows:

- Presumed extinct 2
- Possibly extinct in the wild 7
- Possibly functionally extinct 11
- Imminent threat of extinction 38
- Imminent threat of extinction likely but not enough information 37

The sites of 18 of these species are in the northern South Island. The following local examples show the vulnerability of these threatened species, many of which are only being saved from extinction by the efforts of dedicated botanists who spend hours searching in the wild to try and find new populations, and sometimes propagating plants for insurance populations and collecting seed for storage.

- *Craspedia* 'Hacket limestone': hundreds of individuals in a few sq m, 1 known locality.
- *Lachnagrostis* 'ultramafic': 2 localities with a few hundred individuals over a few sq m.
- *Lagenophora schmidiae*: few individuals, only a few known extant localities.
- *Senecio* 'Tablelands': 1 locality, 70 individuals on 1 rock.
- *Ranunculus* 'Hope': at 3 localities and occupying a total area of only a few sq m.

Loss of habitat through land clearance is a major cause of threats to native plants, and although many populations are on protected land, threats also include browsing, weed invasion and climate change. Survey work can provide great benefits by finding new populations to protect, and it is particularly important to identify populations on private land so that these also can be managed. Staff are also working with mana whenua and botanic gardens to keep seed banks to ensure back-up populations for all species on the brink.

May Field trip to Six Mile Reserve, Wairau Valley

The track is at the beginning of the Red Hills access and had been chosen because of the variety of fungi that are present at this time of the year. The forest is dominated by red, silver and mountain beech, and there was an abundance of broadleaved species in the understorey, including numerous coprosmas, *Fuchsia excorticata*, *Griselinia littoralis* and *Pittosporum tenuifolium*. There were some good specimens of *Raukaua simplex* and some juvenile forms of *Elaeocarpus hookerianus*. Some plant specimens were particularly large, including *Astelia fragrans* and huge *Polystichum vestitum* plants. Some groundcover species present were *Lagenophora strangulata*, *Nertera villosa*, *Ranunculus reflexus* and *Hydrocotyle microphylla*.

It was immediately apparent that fungi were going to be a major attraction of the day, with such a variety of forms – webcaps, coral fungi, gilled mushrooms, bracket fungi, etc. Numerous specimens of *Rossbeevera pachydermis*, looking like stones, dotted the sides of the track. Coral fungi were popular with photographers, and the discovery the distinctive *Calostoma rodwayi*, nicknamed 'hotlips' caused excitement. A scattering of bright green leaves on the track drew attention to the presence of some large specimens of the yellow-flowered mistletoe, *Alepis flavida*, in the canopy. Further along the track we found a specimen of *Peraxilla colensoi*, with ripe fruit.

June Field Trip to Towers Bay, Kaiteriteri

A small group of us wandered down the steep track to Towers Bay, north of Kaiteriteri. The canopy was mainly *Kunzea ericoides* and black beech with occasional *Carpodetus serratus* and *Myrsine salicina*. Tree ferns were common, along with *Coprosma autumnalis*, and *Geniostoma ligustrifolium* var. *ligustrifolium*. *Notogrammitis ciliata* and a wispy fine *Carex* grew on the ground's surface. Hanging pendulums of *Tmesipteris elongata* dangled from *Cyathea dealbata*. *Leptopteris hymenophylloides* spilled from a wall beside a trickling stream. Here we also saw *Austroblechnum lanceolatum*,

Hymenophyllum demissum, *Cranfillia fluviatilis* and *Histiopteris incisa*. Almost directly opposite was an elegantly serrated *Asplenium polyodon*, draping above *A. oblongifolium* and *A. bulbiferum*. There was also a very large specimen of *Lastreopsis hispida*, distinguished by its very hairy rachis. Past a patch of *Fuscospora solandri*, what was earlier a handful became a cascade of climbing rātā. *Metrosideros perforata* was the most common, but among it also hid *M. diffusa* and *M. fulgens*.

The crashing waves of the sea echoed closer until we burst out onto a stunning beach. We were grateful to be in the warmth after the cold, fresh dampness of the forest. We still kept an eye on the plants around us and managed to find a *Pterostylis alobula*. Having remerged from the top of this track, we walked along the road to the track down to Toka Ngawhā / Split Apple Rock. Descending alongside a stream and a mossy bank we found *Acianthus sinclairii*. Along the shore were several well established *Pomaderris apetala* ssp. *maritima*, which were probably planted.

June Evening Meeting: "Dryland plants in Inland Marlborough" talk by Rowan Hindmarsh-Walls

Rowan is in the Biodiversity Team at DOC Renwick. They cover a big patch, with 69 threatened plant species over diverse ecosystems. It is a massive conservation estate including Rangitahi/Molesworth. The area has low rainfall, intense summer heat and freezing winters; the mountains are high, with little soil. The pest animals include goats, deer, chamois, possums, ferrets, stoats, cats, and hedgehogs. The pest plants include wilding conifers, rowan, Scotch broom and hawthorn.

Rocky areas

Pachycladon stellatum numbers are going downhill as a result of browsing, especially by goats. They survive on outcrops and bluffs, and are Critically Endangered. The Upper Awatere is a *Pachycladon* hotspot where *P. fastigiatum* has its stronghold, the numbers of which are also decreasing fast. *Helichrysum coralloides*, grows on bluffs and exposed rocks in Marlborough and north Canterbury. Limited to the Clarence and Muzzle Station is a robust leafless pōhuehue, *Muehlenbeckia 'ephedroides erect'*, growing on talus and exposed ground with an upright habit, contrasting with true *M. ephedroides*. *Melicytus* 'Kaikōura' inhabits bluffs, outcrops and rocky ridges in South Marlborough and North Canterbury; but with tiny leaves it does not get browsed. *Convolvulus fractosaxosa* is naturally uncommon, growing in shaded rocky areas in South Marlborough and Otago. The valley floors have been raised by 5 m in places since the Kaikōura earthquake, and rock-falls and scree choke them; active rock-falls continued for two years after the 2016 earthquake. It is clear that these tectonic processes are responsible for continuously creating new habitat that is vital for these rock-land specialists.

Wetlands

Sedgemere Tarn comprises a turf of wetland species requiring regular weed control. It is fenced off for protection but vandals cut the wires and drove their vehicles over the tarn, causing damage and re-introducing weeds. The climate is harsh; the tarn was under snow in April this year; it fills with water over winter and freezes, then in summer it is baked into a pan. *Lobelia ionantha* is an 'At Risk Declining' ephemeral wetland mat plant from Nelson to Southland. *Myosotis brevis*, one of our annual forget-me-nots, requires open ephemeral tarns and depressions. Categorised as Threatened and Nationally Vulnerable, it is also a widespread but very sparsely distributed species. *Craspedia* 'tarn' exists in only two areas in western Molesworth and is 'Threatened and Nationally Critical'. It lives around the edge of ephemeral tarns. *Dysphania pusilla* was thought extinct, partly due to its odd emergence cycle; threatened but not endangered, it lives in silty areas on river edges and active flood channels. The most common species in Sedgemere Tarn is *Epilobium angustum*, a mass of white flowers in season but Nationally Uncommon and At Risk. It is confined to ephemeral tarns and depressions in the eastern South Island. Very rare and only found in a few places, including Sedgemere Tarn, *Cardamine mutabilis* spends the longest time underwater in wet ephemeral tarns. Living in standing water, it is Nationally Critical because of weed invasion. *Triglochin palustris* inhabits montane wetlands in Otago and South Canterbury and around Lake McRae in Molesworth.

Tussock grassland

At higher altitudes four species of *Chionochloa* are common: *C. pallens*, *C. flavescens* subsp. *brevis*, *C. macra* and *C. australis*. In the dry grassland, *Celmisia allanii*, with its bright white flowers, occurs in Nelson, Marlborough and North Canterbury. Eastern South Island river flats from Nelson to Southland are home to *Aciphylla subflabellata*; the fine-needed leaves are hard to spot when it is not in flower. Pigs eat the roots, and it has been overrun by broom in places. *Craspedia incana*, with round yellow

flower heads is found in the dry grassland also. On glacial moraines and river terraces from Marlborough to Otago *Veronica pimeleoides* subsp. *pimeleoides* can be found. There is also a special suite of plants that live on the dry open tussock land terraces alongside the major river systems. Low-growing woolly *Pimelea mesoa* subsp. *mesoa* occurs here; it has its own moth, the caterpillars of which feed on the plant. *Leucopogon nanum* is reasonably common on dry river terraces, a tiny prickly plant that makes big mats and handles dry conditions. *Pterostylis tristis* grows 5 cm high, with brown flowers in dry grassland, the leaves tucked down into the turf; it is At Risk-Declining, found throughout the Eastern South Island. *Carmichaelia corrugata* occurs on dry river terraces also; the tiny prostrate plants are heavily browsed and the habitat is threatened by land modification.

Scree

Wahlenbergia cartilaginea, has two colour morphs, grey and green, and thickened semi-succulent leaves that die off over winter. The unnamed *Oxalis* 'scree' also has thickened semisucculent leaves, and large bright yellow flowers, surviving in very dry areas in loose scree, and shrivelling later in summer. Also in loose scree is the sticky-leaved *Epilobium forbesii* (Naturally Uncommon) which has its stronghold in South Marlborough; and in the loose high-altitude scree *Rachelia glaria* is also Naturally Uncommon and only found in South Marlborough. *Leptinella dendyi*, with its highly divided, purple-grey, semi-succulent leaves and yellow-centred flowers, occurs in loose mobile scree. In the northern South Island, *Montigena novae-zelandiae* occurs only in the Clarence catchment, blending in with the scree and very palatable to browsers. *Poa buehneri* has grey leaves which blend in to its habitat. Shrubland plants *Ewartiothamnus sinclairii* daisy forms a silvery subshrub bush and is a South Marlborough endemic. *Leptinella filiformis* slender button daisy, is another species on the brink of extinction, now occurring only in one gully in eastern Molesworth; a tiny mat-forming plant, it was thought to be extinct in the wild. *Myosotis saxatilis* is found in grass and shrubland and rocky areas in Marlborough and Otago; it has white flowers on tall stems. *Myosurus minimus*, is a tiny annual herb flowering in spring, occurring in open kānuka forest in the Eastern South Island. *Pimelea concinna* is striking with its silvery leaves and quite rounded topiaried form. In rocky shrubland is found the Nationally Critical, short-lived cress *Pachycladon cheesemani*. It is highly palatable and is sparsely found also in Otago.

FUTURE EVENTS

See the website: <https://www.nelsonbotanicalsociety.org/>

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■ Canterbury Botanical Society

April Field Trip Report: Field trip to Little River conservation land.

The planned trip to the Stavely Track was cancelled after a member discovered the day before, that the track was closed. The field trip was then diverted (pivoted?) to a Little River farm purchased in 2021 for conservation and carbon. We walked up to the stream gullies of kānuka-māhoe forest, stands of mānau, houhi and kōwhai on old slips and slumps, and hillsides of *Coprosma virescens* scrub, colouring up orange in the cool weather. The original podocarp forest has been reduced to the rare old tōtara and mātai. Destocked 18 months ago, seedling mahōe, kawakawa, rōhutu, and *Coprosma* species already carpet the kānuka forest understory, along with the occasional tōtara seedling. Young kānuka are winning against the long grass and it won't be long before a woody cover will be dominant. Photographs of mushrooms were taken to post to iNaturalist where the mycological community are generous with their identifications of the showy fungi such as *Amanita nehuta*, *Laccaria*, webcaps and the puffball *Scleroderma macrosporum*. We all got a whiff of why the endemic and endangered Banks Peninsula fungus *Macrocystidia reducta* is named the fishy pouch fungus. Returning this land to forest is exciting and ambitious. Keeping stock, deer, goats and pigs out of the forest is an ongoing job.

May Field Trip Report: The BOTSOC followed a DOC easement up Terrible Gully to the Mount Hutt. Conservation area. A highlight of the area was the number of large *Olearia paniculata* trees. As the easement track was overgrown with matagouri/tumatakuru (*Discaria toumatou*), we followed the riverbed, eventually hitting a steep scree bank. Along the way we took out wilding pines and a

Cotoneaster coriaceus. A rough scramble up a scree bank led up to a terrace full of *Veronica raoulii*. After zig-zagging across a steep slope we eventually reached a scenic view over the Rakaia River out to Lake Coleridge village and Peak Hill. Although the effects of a long period of grazing was evident in the botanising, a great day up in the high country was had.

May Meeting Report: Changing Christchurch urban canopy cover By Justin Morganroth Associate Professor School of Forestry UC and Toby Chapman CCC Arborist

Justin began the talk with a definition of canopy cover. Canopy cover is expressed as the percentage of the total area covered in trees. These days Canopy cover is determined from Lidar aerial images. Formerly it was determined by going into forests and looking up and estimating the cover. By doing calculations, from different levels of Lidar imagery he was able to determine canopy cover of trees greater than 3.5m high for his study, as larger trees provide more benefits. Canopy Cover matters for improving physical and mental wellbeing by:

- Providing recreation areas.
- Biodiversity- providing habitat for insects and birds
- Improving air quality by sequestering small amounts of carbon
- Improving water quality by slowing the rate at which rain fall enters our water ways. This means that less sediment and pollutants enter the waterways.
- Regulating the urban heat island effect, with ground shading and cooling of air by evapotranspiration from the leaf surfaces.

Studies in Melbourne have demonstrated that on very hot days, the temperature difference, between shady sites under trees and pavement areas was up to 25°C Christchurch Canopy Cover maps show the uneven distribution of large tree density. Wards such as the Coastal ward have higher tree density due to the inclusion of Bottle Lake forest. Cashmere ward also has higher tree cover while Waltham and Aranui had low canopy cover. Jason compared two sets of data, the summer of 2015/2016 Lidar showed there was 15.59% Canopy cover in Christchurch. Over the 2018/2019 summer the canopy cover was 13.56%. This loss is due to a number of factors:

- Low quality intensive development< where a developer bulldozes all vegetation on a site and subdivides.
- Rapidly changing climate means some species cannot survive.
- Fire
- Pests and diseases.

The second part of the talk was by Toby Chapman a Christchurch City Council (CCC) arborist. Toby Chapman was one of the many authors of the recently published proposed Ōtautahi Christchurch Urban Forest Plan. The plan sets out how over 50 years we will grow a resilient, diverse and healthy urban forest in Christchurch and Banks Peninsula. Most of the Urban forest (57%) is on private land, 28% is council owned and 15% is Crown owned. The Urban plan covers both public and private land. The aim is to have >20% canopy cover by 2070 by planting more trees to meet a set targets that vary for each land use type.

July meeting: Paul Broady discussed a number of issues relating to nitrous oxide emissions and what that means for the planet.

Covered the rapidly increasing world emissions of nitrous oxide and why Aotearoa New Zealand is the fourth largest emitter in the world. Microbes are key actors. This will lead us into discussion of the global nitrogen cycle and how this has been massively perturbed by our activities. Fossil fuels feature here of course. But don't despair as we can change this rather dire situation for the better. That probably means changes towards healthier diets.

July field trip: Tuhaitara Coastal Park

This was a trip to see progress with the Tutaepatu lagoon restoration, dune restoration, and the restored native coastal forest sequence, all part of the Trust's 200-year plan to rehabilitate the lands to an indigenous coastal ecosystem supporting a diverse range of native flora and fauna species and providing sustainable mahinga kai.

FUTURE EVENTS

Changes to the program are notified on: <http://canterburybotanicalsociety.org.nz/canterbury-botanical-meetingsfield-trips>. Future meetings and field trips for the New Year are still to be confirmed and will be notified in next newsletter.

Saturday 9th September: Field trip to shrublands at Omihi or the new DOC Birdlings Flat reserve.

Monday 2nd October Meeting: Nicholas Head, Greg Stanley, Edith Smith, and Miles Giller report on their field experience restoring dryland kānuka.

Saturday 7th October: Field trip to a dryland kānuka restoration site.

Monday 6th November meeting: Ilse Breitweiser (Plant systematics, Manaaki Whenua): *Craspedia* taxonomy is complicated.

Saturday 11th November: field trip to the new Steephead Conservation area, Le Bons bay

Spring camp Show weekend 17-19th November: Molesworth Recreation Reserve.

Monday 4th December: Jane Gosden's illustrated tour of *Celmisia*.

Saturday 9th December: field trip to Mt Hutt ski field to see *Cardamine alticola* and other alpine herbs and grasses.

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Whanganui Museum Botanical Group

Our meetings are held every two months on the second Tuesday, alternating with 'Nature Talks' (where the Whanganui Botanical Group has merged with Birding Whanganui and the Whanganui branch of Forest and Bird), which are held on the third Tuesday in even-numbered months. It is intended to continue with monthly botanical field trips to which members of the other two groups are invited.

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NOTES AND REPORTS

- What is the madder? *Richardia stellaris* (Cham. & Schltdl.) Steud., a newly recorded naturalised weed of New Zealand

Marley Ford (mfecobotany@gmail.com)

A stroll through the weedy suburbs of Kerikeri has revealed another addition to New Zealand's exotic flora, *Richardia stellaris*, a member of the madder family, Rubiaceae (Figure 1A). On the 5th of June 2023, *Richardia stellaris* was found on a verge at the northern end of Kerikeri Road, Northland. The prostrate herb was locally abundant in the shortly mown lawn covering a 1 by 3-meter area. It was growing in a lawn dominated by kikuyu (*Cenchrus clandestinus*) and the herbs *Facelis retusa* subsp. *retusa*, *Gamochaeta coarctata*, *Lotus pedunculatus*, *Silene gallica*, *Soliva sessilis* and *Trifolium repens*. The new record was in volcanic soils, and some areas of the lawn where it grew were sparsely vegetated. The small white flowers of *Richardia stellaris* were scarcely opening and were arranged in a tight cluster, the plants had many purple fruits - mericarps that break into units at maturity (Figure 1B). Specimens have been vouched in Auckland Museum Herbarium and Allan Herbarium.

The herb originates from tropical South America and is a common lawn weed in Eastern Australia. It is a member of the genus *Richardia* Carl Linnaeus with 16 other species (Christenhusz & Chase, 2020). The genus supposedly named after Richard Richardson's (1663–1741) first name, something unusual in taxonomy.

The question is raised - how did this plant get here? Has it been overlooked in the past, or is it a more recent arrival? The former seems more likely. Kerikeri is a very weedy and modified area with many interesting weeds. The seed of *Richardia stellaris* could have arrived with other plants brought to New Zealand, hitched a ride on the foot of a trans-Tasman traveller or in the stomach of a wax-eye (*Zosterops lateralis*) blown on the same journey. Regardless of how this plant got here, it enriches our weedy flora.



Figure 1 (A) Form of *Richardia stellaris* growing in a lawn and (B) tightly whorled purple fruit.

For more photos of this plant on iNaturalist:

https://inaturalist.nz/observations?place_id=any&taxon_id=417769&user_id=marleyi&verifiable=any

Acknowledgements

I would like to thank Cameron Kilgour for forwarding images to Matt Renner (also thanked) who identified this plant as *Richardia stellaris* from his experience of the species in Australia; and Rhys Gardner for kindly reviewing the text.

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■ A terrible poem

Anon.

The terrible poem below is an effort from a member of the Nelson Botanical Society who, for reasons of their personal safety, prefers to remain anonymous. A Botanical Taxonomist may be regarded as someone who studies plants with the aim of classifying and naming them appropriately.

Taxonomists are terrible
They change things all the time
They impose upon us new names
It really is a crime

Taxonomists are terrible
They really are a pain
They rearrange the species
It drives us all insane

Taxonomists are terrible
For now *Cyathea dealbata* - the lovely Silver Fern
Is *Alsophila tricolor*
It's a name I'll never learn

Taxonomists are terrible
So devoted to DNA
Given half a chance
They'd change night into day

Taxonomists are terrible
Coprosma grandifolia - a most impressive name
Is now *Coprosma autumnalis*
And it's simply not the same!

Taxonomists are terrible
They scheme for years and years
I'm sure their one avowed intent
Is to bring us all to tears

Taxonomists are terrible
Consider *Blechnum* - so obvious, so easy, so true
But now they've chopped the genus up
And I haven't got a clue

Taxonomists are terrible
They can't leave things alone
If they had their wicked way
They'd change water into stone

Taxonomists are terrible
But it's best not to complain
For they are seeking truth through science
And all of us will gain.

- Under our nose, a second record of the bristle fern *Abrodictyum caudatum* for mainland New Zealand

Marley Ford (mfecobotany@gmail.com)

Originally published in the July *Trilepidia* Newsletter No 231

A second mainland population of the small bristle fern *Abrodictyum caudatum* (Brack.) Ebihara & K.Iwats has been found in West Auckland, an area of New Zealand so well botanised (Figure 1). Previously this 'Threatened - Nationally Critical' fern (de Lange et al. 2018) was only known on the New Zealand mainland from near Kerikeri but is also known from the Kermadec Islands. Beyond New Zealand it is present in Australia, New Caledonia, Fiji, Samoa, Cook Islands and the Society Islands (Breitwieser et al., 2023).

A member of the fern family Hymenophyllaceae Mart. this fern has been previously called *Trichomanes caudatum* Brack. and still is treated as so by the New Zealand Flora (Breitwieser et al., 2023). Recent revision, however, better places the plant as *Abrodictyum caudatum* (Ebihara et al. 2006). The epithet 'caudatus' refers to the tail-like point the pinnae taper to (Breitwieser et al., 2023). *Abrodictyum caudatum* is distinguished from other mainland bristle ferns (*Abrodictyum* C.Presl and *Polyphlebium* Copel Subfamily Trichomanoideae) by its campanulate indusia, deltoid fronds and single unbranched veins (Figure 2). These characters separate it from ferns in similar habitats such as *Polyphlebium endlicherianum* (C.Presl) Ebihara et K.Iwats. and *Polyphlebium venosum* (R.Br.) Copel.

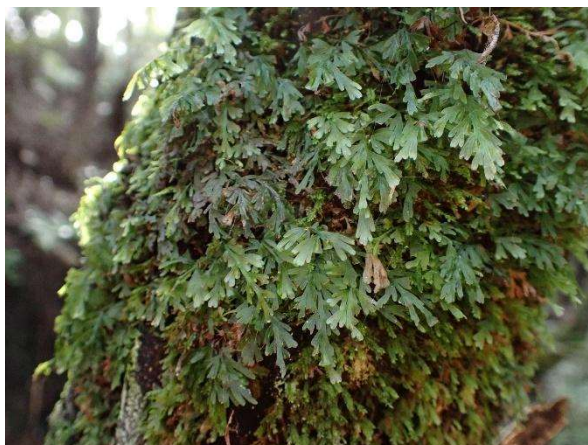


Figure 1. Mass of *Abrodictyum caudatum* as epiphyte on *Dicksonia squarrosa*.

In April 2020 an iNaturalist observation of *Trichomanes* was posted by Danielle Munster from private property in Glen Eden, Auckland, originally identified as *Trichomanes endlicherianum* (<https://inaturalist.nz/observations/42946972>). The plant did not fit this species and eventually it was concluded that this plant was the rare fern *Abrodictyum caudatum*. The site was visited by the author on 22 July 2023 (<https://inaturalist.nz/observations/42946972>) to confirm this identification. This population was confirmed, although only one tree fern *Dicksonia squarrosa* was found with this filmy fern as an epiphyte. On this plant it was abundant, from the ground up to 2m high. The *Dicksonia squarrosa* was on a riparian stream and the bristle fern grew with *Hymenodon pilifer*, *Tmesipteris tannensis*, *Lepraria ulrikii* and other bryophytes. The host tree fern grew under a canopy of *Kunzea robusta* with an understorey of *Pseudopanax arboreus* and *Alsophila dealbata*, and was surrounded by sparse *Geniostoma ligustrifolium* var. *ligustrifolium* seedlings and occasional patches of *Diploblechnum fraseri* on the ground (Figure 3). Only one other plant of *Dicksonia squarrosa* was seen in the vicinity and without the rare bristle fern.

Seemingly, this *Dicksonia squarrosa* is the preferred substrate for *Abrodictyum caudatum*, being the same host as for the Kerikeri population. The nearby tree ferns *Alsophila dealbata* and *Sphaeropteris medullaris* at the Auckland site lacked the fern. Superficially the mainland sites seem to share a similar humidity and altitude (Auckland 72 m, Kerikeri 10 -20 m). The Auckland population is in younger early successional vegetation than the Kerikeri site but further down the gully there is more intact older vegetation with a tanekaha (*Phyllocladus trichomanoides*) canopy and scattered kauri (*Agathis australis*).

The Auckland population is threatened by slips along the stream, with the clay soil being prone to slipping. A few slips are obvious along the stream arising from recent heavy rainfall events. To work towards increasing the Auckland population of *Abrodictyum caudatum* more plants of its preferred host, the tree fern *Dicksonia squarrosa*, should be planted around the original population, working towards its insurance.



Figure 2. Campanulate sori on frond of *Abrodictyum caudatum*.

There remains some uncertainty about the taxonomic status of mainland *Abrodictyum caudatum*, with the Kerikeri population previously referred to as *Abrodictyum* aff. *caudatum* (de Lange et al., 2013). Morphologically it differs from the Kermadec plants by the downward growth against its substrate, with the Kermadec plants being slightly more erect (Breitwieser et al., 2023). Further, the indusia are more flared in the Kerikeri plants, with the few present in the Kermadec material appearing to be more truncate (Breitwieser et al., 2023). Because of this it is uncertain whether the two populations belong to the same species. This new Auckland population matches the Kerikeri population with the downward growth, flattened indusia and similar habitat. Unpublished genetic sequencing by Perrie et al. indicates that the Kerikeri plants group with those of Fiji, French Polynesia, and Australia.

However, it also indicates that New Caledonian material of *A. caudatum* is different to that in Fiji, French Polynesia, and Australia. This suggests that more than one species may be present in the Pacific region. Specimens of the Auckland population have been sent for sequencing. It is hypothesised that the difference in morphology of the mainland New Zealand population of the species is because it is on the very southern edge of its distribution and the plants could be poorly developed compared to those in tropical regions (Breitwieser et al., 2023). Ultimately, further research is needed to fully understand the taxonomic status of *Abrodictyum caudatum* in New Zealand.

The discovery of this fern in Auckland is a surprise, as it is thought to be one of the most well botanised areas of New Zealand. The occurrence of the one colony of *Abrodictyum caudatum* suggests it could be more widespread but not in abundance. It should be looked for in likely places between Kerikeri and Auckland and probably wider. This find also highlights the importance of the online social network iNaturalist and the potential it has to identify new locations of threatened plants by connecting citizens with experts.

Acknowledgements

I would like to give a massive thanks to Oscar Grant for bringing the original observation to my attention and reminding me of it, Danielle Munster for originally finding this plant and facilitating contact with landowners, Amanda Mellick for allowing me to visit her property and survey the fern, Barbara Parris for her comments on this species and Bill Campbell for reviewing the draft.

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Figure 3. Riparian habitat of the *Abrodictyum caudatum* host *Dicksonia squarrosa*.

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BIOGRAPHY / BIBLIOGRAPHY

New Zealand-born botanist Carrick Chambers recently passed away in Sydney. The following biographical sketch is reproduced, with permission, from Val Smith's *Common Ground: who's who in New Zealand botanical names* (2015), page 239.

■ Biographical Sketch – Thomas Carrick Chambers (1930-)

Val Smith, valdsmit@xtra.co.nz

Thomas Carrick Chambers was born in Auckland on 5 September 1930, the son of George Thomas Chambers and his wife Lyda Louisa Chambers, née Higgott. Carrick's interest in biology and the growing of plants began at an early age. He attended Three Kings Primary School, Manukau Intermediate and Otahuhu College, and during school holidays worked in a local plant nursery, gaining a considerable background in propagation and planting. At Otahuhu College he was inspired and encouraged by two outstanding teachers, Dr W S Hill and Miss Miriam Matthews (now Dame Miriam Dell), who introduced her class not only to rainforest ecology, but also to the university environment. He went on to Auckland Teachers College, but decided teaching wasn't for him, and in 1950 entered Auckland University College, majoring in botany, and graduated BSc (1952) and MSc with first-class honours (1954). In 1960 he completed his PhD at the University of Sydney.



Blechnum chambersii

In 1959 he married Margaret Fosbery Consett Davis and made Australia his home. They were to have a daughter and three sons. Chambers had already lectured at the Auckland and Sydney universities, and shortly after completing his degree he joined the Botany department of the University of Melbourne, ultimately becoming Professor of Botany, a post he held for nearly twenty years, 1967-1986. His work included supervising research students in electron microscopy, paleobotany and fern taxonomy, in addition to undergraduate teaching and laboratory classes. His career changed direction when he returned to Sydney as director of the Royal Botanic Gardens and National Herbarium of New South Wales, a position he held for ten years, until his retirement in 1996.

His botanical interest and expertise were manifest in his major involvement in many projects and other activities. These included the complete landscape re-planning of the grounds of the University of Melbourne, the Ian Potter Farmland Plan demonstrating the return of denuded countryside to productive land, garden restoration and management for the National Trust of Australia (Victoria), and the

establishment of two new botanic gardens near Sydney. He also co-ordinated early research on the recently discovered Wollemi pine and published many scientific papers on various botanical topics. In his retirement he keeps his hand in plant taxonomy, is honorary research associate of the National Herbarium of New South Wales, and travels to see the world's botanical treasures.

Blechnum chambersii was a by-product of research material Carrick Chambers assembled for his MSc thesis. Dr Mary Tindale from the Herbarium of the Royal Botanic Gardens, Sydney, later sorted out the nomenclatural problem and chose the name.

Blechnum chambersii

Blechnum is a large genus, often known as hard ferns, with markedly different fertile and sterile fronds, the laminae of the fertile pinnae being much reduced and only wide enough to bear sori in one continuous row either side of the midrib. *Blechnum chambersii*, nini, is a common fern, especially along stream banks where the lance-like fronds, which are boldly patterned, curve elegantly in a small tuft. The spore-bearing fronds, which are shorter than the sterile ones, stand up stiffly from the centre of the rosette. *Blechnum chambersii* is abundant in lowland to montane forest in New Zealand, especially in damp places, and is also found in Australia and some Pacific Islands.

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■ **Biographical Sketch – Andreas Olsen (c.1848 – 1933)**

Val Smith, valdsmit@xtra.co.nz

Bush was felled, wetlands drained and grasslands overgrazed; settlements and farms were established, roads and railways constructed, and fortunes made or lost – but the Seventy Mile Bush known to Māori as Tapere-nui-a-Whātonga remained a major obstacle to communication between Hawkes Bay and the southwest of the North Island. In 1870 Julius Vogel's government turned to Scandinavia as a likely source of immigrants for further land development, and during the next six years nearly one thousand Norwegians moved to the Norsewood area in southern Hawke's Bay.

Andreas Olsen, a 25 year-old painter and farm labourer, was on the immigrant ship "Høvding" when it sailed from Christiania (Kristiania – now Oslo) on 8 August 1873 for New Zealand. He was hired to paint the three-masted wooden sailing ship, and to distinguish him from several other passengers with the same name he became known as "Painter" Olsen. With him were his wife Hanna Allette, nee Hansdatter (28), George Albert (2) and infant Karen. It was crowded and unsanitary on board and it seems that their youngsters may have been among the eleven children who died at sea.

A few days after berthing at Napier on 1 December 1873, the immigrants made the tedious journey inland by cart or on foot with their few belongings, and had only a short time to clear and build a shelter on their allotted 40-acre sections. Most men then had to work away from home on road or rail construction or sawmilling to pay off their debt to the government, leaving the women (often pregnant

or with small children in tow) to work the land and sell what they could to buy supplies. Five daughters and two sons were born to Hanna and Andreas Olsen during their first decade in New Zealand. Olsen's farm was on the present Garfield Road near Mortensen's accommodation house "Fernhill", a kilometre south of Norsewood and an easy walk or ride towards the eastern side of the ranges. Olsen, already an enthusiastic plant collector for school inspector and botanist Henry Hill, guided missionary botanist William Colenso when he was in the area; the two became good friends, Colenso was invited to the Olsen home and he later urged Olsen to support his son Othenius into a teaching career.



Parahebe hookeriana

The hostelry was not replaced after the devastating fire that swept through the area in 1888, but Olsen continued to collect many Ruahine plant specimens for Colenso and for his own interest into the nineties. In 1895 Colenso described *Veronica olsenii* (later *Parahebe hookeriana*), naming it "after its discoverer, Mr A Olsen of South Norsewood, a zealous collector and lover of plants," adding that "this genus, this species, with others, and many other plants from the mountain ranges, flourish admirably in his well-stocked garden, the proximity to the mountain and its altitude being so suitable." Seriously hurt in a buggy accident while returning from the Ruahine foothills on 1 April 1897, Colenso did no further botanical writing that year. However, in 1898, in what became his last botanical paper, he described more ferns and a few flowering plants, mostly collected by Henry Hill and Andreas Olsen.

Prior to Olsen's 1912 trip to Norway with his wife Hanna and two unmarried daughters, the directors of the local dairy factory acknowledged his thirty-nine years in New Zealand and keen interest in the farming industry and presented appropriate gifts to each. Hanna died in 1915, at the age of 70, and Andreas Olsen died at Willow Park, Norsewood, on 24 September 1933, aged 85.

Parahebe hookeriana

Parahebe (Gk *para* 'beside', 'close to Hebe') is an endemic, mostly alpine genus. *Parahebe hookeriana*, which now includes the Ruahine species originally named *Veronica olsenii*, honours the well-known naturalist J D Hooker. It is a small prostrate trailing to creeping plant with short hairy branches rooting at the nodes. The close-set, thick dark-green oval leaves are crowded along the stems. Short, stout flower stalks have dense swollen hairs and carry 4-8 (mostly lavender) flowers. Sub-alpine to high alpine on the central volcanic plateau and ranges, it prefers rocky sites in tussock herbfield or loose stony debris. The cultivated form of Ruahine plants has slender flowering stems and white to pinkish flowers.

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PUBLICATIONS

■ Publications Received

Auckland Botanical Society Newsheet July 2023 Upcoming trips and talks, minutes of special general meeting, Waikato Botanical Society student scholarship call for applications, book review of 'Wilding: the return of nature to a British farm' by Isabella Tree, early flowering of kawakawa, plant of the month *Kunzea amathicola*, books for sale.

Auckland Botanical Society Newsheet August 2023 Upcoming trips and talks, books for sale.

Auckland Botanical Society Newsheet September 2023 Upcoming trips and talks, obituary for Pamela Dale, books for sale.

Auckland Botanical Society Journal June 2023 trip reports for Threatened Native Plant Garden, Auckland Botanic Garden, Rabbit Island / Takangariki, Kawau Bay, Warkworth & Districts Museum and Parry Kauri Park, Cornwall Park, articles on flora and fauna of Kahakaha/Frenchmans Cap, inner Hauraki Gulf, *Pittosporum kirkii* in Rodney, native flora of Auckland's bowling greens, *Verbena bonariensis* and *V. incompta* in Auckland, Yellow wort (*Blackstonia perfoliata*) (Gentianaceae) near Warkworth, book launch: "Nature in the city", review of "Trees of Delhi: a field guide", remembering Audrey Lily Eagle.

Botanical Society of Otago Number 99 July 2023 Upcoming trips and talks, Chair and Secretary's notes, report on podocarps of Burns Reserve, Dunedin, trip reports for Kuriiti Creek, Hampden, Tūhura Otago Museum, Rock and Pillar Range, Burns Scenic Reserve, talk report on coastal sand dunes of Otago, minutes of the AGM and photo competition results.

Nelson Botanical Society Winter 2023 A brief personal history of the society, trip reports for Harwood's Hole, Six Mile Reserve and Towers Bay. Talk summaries for 'species on the brink' and 'Native Forest Restoration Trust' and 'dryland plants of inland Marlborough'.

The New Zealand Native Orchid Journal Number 170 August 2023 Autumn foray to Paeroa and Te Aroha, orchid photos from the Bay of Islands and further afield, *Chiloglottis cornuta* in the south, *Caladenia variegata* near Norsewood.