



TRILEPIDEA

Newsletter of the New Zealand Plant Conservation Network

No. 218

May 2022

Deadline for next issue:
Friday 17 June 2022

SUBMIT AN ARTICLE TO THE NEWSLETTER

Contributions are welcome to the newsletter at any time. The closing date for articles for each issue is approximately the 15th of each month.

Articles may be edited and used in the newsletter and/or on the website news page.

The Network will publish almost any article about plants and plant conservation with a particular focus on the plant life of New Zealand and Oceania.

Please send news items or event information to info@nzpcn.org.nz

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NEW ZEALAND

PLANT OF THE MONTH, p. 2



Pachycladon fasciarium.
Photo: Rowan Hindmarsh-Walls.

President's Message

John Barkla, NZPCN President (mjbarkla@xtra.co.nz)

I was reading our local newspaper recently and a small article caught my attention. After almost a century, goats are gone from Taranaki Mounga and the world's longest running goat eradication programme has come to an end. And that also means the 34,000 hectare national park is free of ungulates too, as the park has no deer or pigs.

This is outstanding news for biodiversity and plant conservation and we should all celebrate this achievement. I take particular delight in this news. Back in the mid-1980s (prior to the formation of the Department of Conservation) I worked for the NZ Forest Service preparing wild animal control plans for many of the parks it then managed throughout the southern half of the North Island. The Forest Service was also responsible for wild animal control in the Lands & Survey-managed national parks. Thus, I became involved in the goat control programme in Egmont National Park.

Even back then, we talked about the desirability of, and prospects for, eradication of the goat population. But there were many seemingly insurmountable barriers and, so instead, year on year, hunting pressure was steadfastly maintained on the small but tenacious herd.

So, I salute all those people past and present who, in different ways, have contributed to bringing this programme to a conclusion. The eradication was marked by the signing of a 'Tomorrow Accord' by representatives from the Taranaki Mounga Project and Department of Conservation. Through the Accord the Crown agrees to maintain the ecological gains achieved.

It's also pleasing to hear that the Taranaki Mounga Project <https://taranakimounga.nz/> is working towards significantly reducing other pest animals and plants on the mountain. A great example of what can be achieved when we work together towards a common objective.



Figure 1. Taranaki Mounga from Pouakai Range. Photo: John Barkla.

PLANT OF THE MONTH – *PACHYCLADON FASCIARIUM*

Rowan Hindmarsh-Walls (rowan.hindwalls@gmail.com)

The plant of the month for May is *Pachycladon fasciarium*, one of 10 *Pachycladon* species endemic to the New Zealand region. The species has a very limited distribution, and is only found on the limestone cliffs of the Chalk Range in Marlborough. It is a calcicole (needing calcium-rich substrates) and can be found on shaded bluff systems, growing out of cracks in the rock. It is often associated with other Marlborough/ North Canterbury endemics, such as *Epilobium wilsonii*, *Gentianella astonii* and *Carmichaelia astonii*.

The plant normally consists of a single rosette of narrow, fleshy leaves, with a very large taproot extending deep into cracks in cliff faces. Plants are quite long-lived but die off after flowering. The inflorescences extend upwards from the centres of the leafy rosettes with small, white flowers along their length. The plant's tiny, light brown seeds are borne in long, narrow siliques (pod-like structures).

Pachycladon fasciarium is most similar in appearance to *P. fastigiatum* which can be found in the same catchment. *P. fasciarium* differs by having glabrous, and usually entire, leaves, unlike those of *P. fastigiatum* which are toothed and sometimes hairy. Although *P. fastigiatum* is found in the area, it is not found in the specific habitat of *P. fasciarium*.



Pachycladon fasciarium, Chalk Range, 28 April 2022. Photos: Rowan Hindmarsh-Walls.

The species has a conservation status of 'Threatened – Nationally Critical', as there are fewer than 25 individual plants known to be remaining in the wild, and it has an extremely restricted distributional range. The species has many threats. One of the main threats is browse by introduced herbivores such as goats and possums. With its restricted distribution, the species is also threatened by earthquake damage. The recent Kaikoura earthquake significantly reduced the population of the species due to its cliff habitat collapsing in the event. Other threats include aphids, brassica diseases and worsening droughts due to climate change.

Although the seeds of the species are very viable, no natural recruitment has been recorded for at least the last 20 years, and it is very difficult to cultivate. If no solution is found to enable recruitment of the species in the near future, it is likely to go extinct. A collaborative project between the Department of Conservation and Otari Native Botanic Garden in Wellington is exploring propagation techniques to try and repopulate the species in the wild.

The genus *Pachycladon* contains 11 species, all but one of which are endemic to New Zealand. The exception is one found in Tasmania, Australia. Almost all of the New Zealand species are found in rocky areas, with the exception of *P. cheesemani* which is often found growing under shrubs. Being brassicas, the New Zealand species are highly palatable to herbivores and insects, which has contributed to the decline of many of the species.

The name *Pachycladon* means 'thick growth' and comes from the Greek 'pachys' or thick, and 'klados' or shoot. The species epithet 'fasciarium' (band-shaped) refers to the leaves, which are usually narrowly linear with two opposite margins, more or less parallel and have a high length to width ratio.

You can view the NZPCN website factsheet for *Pachycladon fasciarium* at: <https://www.nzpcn.org.nz/flora/species/pachycladon-fasciarium/>.

Planting for Biodiversity at Kopu Bridge near Thames

Text: Carol Fielding on behalf of Kopu Bridge Wetlands Care Group. Photos: Kimi Rund, wetland volunteer

On either side of the historic Kopu Bridge and its 2011 replacement on SH25, is a saltwater estuarine area running parallel with the west bank of the Waihou River. This is also the south-eastern corner of RAMSAR site 459 which includes 8927 hectares of Crown Marine area across the Firth of Thames/Tikapa Moana and along its western chenier coastline to include Pukorokoro Miranda (see <https://www.doc.govt.nz/nature/habitats/wetlands/wetlands-by-region/>). When the original cover of kahikatea was logged and the flax lands were drained for farming, tall fescue (*Festuca arundinacea*) and kikuyu (*Cenchrus clandestinum*) were grazed by cattle to the edge of the river.

Ngati Maru are tangata whenua and Orongo is the name for the area south of the bridges. 'Orongo' means a listening post. In pre-European times this was an ideal spot to listen for migrating birds in order to set appropriate lures and snares (McEnteer, John and Turoa, Taimoana 1993).

The area of our plant restoration project extends west from the mangal forest at the edge of this river through a sea meadow zone dominated until 2004 or so by the native sedge Marsh club rush/kukuraho/purua grass (*Bolboschoenus fluviatilis*) and tall fescue. Occasional shrubs of makaka/saltmarsh ribbonwood (*Plagianthus divaricatus*) dotted the area. Our eastern boundary is a borrow pit out of which a stopbank was created, part of the Hauraki Plains Flood Protection Scheme. The borrow pit is tidal, a valuable additional habitat in the mosaic of saltmarsh, shrubland, sea meadow and mangal. On top of the stopbank is the Kopu to Pipiroa section of the Hauraki Rail Trail.



(Left) Looking north between pohuehue on road bank to distant Wetlands sign are three species of rush. Tidal borrow pit in background. (Right) Looking south towards roadside shrubbery. Ten year old flaxes in foreground. Patches of makaka and rushes.

Surviving sea meadow plants included glasswort/ureure (*Sarcocornia quinqueflora*), sea primrose/makoako (*Samolus repens*), batchelor buttons (*Cotula coronopifolia*), half star/remuremu (*Selliera radicans*), native celery/tutae koau (*Apium prostratum*) and arrow grass (*Triglochin striata*). We have successfully transplanted patches of these to speed up their coverage. Maori musk (*Thyridia repens*) from Pukorokoro area failed to establish as did several plantings of upoko-tangata/giant umbrella sedge (*Cyperus ustulatus*).

One side of the road to the historic bridge has been planted in native species such as akeake (*Dodonaea viscosa*), karo (*Pittosporum crassifolium*), karamū (*Coprosma robusta*), mingimingi (*Coprosma propinqua*), mānuka (*Leptospermum scoparium*), kānuka (*Kunzea* sp.), pōhuehue (*Muehlenbeckia complexa*), coastal tree daisy (*Olearia solandri*), rengarenga (*Arthropodium cirratum*) and kōwhai (*Sophora microphylla*). The stony foundation of this road limits planting success on the other side.

Planting and pest control were begun prior to 2004 by the Thames-Hauraki branch of the Royal Forest and Bird Protection Society. Some of the plants that failed to thrive were cabbage tree, kahikatea,

karaka, nikau, puriri, tōtara and wineberry. Flax has struggled on the salt flats but harakeke (*Phormium tenax*) has quickly matured on the raised roadside overlooking the area and on less tidal ground to the south of the bridges. Hundreds of pōhutukawa (*Metrosideros excelsa*) were planted for several years and several dozen of them have flowered or are still alive, but many died, perhaps from salt water and lack of air around their roots. The canopy tree inside the mangal forest of manawa (*Avicennia marina* var. *resinifera*) is now ngaio (*Myoporum laetum*). By 2014, about five hectares had been planted but not intensively, so that much tall fescue remained and threatened to overwhelm the rushes, flaxes and mingimingi (*Coprosma propinqua*).

From 2016 a smaller group, Kopu Bridge Wetlands Care Group, has focused on intensively planting and maintaining an area of about 1 hectare. We decided on this use of our limited human resource after seeing the success of planting three different rushes at 750 mm spacing. Meg Graeme had noted a lack of sea rush (*Juncus kraussii* var. *australiensis*) and oioi (*Apodasmia similis*) communities in 2006 (Graeme, M. 2006). As well as these two species, *Machaerina juncea* was trialled. It has matured and has a sparser, shorter growth habit, allowing sea meadow plants to grow amongst the rhizomes. Our planted clusters of makaka/saltmarsh ribbonwood have added seedlings to those of the original occasional bushes that grew throughout the site. Pōhuehue and ngaio are also self-seeding now.



New (2011) Kopu Bridge over Waihou River. Makaka and three species of rush added to the few manawa remaining after removal of construction machinery.

Wildlife that will be attracted to this increased diversity includes fernbirds, banded rails, skinks, copper butterflies and many invertebrates. At Pukorokoro Miranda Shorebird Centre seventy-four bird species have been recorded, many of them rare or uncommon. The hub of this conservation area is 21 km in a straight line from Orongo so it is likely that some of these birds will visit to feed and roost. Already we've seen a white heron, a cattle egret, a shoveler duck, pied stilts, paradise shelducks, little shags and a dozen more common and perching birds. As only two to five restorers are there for two hours each week, there could be other birds we've missed. The kawai paka/little shags roost on a nearby communication tower, with a convenient view of the tidal borrow pit.

The group is supported by Waikato Regional Council in buying plants. Annual planting of rushes and shrubs is dependent on numbers of volunteers, and has ranged from 800 to 1400 plants annually up to 2020. This year, 2022, we'll plant only 270, extending at the edges of previous planting, and in-filling where needed. We spray to clear orache, kikuyu and tall fescue and these are the main plants that we weed out for the rest of the year. The earliest intensive planting of rushes (in 2014) is so thick that only occasional weeds occur. Rabbits and hares nibble at young rushes and makaka but do not kill them.

The storm surge of 5 January 2018 brought tens of thousands of manawa seeds up to the road bank and killed a lot of the pre-restoration makaka bushes. The borrow pit became a mangrove and *Cotula* nursery, and was no longer tidal until early 2022 when it was cleared to replenish the stopbank.



Looking northeast to the distant inland manawa edge, is our typical inherited cover of tall fescue and occasional makaka. Plants are bought from Te Whangai Trust nursery at Miranda, as their plants are eco-sourced and grown locally.

This year we have placed dozens of pirita/green mistletoe (*Ileostylus micranthus*) seeds onto a variety of marked shrubs and trees, hoping to increase the flowers we can provide.

Pōhue/pink bindweed (*Calystegia sepium* subsp. *roseata*) provides our biggest flower. It appeared about six years ago. In the earlier, larger and drier planting area to the south of the bridges, this vine hangs in autumn like curtains from the tall shrubs.

Other plants for future planting are toetoe (*Austroderia splendens* or *A. fulvida*) and another planting of *Thyridia repens*.

To see the plants that grew here until 1860s, we had the paper read by T. Kirk to Wellington Philosophical Society on Nov.13 1869, 'On the Botany of the Thames Goldfields'. His lists were added to by J. A. Adams in 1883, and printed in Transactions of the Royal Society of New Zealand Vol 16.

References

- Focus 2013: 'Restoration recommendations for the western bank of the lower Waihou River.' Prepared for Thames-Hauraki Royal Forest and Bird Protection Society by the Focus Resource Management Group. Focus Report No. 13/106.
- Graeme, M. 2006: 'Estuarine Vegetation Survey: Inner Firth of Thames. Report prepared for Environment Waikato. Environment Waikato Technical Report 2006/40. Natural Solutions – Marine and Terrestrial Ecologists Ltd.
- McEnteer, John and Turoa, Taimoana 1993: 'Nga Taonga o Te Kauaeranga Maori Heritage of Thames' a report commissioned for Thames-Coromandel District Council

The Type locality: *Pterostylis cardiostigma* at Days Bay

Ian St George (istge@yahoo.co.nz)

I heard people say, back in 1983 when Dorothy Cooper wrote about her new *Pterostylis*, that everyone had seen it but had thought it was just a *P. banksii* in bud. She described and illustrated it as *Pterostylis cardiostigma* D.Cooper sp.nov. – a new species of Orchidaceae from Wellington. NZJBot 1983 21 (1): 97–100. <https://www.tandfonline.com/doi/pdf/10.1080/0028825X.1983.10428528>



She summarised her paper for the NZNOG *Newsletter No.6*, June 1983:

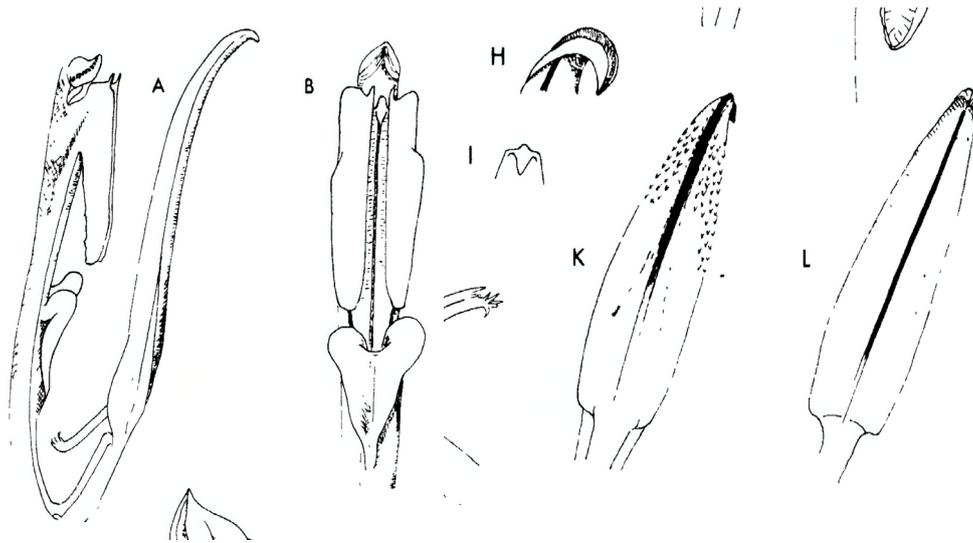
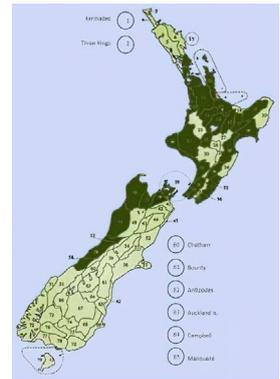
This species is distinguished from other species of the genus by its characteristic heart-shaped stigma, red markings, and upright habit of both the leaves and flower. Plants are 6–35 (40) cm tall, internodes are very short, stem is thickish, the lower portion is covered by pink to red overlapping leaf sheaths with darker red stripes. There are 5–7 sessile leaves, often very upright, especially in young plants. Leaves are 8–23cm by 1–2cm, with a red midrib; they are slightly grooved above and have a prominent keel below. Lateral yellow veins are often prominent. The flower is tall and narrow, the dorsal sepal is 7cm long, has a red tip, is vertical in the lower half, and in its upper half is steeply inclined or very occasionally more horizontal. Lateral sepals diverge at a very narrow angle and the long red caudae overtop the hood by 2cm. Petals are slightly shorter than the dorsal sepal, and the tips are red. The labellum is long and triangular, arched in the upper third. The distal part is red and there is a darker red dorsal median ridge. It is grooved beneath. The stigma is heart-shaped and very prominent.

The species has been found in the eastern hills of Wellington, and in the southern Tararuas. There is an unconfirmed report of it from the eastern Tararuas. It grows about 30m higher than the *P. banksii* zone in Wellington, and main populations range from 60 m above sea level to the ridge crest at 300 m.

The main flowering period is from early October to late November.

The type specimen was collected on 21 October 1980 at Days Bay, Wellington and is in the Allan Herbarium at Lincoln (2 pages over). There is a duplicate, collected at the same time and place, at Te Papa.

Many, in time, could and did extend the range of this new species, as shown in the most recent edition of the NZ Native Orchid Group's *Pocket Guide to the New Zealand native orchids* (right).



Detail from Dorothy Cooper's paper describing *Pterostylis cardiostigma*, showing the characteristic heart shaped stigma (A,B) and the tapered, hooked labellum (H,I,K,L).

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If you or your organisation is in a position to show your support please contact us now for a sponsorship package at fergusa@landcareresearch.co.nz.



Manaaki Whenua
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Ross Beever Memorial Mycological Award

Established in 2014, this award is named in memory of Dr Ross Beever, senior scientist and mycologist at Manaaki Whenua-Landcare Research, widely published plant pathologist of international repute, plant geneticist, mentor and friend to many, and life member of the Fungal Network of NZ (FUNNZ).

How much can you apply for?

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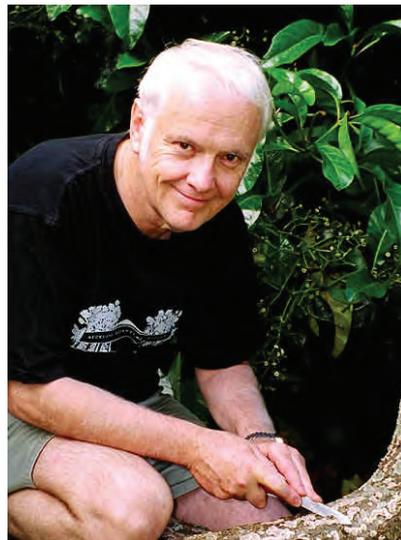
Who can apply? Any full time post-graduate (PhD, Masters, Honours or Postgraduate Diploma of Science) student studying a topic relating to New Zealand mycology or plant pathology.

What can the award be used for?

Financial support for field work, study-related travel, data analysis, reporting and living expenses or any combination of these purposes.

How to apply: Application form and details available from:
<https://www.funnz.org.nz/RBMMA>

Due: 5 pm, Monday 6th June 2022 to
David Orlovich, david.orlovich@otago.ac.nz



UPCOMING EVENTS

If you have events or news that you would like publicised via this newsletter please email the Network (info@nzpcn.org.nz).

If you intend to participate in one of the advertised meetings or field trips please check with the appropriate Botanical Society beforehand to confirm details.

Rotorua Botanical Society

Field Trip: Sunday 12 June to Waharoa QEII covenant, combined with Waikato Botanical Society. **Meet:** Rotorua carpark (time to be confirmed) or at entrance to Hawes Bush, Walker Road, Waharoa (time to be confirmed). **Grade:** Easy.

Leader: Dell Hood, email dhood@xtra.co.nz, ph. 027 521 9260.

Meeting: Monday 20 June at 6.00pm. AGM, followed by speaker Catherine Beard. **Topic:** History of botanical illustration and historical artists of note.

Venue: DOC offices, 99 Sala Stret, Rotorua.

Wellington Botanical Society

Field Trip: Saturday 11 June to Tuapaka/Hutton's Covenant, Te Horo. **Meet:** Waikanae Railway Station north end carpark at 9.45am.

Co-Leaders: Eleanor Burton, email esmeraldadoris93@gmail.com, ph.021 058 8324 and Kate Jordan, email katejordan@gmail.com, ph. 027 899 0018.

Field Trip: Saturday 18 June. Te Marua Bush workbee, Upper Hutt. **Meet:** Te Marua Bush at 9.30am.

Co-Leaders: Glennis Sheppard, ph. 04 526 7450 and Sue Millar, ph.04 526 7440.

Meeting: Monday 20 June at 7.30pm. **Speaker:** Peter de Lange. **Topic:** Rekohu – Updating what we know of the flora and lichenised micobyota of the Misty Islands.

Venue: Lecture Theatre M101, ground floor Murphy Building, west side of Kelburn Parade.

Nelson Botanical Society

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

Canterbury Botanical Society

Meeting: Saturday 11 June AGM.

Botanical Society of Otago

Meeting: Wednesday 8 June at 5.30pm. **Speaker:** Bill Lee, with Jennifer Bannister and Tammo Reichgelt **Topic:** Exploration of the functional significance of serrated leaves in New Zealand forest trees.

Venue: Otago Pioneer Women's Association Inc. building, 362 Moray Place, Dunedin Central.

Field Trip: Saturday 18 June to Bull Creek Bush. **Meet:** Botany Department carpark (464 Great King Street North) at 9.00am.

Contact: Gretchen Brownstein, email brownsteing@landcareresearch.co.nz.