NEW ZEALAND PLANT CONSERVATION NETWORK

TRILEPIDEA

Newsletter of the New Zealand Plant Conservation Network

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Deadline for next issue: Monday 16 May 2016

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 events@nzpcn.org.nz

Postal address:
P.O. Box 16102,
Wellington 6242,
NEW ZEALAND

PLANT OF THE MONTH, p. 2

Carex litorosa.
Photo: John Barkla

Dunedin climate could be key to the survival of endangered Nelson plant

Dunedin's notorious weather may hold the key to the survival of Nelson's coastal peppercress (*Lepidium banksii*). Seedlings of this critically endangered species are being grown in a cooler climate at Dunedin Botanic Garden's new propagation facility, in an innovative approach to safeguard the species from extinction.

Dunedin ecologist (and Network member), Dr Mike Thorsen, organised the conservation programme on behalf of the recently launched Endangered Species Foundation of New Zealand (ESFNZ) and is also growing some of the plants. He believes the species should grow well in the absence of the pests and diseases that ravage its remaining natural populations.

Alice Lloyd-Fitt, Dunedin Botanic Garden's Propagation Services Officer oversees apprentice Lucy Parsons sowing coastal peppercress seed in the new cultivation facility at the Dunedin Botanic Garden. Photo: Mike Thorsen/Endangered Species Foundation of NZ.

"Coastal peppercress is a hardy plant adapted to the tough north-west Nelson coastal environment but it has proved vulnerable to a large number of exotic pests and diseases: diamondback moth, pigs, several species of weeds, white rust, cabbage white butterfly, cabbage aphid, rabbits, hares, rats, mice, possums, snails, slugs, whitefly and turnip mosaic virus", said Mike. "There was even an instance of a deer falling over a cliff on to a ledge inhabited by coastal peppercress and it ate everything it could reach", he added.

Mike has said that the species would probably be extinct if not for the hard and persistent efforts of three Department of Conservation (DOC) workers. Shannel Courtney, who has been protecting coastal peppercress for nearly 20 years, says the work is daunting and for every sign of progress there would then come a set-back, "be it disease, a storm, or an unusually high tide dumping tonnes of driftwood on plants". He and co-workers, Simon Walls and Roger Gaskell, together with other helpers over the years, attempted to establish populations at new sites as well as bolstering the last

A wild coastal peppercress plant on the Nelson coast. Photo: Simon Walls/Department of Conservation.

PLANT OF THE MONTH – *CAREX LITOROSA*

Carex litorosa. Photo: Jeremy Rolfe.

Plant of the month for April is *Carex litorosa*, an endemic sedge from the North, South and Stewart Islands, usually found growing in coastal areas in salty, brackish marshes and on sandy, tidal river banks. It grows into an upright sedge up to 800 mm tall (usually smaller), with pale green or reddish, dense leaves with curly tops. Leaves are flat on one side, curved on the other and slightly serrated along the edge and about the same length as the flower stem. Flower stems are cylindrical and upright, with light brown spikes. *Carex divisa*, an exotic sedge, can appear similar and grows in similar habitats but has blue-grey leaves and smaller, compact black spikes on long stems near the apex of the leaves.

Carex litorosa is considered to be At Risk – Declining in the wild due to habitat loss through coastal development, and competition with other plants such as spartina, tall fescue and *C. divisa*. You can find out more about *C. litorosa* on the Network website factsheet at: http://www.nzpcn.org.nz/flora_details.aspx?ID=120:

of the wild populations. "Unfortunately, our efforts have not been successful in increasing the number of coastal peppercress, and it is time to try fresh approaches", said Shannel.

It is thought that Dunedin's cooler climate may mean that there are fewer pests and diseases present, which should allow coastal peppercress plants to thrive. The Dunedin Botanic Garden Manager, Alan Matchett, says the role of the Botanic Garden is changing, and they are becoming more involved in conservation programmes by providing their expertise in growing "difficult" plant species and using their state-of-the-art propagation facility that opened last year.

"We are intrigued by the challenges posed in growing coastal peppercress and our involvement means that we not just answer the question 'Do we need to grow coastal peppercress in cooler environments?', but we can also harvest seed from the plants grown here and these can be used to bolster the populations back in Nelson", says Alan Matchett.

The coastal peppercress seeds were sown in December and germinated through January and February, with an approximate 60% germination success. Dunedin Botanic Garden Propagation Services Officer, Alice Lloyd-Fitt, says they are now growing 89 healthy seedlings.

Seedlings of critically endangered coastal peppercress growing at Dunedin Botanic Garden. Photo: ESFNZ.

The Endangered Species Foundation is pleased to be supporting this work. The Foundation was launched in October last year with the publication of its list of New Zealand's 10 most endangered species, of which coastal peppercress is number eight. Foundation chair, Kerry Prendergast, says "We want to help those who are working so hard to protect our rarest species. We also want to help facilitate innovative conservation efforts, such as this". The foundation has already raised over $1.5 million of its $30 million target.

Mike Thorsen said, "We've already lost two species of peppercress and the remaining 18 endemic species are all close to becoming extinct for many of the same reasons as those threatening Nelson's coastal peppercress. It would be a huge blow to lose plants that were once an important diet of Maori and were gathered by the 'boatload' by Captain Cook to ward off scurvy in his sailors. What we learn with the coastal peppercress could be used to help these other species".

Mike points out that volunteers are needed in Nelson to care for the remaining wild plants. Volunteers should contact DOC's Takaka Office.

For further information, contact any of the following

Dr Mike Thorsen, Endangered Species Foundation of NZ, ph: 0273500175, email: mikethorsen@eraecology.co.nz
Kerry Prendergast, Chair, Endangered Species Foundation of NZ, via PA, Mary Foley, ph: 049162426, email: Mary.Foley@epa.govt.nz
Alan Matchett, Manager, Dunedin Botanic Garden, ph: 034774000, email: Alan.Matchett@dcc.govt.nz
Shannel Courtney, Department of Conservation, Takaka, ph: 035258026, email: scourtney@doc.govt.nz
ESFNZ's 10 most endangered species: www.endangeredspecies.org.nz/projects/10-most-endangered
New Zealand Plant Conservation Network website factsheet for '*Lepidium banksii*' (coastal peppercress): www.nzpcn.org.nz/flora_details.aspx?ID=20

New Zealand Indigenous Flora Seed Bank (NZIFSB) monthly report – Australian National Seed Science Forum

Craig McGill (c.r.mcgill@massey.ac.nz) and Jessica Schnell (j.l.schnell@massey.ac.nz)

The New Zealand Indigenous Flora Seed Bank is part the Millennium Seed Bank Partnership. The aim of the partnership is to secure in safe storage seed of 20% of the world's flowering plants by 2025. There are also Australian partners including the Royal Botanic Gardens, Sydney and a number of other Australian botanic gardens. The botanic gardens within Australia, and five other flora-focused organisations, have come together to form the Australian Seed Bank Partnership (ASBP) (http://www.seedpartnership.org.au/partners). The aim of ASBP is to conserve Australia's indigenous plant diversity by collecting and banking seed coupled with research into seed and knowledge sharing. In March, the ASBP hosted a National Seed Science forum. This was held at The Australian Botanic Garden at Mount Annan. The Australian Botanic Garden is part of the Royal Botanic Gardens, Sydney, and is located in the south-west outskirts of Sydney. The Australian Botanic Garden is also the location of The Australian Plant Bank (http://www.plantbank.org.au/) a recently opened facility that houses a seed bank and plant tissue culture facilities as well as meeting rooms and learning spaces. The Plant Bank combines working science and conservation with learning and community engagement.

The Australian Plant Bank building at Mount Annan. The building is designed to have as small an environmental footprint as possible. This includes using harvested rainwater, an energy efficient design and use of low maintenance and sustainable building materials.

Representatives from nine countries, including New Zealand, Australia, Malaysia, New Caledonia, Israel, China and the United States, attended the forum which covered themes from challenges for storage and germination of seed through to seed ecology and utilisation of seed in restoration projects. A key Australian challenge is the scale of post-mining restoration requirements. The areas needing to be restored are substantial and, consequently, the number of plants and seed needed to produce the plants is high. Gaining the knowledge needed to utilise seed of wild species for restoration and transferring that knowledge to practitioners were issues discussed in the forum. There was also a panel discussion on the sensitivities researchers need to consider when working with indigenous material and Aboriginal and Torres Strait Islanders' traditional knowledge of this material.

The forum provided an excellent opportunity to meet with people involved in seed conservation in Australia and further afield and discuss areas of common interest, for example, developing protocols for the storage of orchid seed. It was also interesting to learn of the challenges for restoration in Australia, particularly around collecting seed sustainably in the face of the substantial volume requirements. There was also discussion around whether, in the future, these challenges can be met through seed orchards and adopting some commercial seed production practices to produce seed of indigenous species.

Introduced *Nephrolepis* in New Zealand

Mark Large (mlarge@unitec.ac.nz)

The introduced *Nephrolepis cordifolia* (L.) Presl (ladder fern or tuber ladder fern) is widely known as an invasive weed, particularly in the warmer parts of New Zealand where it may form dense clumps. The first records of this plant being wild date from the 1970s (Webb et al., 1988). It is now regarded as being fully naturalised (e.g., Webb et al., 1988; Howell & Sawyer, 2006). However, herbarium material shows it to have been in garden cultivation from at least the late 19th century (see Auckland Memorial Museum herbarium record Bell 1889 AK289696).

Nephrolepis cordifolia, Mt Albert, Auckland.

This ladder fern is probably most commonly identified by the presence of bulbils or "tubers" that appear along wire-like runners. However, its presence is slightly complicated by the occurrence of the native New Zealand species of *Nephrolepsis, N. flexuosa* Colenso, on the mainland. This species is associated with thermal regions of the North Island, occurring in geothermal fields from Rotorua Lakes District to Taupo. It is occasionally cultivated. Generally, *N. flexuosa* is relatively easily separated from the introduced *N cordifolia* by the absence of the tubers that occur in the latter species. Spore and frond morphology also differ slightly, with fronds of *N. cordifolia* being wider (mean c. 23/24 mm) and more rigid where as those of *N. flexuosa* are narrower (mean c. 19/20 mm) and slightly drooping.

Nephrolepis cordifolia, Mt Albert, Auckland (same plant as above cleaned to show the characteris-tic tubers).

Van der Mast (1998) suggested that *N. exaltata* (L.) Schott. (the common Boston lace of horticulture) grows aggressively in northern New Zealand, if planted in a suitable sheltered location. This plant is still widely sold (in many named varietal forms) by wholesale and retail plant suppliers, usually as an indoor plant. It is promoted as a "safe" option (*"Not to be confused with the "ladder fern" which is a noxious plant")* and is assumed to be sterile/non-viable.

Recently, populations of *N. exaltata* have been recorded from the western region of Auckland (two were removed for safe-keeping and the other was sampled). Morphologically, *N. exaltata* is similar to *N. cordifolia* and *N. flexuosa.* However, it is tuber free (as is the latter species) and the fronds are usually wider and softer than both species. In cultivation, the forms are usually crested (sometimes elaborately so). In the wild, the plant often loses the cresting. In the populations observed to date, cresting seems to occur more with stress. Although these wild populations are likely to be garden escapees and of clonal origin, all plants seen to date are fertile. Consequently, studies are under way to assess spore and gametophyte viability, as well as to undertake a general risk analysis and assess genetic status.

Left: *Nephrolepis* aff *N. exaltata* growing near Waiatarua, Auckland. Plants are crested and tuber-less. Right: The same plant growing in shade.

Anecdotal information suggests *N. exaltata* may now be present in Auckland and perhaps Hawke's Bay. However, as it is easily confused with *N. cordifolia* (the usual tuber ladder fern), the range is really unknown. Consequently, we would be interested in anyone who notices this plant to contact me: mlarge@unitec.ac.nz.

References

Howell, C; Sawyer, JWD, 2006: *New Zealand Naturalised vascular plant checklist.* New Zealand Plant Conservation Network. http://nzpcn.org.nz/publications/Naturalised-list-06-new.pdf

Van der Mast, S; Hobbs, J, 1998: *Ferns for New Zealand Gardens.* Godwit, Auckland. ISBN: 9781869620202.

Webb CJ; Sykes, WR; Garnock-Jones, PJ, 1988: *Naturalised Pteridophytes, Gymnosperms, Dicotyledons.* Flora of New Zealand VI, Botany Division, DSIR.

Queen Elizabeth II National Trust Brian Molloy Doctoral Research Scholarship

Applications are invited for the Queen Elizabeth II National Trust Brian Molloy Doctoral Research Scholarship. The scholarship is funded by the QEII National Trust to support a full-time supervised doctoral research degree, and provides funding for up to 3 years at up to $50,000 per year. The scholarship was established to promote and advance ecological science and conservation in New Zealand, and to recognise Dr Brian Molloy's contribution to QEII National Trust.

QEII National Trust is an independent statutory organisation and a registered charity. It was set up in 1977 to help private landowners in New Zealand protect special natural and cultural features on their land forever with open space covenants. QEII National Trust partners with landowners to achieve this objective—throughout the country, landowners are voluntarily protecting over 180,000 ha of their land with covenants.

Research proposals

Research proposals will demonstrate:

- how the studies funded by this scholarship support the vision and objectives of the National Trust;
- how the research will lead to a greater understanding of the core values of Open Space covenants and their management for:
  - the benefit of the National Trust and its covenantors in particular,
  - New Zealand conservation in general.

Alignment between a candidate's research interests and those of QEII National Trust will be a key consideration in determining the successful candidate. Scholarship regulations and an application form are available on QEII National Trust's website: www.openspace.org.nz/Site/Publications_resources/QEII_Brian_Molloy_scholarship.aspx .

For any enquiries, please contact Bettylyn Mantell (bmantell@openspace.org.nz) or phone QEII National Trust, 04 472 6626.

The deadline for applications in this round is 5.00 p.m., 3 August 2016.

Submissions called for 2016 assessment of the conservation status of indigenous vascular plants

Notice is hereby given that the conservation status of indigenous vascular plants will be reassessed at the Landcare Research / Manaaki Whenua Campus, Lincoln, Canterbury in August 2016.

The 2016 assessment will replace the 2012 indigenous vascular plant conservation status report (de Lange et al. 2013).

For a PDF (792 Kb) of the 2012 assessments go to www.doc.govt.nz/Documents/science-and-technical/nztcs3entire.pdf and a spreadsheet of the data can be downloaded at Supplemental data (XLSX, 410K)

Submissions are welcomed that provide information to assist the panel in making its assessments. Information on how to make a submission is available on the DOC website.

Submissions close 31 July 2016.

As three of the past threat listing panel (Prof. David Norton, Dr Peter Heenan and Mr Ewen Cameron) have elected to stand down, a new panel has been proposed and approved by the Department of Conservation. The new panel comprises Dr Peter J. de Lange (Chair, Department of Conservation), Dr Leon Perrie (Museum of New Zealand Te Papa Tongarewa), Ms Sarah Beadel (President, New Zealand Plant Conservation Network), Mr Paul Champion (NIWA), Dr Ilse Breitwieser (Landcare Research Ltd), Dr Ines Schönberger (Landcare Research Ltd), Ms Kerry Ford (Landcare Research Ltd), Mr Shannel Courtney (Department of Conservation), Mr John Barkla (Department of Conservation) and Mr Jeremy Rolfe (Facilitator, Department of Conservation).

Global Partnership for Plant Conservation (GPPC)

Susan Sharrock, Director of Global Programmes (Suzanne.Sharrock@bgci.org)

The document: "*Progress in Implementation of the Targets of the GSPC*" has been submitted to the Convention on Biological Diversity Secretariat (CBD). This document is now available on the CBD website and is included as an Information Document for the CBD's upcoming First Meeting of the Subsidiary Body on Implementation, which will take place from 2–6 May, 2016.

View the document at: www.cbd.int/doc/meetings/sbi/sbi-01/information/sbi-01-inf-32-en.doc

Many thanks to all of you who provided information for this review of progress.

UPCOMING EVENTS

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

Global Partnership for Plant Conservation conference

Theme: "Plant Conservation and the Sustainable Development Goals". It will be held at Missouri Botanical Garden 28–29 June, 2016.	**Register your interest and submit abstracts:** www.missouribotanicalgarden.org/things-to-do/events/gppc-2016-conference.aspx

Botanical painting: *Mediterranean plants from the hills and shores of South Pelion*

13–20 May 2016, 9–16 Sep 2016: Residential teaching course for beginners and intermediates. Drawing and painting materials will be supplied unless participants wish to bring their own. The Pelion region is one of the most verdant places on earth. The vegetation is luxuriant, dense, occasionally impenetrable, and totally captivating in its variety and richness in native trees, plants, herbs and flowers. Only now are some of the rare orchids being discovered and their DNA analysed. Pelion has inspired our course tutor, Maggie Niagassas DipAD DipSBA, who lived in Greece for 35 years before settling back in London, UK, where she practises as a botanical artist. Maggie is a member of the Mediterranean Garden Society based in Athens and has branches throughout the world.	**Further information:** http://www.lagouraxi.com/LRCH_BotanicalPainting_EN_2016_01.pdf

11th Australasian Plant Conservation Conference

Location: Melbourne. **Date:** 15–18 November 2016. With La Trobe University and Royal Botanic Gardens Victoria.	**Details:** www.anpc.asn.au/conferences/2016

Auckland Botanical Society

Meeting: Wednesday 4 May at 7.30 p.m. for a talk by Bruce Burns titled 'Auckland urban grasslands: ecology and future opportunities'. **Venue:** Unitec Room 115-2017.	**Contact:** Maureen Young, email: youngmaureen@xtra.co.nz.
Field trip: Saturday 21 May at Karekare to Pararaha.	**Leader:** Geoff Davison. **Contact:** Maureen Young, email: youngmaureen@xtra.co.nz.

Waikato Botanical Society

Meeting: Wednesday 18 May at 6.00 p.m. AGM followed by talk by Chris Lusk on the flora of Chile from his recent trip there.	**Venue:** S Block, University of Waikato.

Rotorua Botanical Society

Field trip: Sunday 8 May for a trip to W2K Whakaipo Bay to Kinloch. **Meet:** the car park Rotorua at 8.00 a.m. or at Whakaipo on discussions with Chris (9.15 a.m. ready for a 9.30 (approx) start for walking). **Grade:** medium-hard; bring lunch and plenty of water.	**Leader:** Chris Bycroft, ph: 07 345 3840, email: chris.bycroft@wildlands.co.nz (email preferred).

Whanganui Museum Botanical Group

Field trip: Saturday 30 April to 'Broadlands', lower Pohangina Valley near Ashhurst. **Meet:** Police Station at 8.30 a.m. or 9.45 a.m. at picnic area beside SH3 at edge of Ashhurst Domain, just before the river.	**Bring:** lunch and drink; gumboots advisable.
Meeting: Tuesday 3 May at 7.30 p.m. for a talk by Margi Keys titled 'The history of *Bush Walk & Talk*: more than a walk in the park.'	**Venue:** Museum's Davis Lecture Theatre.

Wellington Botanical Society

Field trip: Saturday 7 May to Janet & Mike Warren's 24-ha QEII Open Space covenant, *'Erin go Bragh'*, South Makara. **Meet:** 9.30 a.m. at the gate of 509 South Makara Rd.	**Leaders:** Chris Horne, ph: 04 475 7025, mobile 027 474 9300; Barbara Mitcalfe, ph: 04 475 7149.
Meeting: Monday 16 May for the annual 'Members' Evening'; please share your botanical slides and photographs taken on BotSoc trips, your paintings, drawings and your botanical readings; slides limited to 20 per person.	**Venue:** Victoria University Lecture Theatre M101, ground floor Murphy Building, west side of Kelburn Parade; enter building off Kelburn Parade about 20 m below pedestrian overbridge.

Nelson Botanical Society

Field trip: Sunday, May 15 to Stanley Brook. **Meet:** at the Church steps at 9.00 a.m. Please register with the leader by Friday 13 May in case of cancellation and for our PLB protocol.	**Leader:** Janet Blount, ph: 03 522 4132.
Meeting: Monday 16 May at 7.30 p.m. for a talk by Sue Hallas about French alpine flowers.	**Venue:** the Jaycee Rooms, Founders Park.

Canterbury Botanical Society

Meeting: Monday 2 May at 7.30 p.m. for a talk by Anthony Wright titled 'Lord Howe Island'. **Venue:** Upper Riccarton Library, 71 Main South Road.	**Contact:** Gillian Giller, email: ggillerma1@actrix.gen.nz.

Braided Rivers Workshop

FREE workshop: Tuesday 31 May, 8.30 a.m. to 5.00 p.m. **Location:** Lincoln Events Centre. For braided river practitioners, stakeholders and students. Interested members of the public are welcome. Lunch, morning and afternoon teas are included.	**Information:** www.braid.org.nz/workshop. **Contact:** manager@braid.org.nz.

Otago Botanical Society

Meeting: Wednesday 11 May at 5.20 p.m. for a talk by Gregory T. Nelson, MSc Student, Botany Department, University of Otago/Landcare Research, titled 'Diversification of New Zealand Lineages'.	**Venue:** Zoology Benham Building, 346 Great King Street, behind the Zoology car park by the Captain Cook Hotel. Enter via main entrance of the Benham Building and go to the Benham Seminar Room, Rm. 215, 2nd floor.
Field trip: Saturday 28 May to Stevensons Bush Scenic Reserve. **Meet:** Department of Botany car park at 9.30 a.m.	**Contact:** John Steel ph: 021 2133 170, email john.steel@otago.ac.nz.