



TRILEPIDEA

Newsletter of the New Zealand Plant Conservation Network

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Deadline for next issue:
Friday 21 January 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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PLANT OF THE MONTH, p. 2



Nephrolepis flexuosa. Photo: Rowan Hindmarsh-Walls.

President's Message

With Christmas inertia looming, I seized the opportunity recently to spend a couple of days with fellow plant enthusiast David Lyttle, on Mount Kyeburn in North Otago. To the north storm clouds brewed and we learnt of the torrential rain lashing much of the North Island and top of the South. Our main objective was to try and relocate a population of alpine forget-me-not (*Myosotis* sp.) that David had seen a decade earlier. It's probably an un-named species that's currently being investigated by Te Papa Museum taxonomist Heidi Meudt.

While we lucked out on that we ended up on a scree slope at c. 1500 m above sea level. Here we found other forget-me-nots (*Myosotis australis* and *M. drucei*) in flower, along with an array of scree specialists including the rare alpine buttercup *Ranunculus acraeus*, scree lobelia (*Lobelia roughii*), Sinclair's haastia (*Haastia sinclairii*), *Veronica epacridea*, and scree willowherb (*Epilobium pycnostachyum*).

Lower down, in a comb sedge (*Oreobolus pectinatus*)-dominated bog at 1200 m asl, we encountered loads of purple-flowering bladderworts (*Utricularia dichotoma* subsp. *novae-zelandiae*), *Celmisia alpina*, sundew (*Drosera arcturi*) and *Bulbinella angustifolia*.



Utricularia dichotoma subsp. *novae-zelandiae*, Mount Kyeburn December 2021. Photo: John Barkla.

We spent the night in a tiny hut nestled in the tussockland, with views out over the vast Maniototo Basin to the south. Hidden amongst the tussocks were daisies galore—*Celmisia densiflora*, false Spaniard (*C. lyallii*), white cushion mountain daisy (*C. sessiliflora*), needle-leaved mountain daisy (*C. laricifolia*) and Haast's mountain daisy (*C. haastii* var. *haastii*).

It was an inspiring place to be, far away from the barrage of Covid news and the uncertainties that lie ahead. I'd like to wish you all a safe and relaxing break over the festive season and hope that at some point you too find a quiet corner of the country to indulge your passion for plants.

Nga mihi nui mo te Kirihimete.

John Barkla (mjbarkla@xtra.co.nz)

President

PLANT OF THE MONTH – *NEPHROLEPIS FLEXUOSA*

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

The plant of the month for December is *Nephrolepis flexuosa*, one of two native species of *Nephrolepis* found in the New Zealand region. The species is found on the Kermadec Islands and the North Island from about Kawerau to Lake Taupo. The species is also found on Norfolk Island, Lord Howe island, Fiji, the Cook Islands, and possibly in other places in the Indian and Pacific Oceans. In the New Zealand region, it inhabits only geothermally active sites. Tokaanu, near Turangi is the world's southern limit for this largely tropical species, where geothermal activity keeps year-round temperatures higher than they would be usually at this latitude. The species is one of a small suite of plants that can tolerate the high temperatures and acidity of these sites. In the North Island it is usually associated with *Kunzea tenuicaulis* shrubland but can also grow in the damper, active steam vent areas.



Nephrolepis flexuosa, Rainbow Mountain, Waiotapu 17 December 2021: (left) growth habit; (right) underside of frond showing sori arrangement. Photos: Rowan Hindmarsh-Walls.

Plants are generally bright green and sward-forming and are often found in dense clusters up to one metre tall. The fronds are erect and each have between 50–80 pairs of deltoid-oblong pinnae. The fertile pinnae are distinctively shorter, have crenulate margins and have round sori evenly distributed on their undersides.

N. flexuosa is very similar to *Nephrolepis cordifolia*, an exotic species that is naturalised in New Zealand. However *N. flexuosa* is easily distinguished by its non-tuberous habit. *N. cordifolia* has obvious underground tubers at the base of the plant. The only other native species, *N. brownii*, is found only on the Kermadec Islands in the New Zealand region, and can be distinguished by its much longer, sickle-shaped pinnae.

In New Zealand, *N. flexuosa* has a threat status of 'At Risk – Naturally Uncommon', as it has a fairly stable population but a restricted distribution due to specific habitat requirements. It is threatened in some geothermal areas by competition from exotic weeds such as blackberry and *N. cordifolia*, which are invading some of its known sites.

The genus *Nephrolepis*, or sward fern, is the only genus in the family *Nephrolepidaceae* and has about 30 species, found mainly in the tropics.

The name *Nephrolepis* comes from the Greek—Nephros (kidney), and lepis (scale). This refers to the kidney-shaped indusial scale, which is the scale holding the spore packages in place.

Flexuosa means "full of bends" or flexuous in Latin. It is unclear to what aspect of the plant this refers.

You can view the NZPCN website factsheet for *Nephrolepis flexuosa* at: <https://www.nzpcn.org.nz/flora/species/nephrolepis-flexuosa/>

NZPCN 2022 conference updates

Alex Fergus, Jesse Bythell, Jo Smith and Taylor Davies-Colley

Early bird registration ends 31 December

Tēnā koutou katoa. We're very pleased to see the steady trickle of participants registering to attend the conference, and it's great to see a good number of students submitting abstracts. Abstract submissions will close on 31 January 2022. The conference organising committee will consider all abstract submissions in early February, if there is oversubscription for spoken presentations, we may contact you asking you to consider presenting a poster instead.

This is a timely opportunity to highlight that **early bird registration for the conference closes at the end of December**, so if you're looking to secure the discounted rate then please register soon. Some of our conference workshops and field trips are now booked out, so the sooner you register the better.

Conference student scholarships

Congratulations to our four student grant recipients who have had their registration costs refunded. We are looking forward to hearing about the research of Caitlin Daley, Marley Ford, Luke Liddell and Ben Teele at the conference in March. Look out for profiles of our four grant recipients and synopses of their research in our January newsletter.

Conference charity auction: Items required! Can you help?

We are pleased to confirm that our traditional chaotic grab-bag of botanical treasure (our charity auction), will be running at the 2022 conference. The charity auction is a fundraiser first established at our conference in 2013. The funds raised from the auction are split equally between our two funds, the David Given Threatened Plant Scholarship, and the John Sawyer Plant Conservation Fund (<https://www.nzpcn.org.nz/nzpcn/awards/>).

The auction will take place during the conference welcoming event on Sunday 20 March. Depending on the number of contributions, the auction may be silent, or we might embrace a tawdry bidding war, the latter better suiting our customary auction master of ceremonies vocal capacity. More auction details will be established closer to the date.

To make the auction a success, we rely on worthy donations from individuals, businesses, institutions, and agencies. This is where you can help. If you can donate an item, or have a suggestion for a donation, please let us know. Items which garner substantial interest include artwork, experience vouchers, books, outdoor gear, etc.

We are extremely grateful to those who have already donated. We are very pleased to give you a first look at what has already been given, and which will be available at the auction. As you can see, it is already an exciting list with many great products and experiences.

Potton & Burton Publishing

- Above the Treeline
- Fight for the Forests
- Down the Bay
- Field Guide to Native Trees

Zealandia Ecosanctuary

- Family pass

Queenstown Natural Perfumers

- Set of four natural fragrances

Wilding & Co

- Three packs of six natural scented oils

Cox's Wine

- Three Pinot Gris, Pinot Noir pairings

Zip Trek

- Double voucher for zip tour

Chunky

- 12 of their amazing water bottles

Canterbury University Press

- Native By Design
- Natural History of Banks Peninsula
- Tuatara (3 copies)
- West Coast Walking
- New Zealand Inventory of Biodiversity (2 sets)

Please contact Alex (fergusa@landcareresearch.co.nz) or Taylor (taylordaviescolley@gmail.com) if you would like to support plant conservation in New Zealand by donating goods or services for the conference auction.

Thank you to our sponsors!

We would like to thank our sponsors for showing their commitment to plant conservation networking by supporting our conference. For more information regarding our conference sponsors please follow this link <https://www.nzpcn.org.nz/nzpcn/events/conference-2022/2022-conference-sponsors/>.

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.



Wildlands



Manaaki Whenua
Landcare Research



Life and death of a mistletoe

John Barkla (mjbarkla@xtra.co.nz)

In July 2021 I received a call from local botanical enthusiast John Fitzgerald who told me about a curious green mistletoe (*Ileostylus micranthus*) seedling on the leaf of a lancewood (*Pseudopanax crassifolius*) in our neighbourhood of Wakari, Dunedin. He explained the lancewood had been translocated earlier in July from a domestic garden in the suburb of Opoho, to its current position in the grounds of Flagstaff Community Church in Centennial Avenue.

The next day, 17 July 2021, I visited the church grounds and soon located the lancewood. It was c. 3 m tall, with juvenile leaves. About 1.6 m from the ground, on the underside of one of the leaves, I found a mistletoe seed well adhered between the central leaf vein and the edge of the leaf. Three mistletoe leaves (the largest c. 1.5 cm) protruded from the seed (Fig.1 and Fig. 2).



Fig. 1 (left): Germinating green mistletoe seed on underside of lancewood leaf. Fig. 2 (right): Germinating green mistletoe seed showing top surface of lancewood leaf. Photos: John Barkla, 17 July 2021.

I visited the plant again on 18 August and observed some browning off of the edge of the mistletoe leaves. Three weeks later on 8 September just one brown, desiccated mistletoe leaf remained (Fig. 3). By 2 November 2021 the host lancewood tree had dropped all its leaves and was looking distinctly unhealthy.

So, what was going on here? Presumably, the seed was deposited on the lancewood leaf having first passed through the gut of a bird, thereby removing the exocarp (Ladley & Kelly 1996). Although it's not uncommon to see mistletoe seeds germinating on a range of biotic and abiotic surfaces, the position of this seed, on the underside of a downward pointing lancewood leaf, seemed highly unusual.

It's well known that germinating seeds of *Ileostylus* can produce their first set of leaves prior to making haustorial contact with their host (Smart 1952). The germinating seed did not appear to have physically penetrated its host and the leaves it produced were presumably nourished solely by the endosperm. At this early stage of development, the mistletoe was effectively independent of its host.



Fig. 3: Single remaining desiccated leaf of green mistletoe seedling. Photo: John Barkla, 8 September 2021.

Once this nutrient source was exhausted the leaves withered and died. In the unlikely event that the mistletoe had been able to form a hemiparasitic relationship with its host, the shedding of all the host's leaves would have terminated that relationship.

Acknowledgement

I thank John Fitzgerald for first observing the germinating mistletoe and alerting me to it. John also provided host history.

References

- Ladley JJ. and Kelly D. 1996: Dispersal, germination and survival of New Zealand mistletoes (Loranthaceae): dependence on birds. *New Zealand Journal of Ecology* 20: 69–79.
- Smart, C. 1952: The life history of *Tupeia* Cham. et Schl. (Loranthaceae). *Transactions of the Royal Society of New Zealand* 79: 459–466.

NZPCN 2021 favourite native plant vote wrap

Taylor Davies-Colley (taylordaviescolley@gmail.com)

October saw the return of the NZPCN Favourite Plant vote. As the youngest council member and the one most proficient with social media, I was bestowed with the honour of running this year's vote. For better or for worse, it turned out to be a fun task and in the end it was a great competition. After having a month to not think about it, here's an article about the highs and lows of this year's vote.

As expected in any vote the flashy celebrities of the plant world started off strong. It is no surprise that we saw early leaders such as pōhutukawa (*Metrosideros excelsa*) and kōwhai ngutukākā (*Clianthus puniceus*). After all, these are plants that are treasured by many kiwis and they are highly visible via their prevalence in gardens and their conspicuous bright flowers. In a competition designed to raise awareness I couldn't help but feel a little uneasy that our front runners were all household names. However, I could already see the competition doing its job. Many people engaging with the vote were quite unaware that kōwhai ngutukākā (*Clianthus puniceus*) was as threatened as it is or that pōhutukawa (*Metrosideros excelsa*) was listed as threatened also. At the very least having these species in the top few got some people thinking about threatened plants and the risks they face.

Another common theme of popular plants was people realising that there was more than one species

of their favourite plant to vote for. Although this probably confused some people, it does provide another example of how the vote contributes to people learning new things about our native flora. In total three species of kōwhai received votes, five species of *Pittosporum* along with seven species of both *Veronica* and *Metrosideros*.

One of the pleasures of running the vote is reading the comments people leave for their favourite plant. These not only highlight how passionate many are for our amazing flora but also the wide diversity of reasons for this. Many comments resonated how important their favourite tree was to biodiversity in their area, while others commented on how rare and special it was. Some found sentimental reasons to be connected to their favourite species, or a cultural connection, and there were of course some who chose favourites based on appearance.

I think the comment that sums up the competition best was this one about the tree fern *Dicksonia squarrosa*—“I go wild whenever I see one frankly. Just makes me happy.” I think most of us have one or two species that just put a smile on our faces when we see them and at the end of the day that’s what favourite plant is about.

105 plants received a single vote. Some might say these votes were wasted but I think this represents well the nature of this competition. We had considered restricting species that people could vote for but decided against this. Although it would be nice to have the plant you voted for take the win, we believe it is more important that people get to vote for their favourite native plant, no matter what it is.

The biggest thrill of the vote though came from the meteoric rise of the inconspicuous but much loved *Leptinella nana*, rising from only a few votes in the first weeks to ultimately taking out the top spot. Much of this species’ success was due to the campaigning of Robyn Smith, who managed to convince many that this tiny plant deserved its time in the spotlight. I will admit I was very pleased to see a species win that many will never have seen, let alone heard of. Although its time in the limelight may have been brief, if just a few more people now know this species exists and needs help then that is a success.



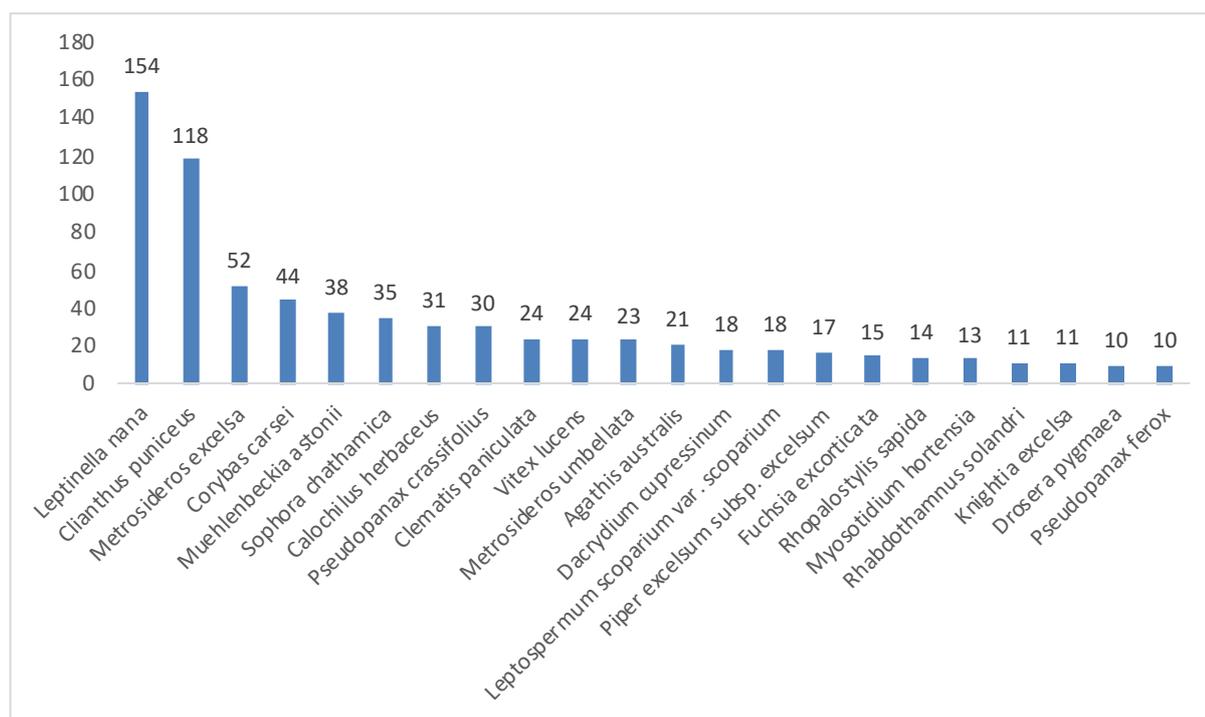
Leptinella nana, New Zealand’s favourite plant of 2021. Photo: Jeremy Rolfe.

Overall, this year was our biggest yet with 1147 votes being cast for 211 species of plant. Hopefully next year we can have an even bigger vote, with more votes cast, more species recognised, and more people having to think about which is their favourite plant.

A massive thank you to those who voted, shared our posts on social media, campaigned for a plant and took part. Also thanks to Jesse Mulligan and Claire Concannon from Radio New Zealand and Graeme Hill of Magic Talk for having me and John on their shows to talk about plants, the threats they face and get people excited for the competition.

We are still discussing dates for next year, but rest assured the vote will return and we will find out what is New Zealand's favourite plant in 2022. Have a Merry Christmas and a happy New Year and may you get time to spot your favourite plant or plants over this time, whatever it or they may be.

Vote spread for the top 25 species:



Note from Otanewainuku Kiwi Trust

Gavin Cherrie—*Otanewainuku Kiwi Trust*)

I am very happy to report that, on the Sunday just gone (5 December), the Sentinel possum traps the NZPCN helped fund at Otanewainuku Kiwi Trust snared their 1000th Possum!

Merry Christmas to everyone at NZPCN and thanks again for your support.

UPCOMING EVENTS

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

Please note that the new traffic light system is now in place and this may impact on some advertised events. Please check with the appropriate Botanical Society beforehand.

To the best of our knowledge there are no botanical society meetings or field trips scheduled before 31 January 2022.