NEW ZEALAND PLANT CONSERVATION NETWORK

TRILEPIDEA

Newsletter of the New Zealand Plant Conservation Network

No. 150

June 2016

Deadline for next issue: Wednesday 15 June 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

Lepidium banksii.
Photo: Simon Walls.

An update on kohuhu tangihua (*Pittosporum serpentinum*)

Peter J. de Lange, Principal Science Advisor, Northern Terrestrial Ecosystems Unit, Department of Conservation, (pdelange@doc.govt.nz), Andrew J. Townsend, Technical Advisor, Northern Terrestrial Ecosystems Unit, Department of Conservation, (atownsend@doc.govt.nz)

Fig. 1. Kohuhu Tangihua (*Pittosporum serpentinum*) in flower. Photo: Jeremy Rolfe

Twenty years ago when one of us (PdL) collected the type specimen of kohuhu tangihua (*Pittosporum serpentinum*) (Fig. 1), it was regarded as one of the less common serpentinite endemics. Beyond some suspected issues with seed germination, kohuhu tangihua seemed secure in the wild. At the time, no one had any idea how common it was; population estimates ranged from 'up to a 1000 plants' suggested by Anthony Wright (pers. comm., 2016) to the 'guesstimate' of 'up to 500 plants' in de Lange (1998).

Pittosporum serpentinum was also one of the first plants PdL formally described and, as a then newbie into the world of plant taxonomy, decisions about taxon rank were made very conservatively[1]. So kohuhu tangihua was initially described as a subspecies of *Pittosporum ellipticum*. That decision was based on the distinctive ferruginous hairs present on the undersides of the young leaves (Fig. 2) of both pittosporums and the similarities in leaf flower and fruit shape (de Lange 1998). Subsequently, Colin Webb (Webb & Simpson, 2001) noted that the seeds of kohuhu tangihua were most similar to *Pittosporum fairchildii*—a Three Kings Islands endemic allied to *P. crassifolium*. On the basis of that work, de Lange (2003) elevated kohuhu tangihua to species rank. Subsequently, a still unpublished phylogenetics study of New Zealand *Pittosporum* by Dr Chrissen Gemmill (pers. comm., 2010) (University of Waikato)

Fig. 2. Kohuhu Tangihua (*Pittosporum serpentinum*) young growth showing the distinctive ferrugineus indumentum of this species.

1 On this point, Dr Phil Garnock-Jones once told PdL that taxonomists invariably start out very cautiously and, as they become more confident, they tend to recognise species where they once saw subspecies, genera where they once saw subgenera and orders where they once saw families. The taxonomic history of *Pittosporum serpentinum* illustrates his point nicely.

PLANT OF THE MONTH – *LEPIDIUM BANKSII*

Lepidium banksii. Photo: Simon Walls.

Plant of the month for April is *Lepidium banksii*, an endemic perennial herb with dark green leaves, often coarsely serrated, smelling of cress when crushed. Small white flowers appear in inflorescences at the branch tips.

It is found only in the South Island and is strictly coastal, found amongst boulders near penguin colonies and within estuaries on low-lying shell banks. It was formerly known from the Marlborough Sounds west to Tasman Bay and Golden Bay and from the Karamea coastline. All recent records come from small shell banks in the Waimea Estuary near Nelson and from the rocky coastline north of Totaranui, Abel Tasman National Park.

Lepidium banksii is in serious risk of extinction. Disease and browsing animals (insect and mammal), coupled with seasonal droughts and human interference are constant threats to the species in the wild. Despite intensive management, which includes frequent translocations and population enhancement, hand weeding, fertiliser applications, disease control by spraying, enclosures to prevent browse and trampling, this species is at the very brink of extinction.

You can find out more about *Lepidium banksii* on the NZPCN website factsheet at: www.nzpcn.org.nz/flora_details.aspx?ID=20

has confirmed the relationship; kohuhu tangihua is more closely related to *Pittosporum fairchildii* than it is to *P. ellipticum*.

In 2009, as the result of ongoing changeovers of Department of Conservation staff at Kaitaia, Andrew Townsend and PdL were asked to 'show the new Kaitaia botanical staff' the 'special plants at North Cape'. At the time, we felt we could do better than that, we'd do the first full survey of the flora of the serpentinite zone of the North Cape area recording with GPS the locations of the all the less common serpentinite endemics. So we started a survey we'd naively thought would take a few weeks but actually has taken over a month done in weekly bites between 2009 and 2011. Now that the survey has mostly been completed, we definitely know a lot more about the distribution and abundance of the serpentinite endemics than we did but also we have a much better picture of the threats this unique area faces.

The North Cape area is one of New Zealand's 'hot spots' of diversity. Despite this, it rarely rates a mention in the literature and often the unique ecosystems there are either jammed incongruously into other 'ecosystem types' or, worse, completely ignored. Botanically, there are 11 formally described vascular plants endemic to the 120 ha serpentinite zone; a further six (possibly more) await formal description (not all of these are uncommon; one of the most common trees in the serpentinite zone is an undescribed species of *Phyllocladus*) and another three (*Haloragis erecta* subsp. *cartilaginea*, *Pimelea sporadica* and *Pomaderris paniculosa* subsp. *novae-zelandiae*) are virtually endemic to the area as well. In addition, there are several nationally threatened or at risk plants that have strongholds at North Cape, including such wonders as *Pterostylis puberula*, *Thelymitra matthewsii*, *Todea barbara* and the minute *Lejeunea schusteri*. There are also some peculiar disjunctions, such as the sole North Island occurrence of the grass *Trisetum serpentinum*—otherwise known only from the mineral belt on D'Urville Island, and The Mt Dun/Red Hills area (de Lange & Edgar 1998). The tropical fern *Macrothelypteris torresiana* also reaches its world southern limit at North Cape (de Lange & Crowcroft

1996). These botanical treasures aside, North Cape also supports a raft of geological and pedological wonders and a diversity of naturally uncommon ecosystems, which include serpentinite forest (dominated by the undescribed *Phyllocladus*), serpentinite cobble beaches, cliff and talus slopes, and the Mars-like ironstone pavements. It is a sore point with the authors that, despite these wonders, the ecosystems and vegetation of North Cape have yet to be properly studied. To date, most of the literature dealing with the area has been taxonomic.

North Cape is not, however, pristine. It has experienced many of humanity's more destructive activities including frequent firings, quarrying (for serpentinite), attempts at farming, and it is still being impacted by rats (all three species), cats (*Felis catus*), possums (*Trichosurus vulpecula*), hedgehogs (*Erinaceus europaeus*), pigs (*Sus scrofa*), hares (*Lepus europaeus*), rabbits (*Oryctolagus cuniculus*), feral cattle (*Bos taurus*) and horses (*Equus caballus*). Although very few weeds can tolerate the serpentinite and associated soils, pampas grass (*Cortaderia selloana*), pine (*Pinus radiata*), kikuyu (*Cenchrus clandestinum*), and two species of *Hakea* (*H. gibbosa*, *H. sericea*) now have a toe-hold and need constant control. More recently, we have become alarmed at the spread of soft wax scale (*Ceroplastes destructor*) (also known as 'citrus scale') (Fig. 3) which has now reached plague levels, infecting a wide range of hosts and which is probably beyond our abilities to control (if, indeed, we ever had a realistic way of managing it).

Fig. 3 Soft wax scale (*Ceroplastes destructor*) on kohuhu tangihua (*Pittosporum serpentinum*). Photo: Jeremy Rolfe.

However, without doubt, it is possums that pose the most serious threat to the endemic plants and flora of North Cape. Their control, though much desired, is problematic for myriad reasons. Currently, possums are managed by hand baiting because an aerial drop has yet to be formally approved by iwi. Baiting is dangerous on the steep slopes and cliffs of the area (Fig. 4) and it is here where possums and, of course, the endemic plants, are most common. This has meant that, despite the very best intentions of the Department of Conservation, baiting the key sites of endemic plants on the cliffs is considered too risky. To do it safely would simply be too expensive as rope work would be needed. So, for now, hand baiting is done where it can be and the cliff vegetation is left to fend for itself.

Fig. 4. Surville Cliffs showing the terrain in which possum control needs to be undertaken.

This is not good news for the majority of the 'special serpentinite' plants at North Cape. Over the 2009–2011 period it became evident that kohuhu tangihua, in particular, was more seriously threatened than we had previously believed. For a start, even the optimistic 'guesstimate' of up to '500' plants in de Lange (1998) seems to have been well short of the mark. At the completion of our survey in 2011, we had found 130 adults, including only three saplings (Fig. 5). Sadly, we also found clear evidence of possum browse having a serious impact on the species. In particular, we noted that possums were targeting the emerging floral buds and young fruits of kohuhu tangihua such that few plants were able to flower or set fruit. In extreme cases, plants had died as a result of possum browse. In addition to these issues, we also discovered that the sex-structure is skewed to male plants, and that the distribution of male and female plants is mostly not conducive to fruit production. Further, much of the fruit that is produced seems to contain malformed seed with poor viability (Fig. 6). No one knows what pollinates

the flowers (Fig. 1)—though, as with other *Pittosporum*, we suspect a range of agents from nectar-feeding birds (virtually extinct at North Cape) to moths and beetles. At the time that kohuhu tangihua was described, we already suspected there were reproductive issues because seeds that had been collected in 1996 and taken to the Auckland Botanic Gardens failed to germinate—though the techniques trialled were necessarily limited by sample size and the resources then available. At the time, it was noted that much of the seed produced by the plants lacked well-developed endosperm but we didn't have the means to find out why. In any case, experimentally resolving this species' reproductive issues was not going to be easy. After all, kohuhu tangihua has never been successfully cultivated; it naturally grows in a remote area, and at that site on very steep cliffs (and with a patchy distribution). The species also seems to have a short spring-flowering season. Therefore, the usual processes of accurately resolving the sex-structure, pollination and reproductive biology of the species remains problematic. In the interim, we need to try to determine the genetic structure of the wild population and more critically examine some aspects of the seed viability and germination requirements of the species. This latter work will be done through the NZ Indigenous Flora Seed Bank. In the longer term, to better understand the pollination ecology and reproductive biology of kohuhu tangihua would be a significant and costly piece of work.

Fig. 5. Kohuhu tangihua (*Pittosporum serpentinum*) sapling. This is one of only three known.

Fig. 6. Kohuhu tangihua (*Pittosporum serpentinum*) in fruit. Occasional plants bearing heavy crops of fruit are still seen but even the fruit of these specimens (assumed to be female) when critically examined is mostly of poor quality and dubious viability.

A few years ago, Dr Pieter Pelser (University of Canterbury) contacted PdL regarding a study into the population genetics of heart-leaved kohuhu (*Pittosporum obcordatum*). Pieter wanted assistance from the Department of Conservation to obtain a representative sampling of that species. That study has now been completed and, while papers are still in the process of being written up, the results of that study have helped enable the Department of Conservation to make more informed decisions on that species' management. So Andrew and I were keen to see the same technique used to understand better the population genetics of kohuhu tangihua. Therefore, in mid-March 2016, Andrew and I returned to North Cape to obtain DNA samples from all of the known kohuhu tangihua for Dr Pelser and also to obtain fruit from a range of plants for viability and germination studies by the team at the Seed Bank.

Our March sampling went better than expected with 103 samples collected (in two and half days sampling). Thirty-two of these were plants that had not been recorded in the previous survey (including the amazing rediscovery of the type specimen that was last seen in 1996), so the total population of kohuhu tangihua is larger (we think now there may be up to 200 plants) than our past surveys had indicated. Irrespective, of the 130 individuals we had recorded between 2009 and 2011, we still need to sample the remaining 27. The intention was there last March but, because of a significant storm brewing just to the east of North Cape, we had to cease our sampling. We plan to return later this year to finish the task. Less pleasing though, was the observation that possum browse is now killing well-established plants. In places, this is so severe that, for example, at the western end of the serpentinite zone, several kohuhu tangihua populations found in 2010 have now almost been wiped out (Fig. 7). We now believe that if possums are left unchecked, the species is almost certainly going to go extinct within the next 20–30 years. Irrespective, kohuhu tangihua is all but functionally extinct anyway,

as possum browse is preventing most plants from flowering and so setting fruit and any seed that is produced is of poor quality. Also, the population structure is skewed to adults, with regeneration almost non-existent (no seedlings seen, three saplings known).

Fig. 7. Kohuhu Tangihua (*Pittosporum serpentinum*) shrubs showing severe possum browse.

We also discovered that, aside from possum browse on kohuhu tangihua, possums continue to target the endemic *Parsonsia praeruptis*, which is now rarely seen with flowers or fruits, and it would appear that possums are now impacting on *Pittosporum pimeleoides* subsp. *majus*. Obtaining an exact conservation status of this scrambling *Pittosprum pimeleoides* subsp. *majus* has always been problematic because of the difficulty of estimating population size. In this case, not only is this plant small but in the wild it is reasonably inconspicuous, especially as it has a diffuse growth habit (nothing like what it does in cultivation), and it is found growing under or within other shrubs, so surveying for it is very difficult. Nevertheless, in the 1990s when possum numbers were low, one could easily find it and, on the basis of where it had been found growing, we have always assumed there are many 1000s of plants. However, over the last decade we have noted that *Pittosporum pimeleoides* subsp. *majus* is no longer as common as we once thought it was and we suspect this is also because of possums. Our field work suggests that, just like we have seen with kohuhu tangihua, possums are browsing the young growth, flowers and fruits of this *Pittosporum* to such an extent that we now rarely see fruiting individuals. Our surveys have not seen any seedlings since 1996.

Fig. 8. A kohuhu tangihua (*Pittosporum serpentinum*) shrub almost killed by white-wax scale (*Ceroplastes destructor*).

The spread of soft-wax scale is also concerning (Fig. 8). However, for this pest we have as yet no realistic control. The only options suggested so far (use of pesticides) are not only impractical and hazardous but will also threaten indigenous invertebrates. The best scenario, we have been advised is to monitor the spread and damage and hope it doesn't get any worse. Of course, kohuhu tangihua also supports its own indigenous fauna and, aside from the exotic scale, our March survey found a presumably endemic scale *Leucaspis* (possibly *L. pittospori*) (Fig. 9).

Unfortunately, there is now no one in New Zealand who has the necessary skills to identify this scale. The best we can do is lodge our specimens and hope that someone will take up where New Zealand's last scale expert, the late Rosa Henderson left off, and continue revising our scale insect fauna.

Fig. 9. A species of indigenous *Leucaspis* scale found on the foliage of kohuhu tangihua (*Pittosporum serpentinum*). Is this the endemic *Leucaspis pittospori* or a new unnamed species? Currently we have no one in New Zealand with the specialist knowledge to tell us. Photos: Jeremy Rolfe.

As for kohuhu tangihua, when we complete our sampling it is hoped that the research conducted by Pieter Pelser and his students at the University of Canterbury will help determine how much genetic diversity is left within kohuhu tangihua, the relationships between individuals, and the extent of gene-flow between the remnant plants. With the seed sampled, we hope that the researchers associated with the Seed Bank will be able to determine whether any seed is viable and, if so, how to germinate it.

Currently, without any 'back up' *ex-situ* conservation plan, the whole future of kohuhu tangihua now depends on effective possum control. To achieve this we need a major knock down of the possum population; the current system of baiting will not achieve this. To that end, there is an urgent need to discuss the management options with adjacent landowners at North Cape, Ngati Kuri and Te Aupouri. The information we obtain from this study will be of considerable value when holding these discussions.

Acknowledgements

We would like to thank Ngāti Kuri and Muriwhenua Incorporation for access over lands under their control. The staff at the Kaitaia Area Office, Department of Conservation, especially Irene Petrove and DJ Neho for advice on visiting North Cape, and assistance with health and safety planning. Peter de Lange would like to thank Anthony Wright and Chrissen Gemmill for comments made about kohuhu tangihua.

References

de Lange, PJ, 1998. *Pittosporum ellipticum* subsp. *serpentinum* (Pittosporaceae) – a new ultramafic endemic from the Surville Cliffs, North Cape, New Zealand. *New Zealand Journal of Botany* 36: 389–397.

de Lange, PJ, 2003. *Pittosporum serpentinum* (Pittosporaceae) – a new combination for an ultramafic endemic of the Surville Cliffs, North Cape, New Zealand. *New Zealand Journal of Botany* 41: 725–726.

de Lange, PJ; Crowcroft, GM, 1997. *Macrothelypteris torresiana* (Thelypteridaceae) at North Cape, North Island, New Zealand - a new southern limit for a tropical fern. *New Zealand Journal of Botany* 35: 555–558.

de Lange, PJ; Edgar, E, 1998. *Trisetum* aff. *antarcticum* (*T*. "serpentine") discovered at Surville Cliffs, North Cape. *Conservation Science Newsletter* 27: 7–8.

Webb, CJ; Simpson, MJ, 2001. Seeds of New Zealand gymnosperms and dicotyledons. Manuka Press, Christchurch. 428 p.

New Zealand Indigenous Flora Seed Bank (NZIFSB) – Seed collecting expeditions to Mount Climie, Bushy Park Sanctuary, and Rimutaka Summit

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

The 2016 collecting season is drawing to a close and the weather is more changeable so, over the past month, the focus has been on one-day collecting expeditions with a focus on species in the target species groups.

Seed collecting at Te Ara Tirohanga track (Rimutaka Summit)

The first expedition for the month was on 9 May to the Rimutaka Summit with a seedbank volunteer, Gina Homs and Jess collecting. The day was productive with four species collected including *Veronica stricta* and two *Coprosma* species. When the top was reached, the harsh climate that the alpine species endure could really be appreciated with a strong westerly battering the summit. The common habit of alpines of being densely packed and close to the ground suggests the strong westerly is a regular occurrence.

Coprosma decurva on Te Ara Tirohanga track on the way to the Rimutaka Summit.

Seed collecting at Bushy Park Sanctuary, Whanganui

The second collecting trip on 14 May was initiated by trained seed collector, Margi Keys. Jess and Gina Homs joined Margi for a great Saturday afternoon at Bushy Park of seed collecting amongst the birdsong of the saddleback and countless other native birds. The birdsong is testimony to the success of the predator-proof fence installed around Bushy Park in 2005. Seed of a *Coprosma* species was collected along with seed of *Geniostoma ligustrifolium.*

Gina and Margi collecting *Coprosma* fruit at Bushy Park Sanctuary.

Seed collecting at Mount Climie, Pakuratahi Forest

On 17 May, Gina Homs and Jess collected seeds from the Summit of Mount Climie. This proved to be the most challenging of the three expeditions because access by the track to the summit needed a 4WD vehicle. The drive to the summit was very worthwhile with the diverse landscape of native beech, ferns and grassland of the regional park being seen clearly. A concern with collecting is always the weather, particularly in harsher environments. Fortunately, the weather remained clear enabling seed of a number of species to be collected including *Gaultheria* along with the affectionately known stinkwood (*Coprosma foetidissima*).

Gina collecting seeds at Mt Climie.

A special thanks to Gina Homs and Margi Keys for participating in and planning the seed collecting trips this month.

These seed collecting trips along with the seed sent in from other trained collectors brings the total new species in the seedbank up to 66 so far this

year. This is very close to the 2016 target of 80. To help us reach the 80, if you see a plant population with seed ready to be collected please let us know by taking a few minutes to photograph it and upload it to the NZIFSB project page on iNaturalist (http://www.inaturalist.org/projects/nz-indigenous-flora-seed-bank) or, better still for those of you who are trained collectors, collect it and send it into the seed bank along with the completed data form and herbarium specimens.

News from the Plantwise Blog (https://blog.plantwise.org/2016/05/17/) – A fifth of all Plant species are under threat

A ground-breaking report from the Royal Botanic Gardens, Kew, has produced an estimate of the number of plants known to science. By searching through existing databases, the researchers have estimated that there are now 390,900 known plant species, of which around 369,400 are flowering plants. But this figure is only those species currently documented: new species are being discovered all the time, including over 2000 in 2015 alone. More worryingly, it is suggested that 21% of plant species are under threat, from a range of pressures including climate change, habitat loss and invasive species. The invasive species component of the report, which draws heavily on CABI's Invasive Species Compendium, says that nearly 5,000 plant species are documented as invasive, from over 13,000 vascular plant species naturalised outside their native range.

Prof Kathy Willis, director of science at RBG Kew, said: "It's really important to know how many plant species there are, where they are and the relationship between the groups, because plants are absolutely fundamental to our well-being".

And, on invasive species, the head of conservation science at Kew, Dr Colin Clubbe, said that invasive species are one of the biggest challenges for biodiversity. Quantifying the number of species regarded as invasive is a key step towards addressing the problem. "Now that we've got this list and this number, it's certainly a bit like know your enemy," said Dr Clubbe.

"We know what we are dealing with, we can then look at them, and see what's similar, what makes a good invasive, and then see how we can use that information to have better management practices in place or recommendations for how you deal with them."

Japanese knotweed, a major invasive in UK.

Trade, plant collecting, and movement of people, has led to at least 13,168 species of vascular plants becoming naturalised outside their native range. The report says that they become classed as invasives once they start to compete with native vegetation and spread to a degree that causes damage to the environment, the human economy or human health. The effects on livelihoods, and on ecosystem services such as agriculture, forestry, water and pollinators, can be staggering: the Kew report cites one study as estimating the total costs from all invasive species as nearly 5% of the world economy, and it also quotes CABI research which estimated the impact on the British economy alone as around £1.7 billion every year. Japanese knotweed, one of the most invasive plants in the UK, costs Great Britain over £165 million annually to control.

The Kew report synthesizes invasive species data from the open-access CABI Invasive Species Compendium, the Global Invasive Species Database (GISD), global reviews of invasive trees and shrubs by Rejmánek and Richardson, and Weber's Invasive Plant Species of the World: a Reference Guide to Environmental Weeds published by CABI in 2003. CABI's ISC—flagged in the report as "the most comprehensive web-based resource"—has datasheets for 4,841 of the total of 4979 invasive vascular plants in Kew's consolidated list.

Identifying other threats to plant biodiversity, the report says that farming is the biggest extinction threat, representing 31% of total risk to plants. Logging and the gathering of plants from the wild is responsible for 21.3% of the risk, followed by construction work with 12.8%. The report said that some 1,771 areas of the world have been identified as "important plant areas" but very few have conservation protection measures in place.

Highlighting just how many plant species are already important to humans, the report says that some 17,810 plant species have a medical use, 5,538 are eaten, 3,649 become animal feed and 1,621 are used for fuels. Over 11,000 plant species are used for materials, for example fibres and timber. "[Plants] provide us with our food, our fuel, our medicines—even controlling our climate" says Professor Willis.

The report can be downloaded in full, or data from individual sections accessed, at the website stateoftheworldplants.com. A symposium on the report is being held at Kew on 11–12 May. Moving forward, the global assessment will now be carried out annually, allowing scientists to monitor how plants are changing over time.

Trees for Survival (www.tfsnz.org.nz)

Trees for Survival is an environmental education programme that involves young people growing and planting native trees to restore natural habitats by helping landowners revegetate erosion prone land, improve stream flow and water quality and increase biodiversity. The Trees for Survival programme creates community partnerships by engaging schools, their community, local businesses and councils all working together to restore our natural heritage.

With over 5,000 school students involved and more than 70,000 trees planted each year. We have planted more than a million trees in our first 20 years. This year represents 25 years of Trees for Survival as an environmental education programme. In that time, email has started, and now dominates modern communication; the internet drives much of what we do, and where we store information. However, our same basic formula remains; students growing plants, learning about things environmental, and having a planting day experience.

We are seeing growth in the number of students exposed to the Trees for Survival programme, with Goldfields and Miller Avenue Schools in Paeroa about to receive their new plant growing units, with thanks to some extra funding from Enviroschools. Mihi School in Reporoa is also about to receive a unit (thank you to the Te Arawa River Iwi Trust), as is Shotover Primary in Queenstown (with thanks to Accor Hotels).

A couple of changes in the Auckland region have seen an upgraded unit go to Kings School, Remuera, (with BIG thanks to Downtown Rotary) and Sunnyhills in Pakuranga will plant their first seedlings by the end of winter. The now closed Waiterimu school, east of Huntly, has been rejuvenated by Huntly College as a Primary Industries Academy, in one of the most positive initiatives one could imagine. The Academy is providing students at Huntly with all the skills they will need to make them valuable employees in the primary industries sector, by which they are surrounded. Waiterimu Primary was a Trees for Survival School, and the new secondary students are about to re-join the programme. Congratulations to all concerned, and it is great to see the energy that is driving this Academy. Well done Huntly College and those other supporters who have made this happen.

Mapping is something relatively new for Trees for Survival, but we now require all the planting sites to be tracked with GPS, so that the gis data can form a comprehensive national map of what has been planted, and where. Eventually, this will be on the website. If you see someone striding the boundaries of this or last year's planting, this is probably what they are doing. This allows us to report to our major New Zealand sponsor, Accor Hotels. Trees for Survival delivers the promise that Accor makes in its hotel bathrooms ; "here your towels plant trees".

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 and a spreadsheet of the data (XLSX, 410K) go to http://www.doc.govt.nz/about-us/science-publications/series/new-zealand-threat-classification-series/.

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).

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". **Venue:** Missouri Botanical Garden. **Date:** 28–29 June, 2016.	**Register interest and submit abstracts:** http://www.missouribotanicalgarden.org/things-to-do/events/gppc-2016-conference.aspx

11th Australasian Plant Conservation Conference

Presented by: La Trobe University and the Australian Network for Plant Conservation (ANPC) a. **Venue:** Royal Botanic Gardens Victoria, Melbourne. **Date:** 14–18 November 2016. Early Bird Registrations and the call for Abstracts are now open. The organising committee formally invites NZPCN members to attend the APCC11 conference and submit an abstract for a presentation on one of the six following conference themes: 1. Assisted colonisation as a practical tool for climate change mitigation. 2. Conservation for people and nature: how do we maximise the benefits for both? 3. Rethinking landscape restoration: seed production, provenance, conservation planning. 4. Holistic conservation: the role of mutualisms in ensuring functional ecosystem recovery (eg. pollinators, soils). 5. Rescuing small populations from extinction. 6. New challenges, emerging ideas. Following the conference, many conference papers will be published in two issues of Australasian Plant Conservation.	**Registration and information:** Conference website.

Auckland Botanical Society

Meeting: Wednesday 1 June at 7.30 p.m. for a talk by Willem de Lange titled 'Mangroves and eelgrass' followed by the mid-winter book auction. Venue: Unitec Room 115-2017.	**Contact:** Maureen Young, email: youngmaureen@xtra.co.nz.
Field trip: Saturday 18 June to Waimauku: private bus and Forest and Bird's Kerr-Taylor Reserve. Leader: Mike Wilcox, email: mike.wilcox@xtra.co.nz.	**Contact:** Maureen Young, email: youngmaureen@xtra.co.nz.

Waikato Botanical Society

Field trip: Saturday 25 June 25 at 10.00 a.m. to Whewells Bush Scientific Reserve, Matangi. Grade: easy.	**Organiser:** Kerry Jones, ph: 027 747 0733, email: km8j1s@gmail.com.

Rotorua Botanical Society

Meeting: Tuesday 7 June at 7.00 pm for a talk on a visit to Rangitira Island by Dr Peter de Lange. **Venue:** Department of Conservation Rotorua office, 99 Sala St (enter by Scion (Forest Research) north entrance and turn left before the locked gates.	**Contact:** Paul Cashmore email: pcashmore@doc.govt.nz.
Field trip: Sunday 12 June to Ruahine Springs Geothermal Areas, Tikitere. Meet: the car park, Rotorua, at 8.30 a.m. or 9:00 a.m. at the corner of Ruahine Road and SH 30. **Grade:** medium.	**Leader :** John Hobbs, ph: 07 348 6620, email: jffhobbs@clear.net.nz / Sarah Beadel.
Meeting: Monday 27 June –at 6.00 p.m. for the AGM followed by Ewen Cameron as speaker (topic to be confirmed).	**Venue:** DOC Rotorua Office, 99 Sala St, Rotorua, go in Scion (Forest Research) north entrance and turn left before the locked gates. Wine, juice, cheese and nibbles will be provided.
Field trip: Saturday 2 July to the Waikato River margins and Wairakei (Huka Falls area). **Meet:** the car park Rotorua at 8.30 a.m. Grade: easy.	**Leader:** Chris Bycroft, ph: 07 345 3840, email: chris.bycroft@wildlands.co.nz (email preferred).

Whanganui Museum Botanical Group

Meeting: Tuesday 7 June at 7.30 p.m. for a herbarium workshop.	**Venue:** Museum's Davis Lecture Theatre.
Field trip: Sunday 12 June for a walk with Clive Higgie on Wanganui's trees. Meet: place and time to be advised.	**Contact:** clive.nicki@xtra.co.nz

Wellington Botanical Society

Meeting: Monday 20 June at 7.30 p.m. for a talk by Robyn Smith titled 'Mangere Island: Amazing people, landscapes, flora, fauna and adventures'.	**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.
Field trip: Saturday 2 July to Orongorongo Track. Meet: 10.00 a.m. at Rimutaka Forest Park's Catchpool car park, c. 15 mins along Coast Road, south of Wainuiomata. If you require a lift from Woburn Station, ring Ian and/or Jill the night before, and we will arrange a pickup. No phone calls, no pickup!	**Co-leaders:** Ian and Jill Goodwin, ph: 04 475 7248.

Nelson Botanical Society

Field trip: Sunday 19 June to the Pelorus area. Meet: at the Church steps at 9.00 a.m. All participants must register by Friday 17 June in case of cancellation.	**Leader:** Penny Palmer, ph: 03 539 1329; email: stevepenny@xtra.co.nz
Meeting: Monday 20 June at 7.30 p.m. for a talk by Leon Perrie titled 'Camping in Guadalcanal's jungle and other tales of Pacific fern exploration'.	**Venue:** Jaycee Rooms Founders Park.

Canterbury Botanical Society

Meeting: Saturday 11 June at 10.a.m. for the AGM at St Ninian's Church Hall, 9 Purriri St, Riccarton, followed a talk by author Joanna Orwin about her recently published book Riccarton and the Deans family. This will be followed by a shared lunch.	**Contact:** Alice Shanks, ph: 03 337 1256, email: alice@caverock.net.nz.

Otago Botanical Society

Meeting: Wednesday 15 June at 5.20 p.m. for a talk by Associate Professor Richard Gill, Brigham Young University, titled 'Fire in the desert: Plant community responses in the Mojave and Great Basin'.	**Venue:** Zoology Benham Building, 346 Great King Street, behind the Zoology car park by the Captain Cook Hotel. Use the main entrance of the Benham Building to get in and go to the Benham Seminar Room, Rm. 215, 2nd floor.
Field trip: Saturday 18 June to Heyward Point Scenic Reserve (Rain day backup, Sunday 26 June). Meet: at the Botany Department car park at 9.00 a.m.	**Contact:** Robyn Bridges 03 472 7330.