NEW ZEALAND PLANT CONSERVATION NETWORK

TRILEPIDEA

Newsletter of the New Zealand Plant Conservation Network

No. 142

September 2015

Deadline for next issue: Thursday 15 October 2015

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

Atriplex buchananii.
Photo: John Barkla.

NZPCN 2015 Annual General Meeting

When: Friday 30 October 2015, 12.40 – 1.10 p.m.

Where: The Kakapo Room, Otago Museum, 419 Great King Street Dunedin. To be held during the lunch break of Day 2 of the conference. Conference delegates already attending the conference are welcome to bring their lunch into the room where the AGM will be held. **Business:** Receipt of the annual report and the financial report; appointment of officers and Council members, general business; presentation of the NZPCN awards.

Why: it is important that members attend to elect the officers and Council members and stay abreast of the business of the Network (there will also be treats to encourage you to attend!).

Exciting news from the Chatham Islands

Becky Bell, Department of Conservation (bbell@doc.govt.nz)

The Chatham Island button daisy (*Leptinella featherstonii*) is strongly associated with high nutrients and does particularly well on those of the Chatham Islands (The Pyramid, The Sisters, The Forty Fours, etc.) that are home to various seabird species. On Chatham Island, the natural button daisy distribution has declined to one remnant population at Kaingaroa. Cultivated specimens have been planted at various sites with limited success, until now.

Planted Chatham Island button daisy (*Leptinella featherstonii*), Point Gap, Chatham Island.

At present, the Chatham Island mollymawk breeds only on The Pyramid. The Taiko Trust has been translocating juvenile Chatham mollymawks to a site near Point Gap, Chatham Island, for the last two breeding seasons with the goal of creating a second breeding colony of this threatened seabird. As L. featherstonii has a strong mutualistic relationship with the mollymawks on the Pyramid, the Department of Conservation and the Taiko Trust were keen to try planting it among the simulated Chatham mollymawk colony at Point Gap. The first seedlings were propagated from seed of Kaingaroa provenance and were planted in September 2014. This spring, there are tiny natural seedlings of button daisy growing at the mollymawk site! There was even a seedling growing out of one of the nest buckets, where a particularly industrious juvenile mollymawk from the 2014/15 breeding season had been using foliage from the button daisy planted nearby to make his nest nice and cosy.

PLANT OF THE MONTH – *ATRIPLEX BUCHANANII*

Atriplex buchananii. Photo: John Barkla.

Plant of the month for September is *Atriplex buchananii (*Buchanan's orache or saltbush). *Atriplex buchananii* is an annual or short lived perennial that grows as a prostrate, mat-forming herb with small silver-grey leaves. It can be found in North, South and Stewart Islands, generally in coastal areas in salt enriched, poorly draining soils, but is also found in Central Otago in open ground, again in salt pans or salt enriched soils. It is generally uncommon, but becomes more common from Otago south to Stewart Island. In 2012, it was classified as Threatened—Nationally Vulnerable with some populations threatened by urban development and many by weeds.

You can see the Network factsheet for *A. buchananii* at: http://www.nzpcn.org.nz/flora_details.aspx?ID=224

This discovery by the Taiko Trust is hugely promising for the future of *L. featherstonii*. Although it is a preliminary observation, it shows potential wider ecosystem and species' benefits that can occur when protecting a species. Here's hoping for the ongoing success of the Chatham mollymawk transfer, more guano, and the promising future for button daisy on Chatham Island.

For further information see: http://nzpcn.org.nz/flora_details.aspx?ID=110 and www.facebook.com/chathamtaikotrust

Button daisy seedlings in front of a cultivated button daisy plant.

Council member profiles (3)

Catherine Beard

I am an ecologist with a botanical bent working for the Department of Conservation. Although I've been based in the Waikato for many years, I have wandered far in pursuit of my interest in plants and the natural world, and have had the privilege (so far) of botanising quite a few different islands and parts of five continents (including the dry valleys and coastlines of Antarctica). I'm intrigued by how natural systems work and maintain a strong interest in the interactions that occur between plants and animals and how they function in diverse environments. Outside work, I'm usually happily occupied restoring the native habitat of my gully section, or building stuff, or working on improving my edible wilderness garden, or exploring new places by foot or bicycle—and when it is raining too heavily I am indoors enjoying the company of my furred, feathered or finned menagerie, and indulging in my passion for drawing.

New Zealand Indigenous Flora Seed Bank (NZIFSB) – Visit by Jessica Schnell to Group d'Etude et de Contrôle des Variétés et des Semences (GEVES), Angers St Laud, France.

Jessica Schnell (*J.L.Schnell@massey.ac.nz*) *and Craig McGill* (*C.R.McGill@massey.ac.nz*)

In September, Jessica visited the French Seed Laboratory 'Group d'Etude et de contrôle des Variétés et des Semences' (GEVES) to meet the team and catch a glimpse of daily life. This included observing daily tasks, the various tests that are carried out, to discuss moisture testing, and to see the 3D x-ray and other specialized seed analysis equipment and facilities. GEVES is in the old town of Angers. Angers has a population of around 150,000 and is 1.5 h by TGV south west of Paris.

GEVES building in Angers.

What is GEVES?

GEVES is the French group for the study and evaluation of varieties and seeds. GEVES is a public structure that works in partnership with INRA (the French Institute for Agricultural Research), MAAF (the Ministry in charge of agriculture), and GNIS (French Inter-professional Group for Seeds and Seedlings). GEVES offers expertise and methodological research on new plant varieties (for both their registration and legal protection) and expertise and methodological research on seeds to support the seed chain, especially seed certification. As a result, GEVES is involved in assessing seed quality, which was one of the main reasons for Jessica's visit. GEVES is organised into three technical departments: SEV (Variety Study Department), BioGEVES (Molecular Biology and Biochemistry) and SNES (National Seed Testing Station), with SNES based in Angers.

SNES—National Seed Testing Station

The National Seed Testing Station (SNES) was established in 1884 and has 75 permanent employees and about 30 temporary employees. It is accredited by both the International Seed Testing Station (ISTA) and French Accreditation Committee (COFRAC). The station undertakes a number of tasks including a phenotyping platform, training of analysts and research and analysis of seed lots. Analyses of seed lots focus on three main areas: physical quality, germination capacity and seed health. All analyses use the protocols and international rules of ISTA. The pathology laboratory also works on the evaluation of a variety's resistance to viruses, bacteria, fungi and nematodes in DUS (Distinction Uniformity Stability) or VCUS (Value for Cultivation, Use and Sustainability) tests for registration or protection.

Jessica's visit

After an introductory presentation on GEVES, Jessica's day began with a visit to the SNES section to see the pathology laboratory. This high tech laboratory investigates all pathogens (fungi, bacteria, nematodes and viruses) that may affect seeds and plants. The germination laboratory, with associated temperature controlled rooms, is equipped to test seeds quickly and efficiently, including using specially adapted vacuum pads for setting up germination tests.

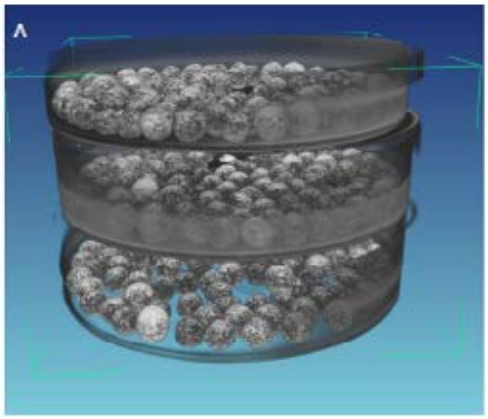
A seed analyst using the vacuum pump to set up small seeds for a germination test.

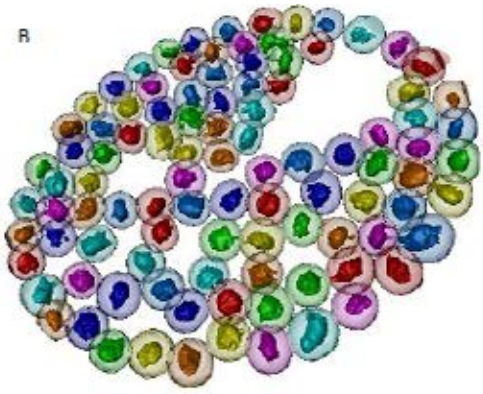
Next was the physical quality laboratory (also includes the purity and micro cleaning laboratories and equipment). The

physical quality laboratory demonstrated how technology is best employed to process large numbers of seed. The final part of the visit was a look at the imaging area including GEVES's 3-dimensional x-ray system and discussion about imaging techniques. The three-dimensional technology offers exceptional non-destructive viewing of the seeds with the ability to make internal measurements of seed structures and observe this from any angle, rather than the single plane available with conventional x-ray systems. Being non-destructive, the system can be used to check the quality of even the most endangered and rare species and may also be helpful in determining how the seed coat or fruit inhibits germination in some of these species.

The visit concluded with a discussion around moisture testing in seeds and the methodology including the relationship between equilibrium relative humidity and moisture content, a relationship critical to successful storage of seed. Best practice for measuring relative humidity was also discussed.

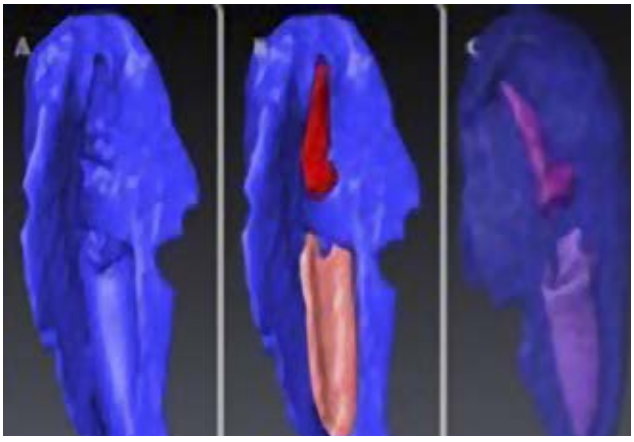
The visit to GEVES was thoroughly interesting and it was evident that every staff member is deeply passionate about their work as they bubbled with enthusiasm about their roles and the technology employed at each step. During lunch Joël LéChappé, Director of SNES and President of ISTA, joined the group for a very generous meal, during which the day's running joke heightened as the GEVES staff enjoyed testing the New Zealander's schoolgirl French in the nicest possible way.





Left: Result of 3D x-ray of coated sugar beet seeds.
Right: Image processing result. (Volume assessment of seed and coating material on coated sugar beet seeds).

Jessica and the 3D x-ray machine



Maize and a 3-dimensional image of the coleoptile and radicle.

Thanks to Karima Boudehri-Giresse, Beatrice Venuat-Pinon and all the staff at GEVES for organising the visit, and the Sir Victor Davies Trust and The Smethurst Trust for providing financial assistance for Jessica's visit to GEVES.

The decline of puriri—observations and comments

Warren Agnew (wagnew@best.net.nz)

Puriri Dieback

In about 2000, I contacted the Department of Conservation to express my concerns at puriri health and was sent a report it had commissioned (Hosking, 1999). In his report, Hosking outlines the puriri decline "... as almost certainly associated with stresses induced by pastoral farming in particular root damage, ground pugging and stem damage." He further comments that "Puriri dieback is better considered a slow decline characterised by crown contraction which leaves the upper and outer crown dead and a much reduced area of healthy foliage. This process ultimately leads to tree death, but this is a slow process which appears easily reversed." He did not really comment on how this reversal could be achieved. Hosking comments on actions to save the puriri all relate to fencing stock away from trees. In answer to the question "What is killing the puriri?" he stated "We are".

I felt that, after reading the Hosking report, there were too many declining trees in areas where stock had seldom, if ever, grazed. Significant puriri decline is evident in trees growing in areas of native bush (e.g., Willems 2009). Figure 1 shows a very healthy puriri tree with a root system, part of which must surely extend under a very compacted State Highway 1. Interestingly, the large tree fern also appears healthy. In some instances, puriri decline is matched by a similar decline in the fern. From experience, we know ferns can die over a single summer. The fronds form misshapen, then, in a couple of months, drop leaving the bare trunk of this beautiful plant. Hundreds of dead ferns can be seen alongside SH1. When we drove through Waipoua Forest looking for similar fern decline none was apparent. However, on the Omapere side of Waipoua Forest there was plenty of evidence of puriri trees in serious decline.

Figure 1. Dome Valley, State Highway 1. June 2015.

Puriri dieback leading to crown contraction: observations

Initially, affected puriri lose leaves at branch extremities. This process appears to continue for at least some 10 years with the leaf loss gradually increasing down the branches. From a distance, affected trees can appear to have a whiteish appearance (fig. 2). On Schedewy's Hill beside SH1 there is a cluster of very large puriri all of which demonstrate decline in various stages. In Avice Miller Reserve, south of Warkworth, whiteness in branch extremities of many puriri is apparent even though the trees are about a kilometre from the road. As the dieback extends, the leaves form small clumps sometimes directly above the trunk. The whole crown of the tree has contracted, hence the term 'crown contraction' has been applied (fig. 3).

Figure 2. Schiska Block, Wenderholm. June 2015.

Figure 3. Schiska Block, Wenderholm. June 2015.

Observations on apparent puriri recovery

In the 1970s, a significant viaduct was built on State Highway 1 at Pohuehue (a few kilometres south of Warkworth). Around the time the new road was opened, the Ministry of Works asked Wilfred Wech to consider

how a very unhealthy looking puriri tree could be rejuvenated. The tree was in an advanced state of crown contraction. Wilf decided to heavily trim the tree. Today the tree is quite splendid, fully leafed with a natural puriri profile. All leaves appear normal in size and colour. I met with Wilf to discuss the tree which he remembered well. With Wilf Wech's permission, we recorded the comments:

> *When I became aware of this widespread decline in puriri, the decline had become entrenched in a large tree on my property. This tree had branches where the outer 1.5 m – 2 m of branches were bare of leaves. I decided to try an application of 'blood and bone' fertiliser. I spread 4 kg to 5 kg under the drip line every six months for several years. The tree recovered in the first couple of years and has since put on significant growth. There are now no stag horns, the leaves regrew on formerly bare branches, and large new branches formed near the base on the right hand side and these have grown upwards almost to the full height of the tree. In addition, its width has increased by about 50%.*
>
> *A close neighbour also had a tree in significant decline. This tree was treated with some trimming of bare branches along with a dressing of a chemical equivalent to 'blood and bone'—marketed as Hydro Green (N.P.K.). A single dressing of some 2–3 kg brought the tree back to full health, where it has remained (fig. 4).*

Puriri dieback: our understanding to date

Several years ago, I discussed my observations and apparent tree apparent recovery though fertiliser application, with Dr Ross Beever. At the time he mentioned a phytoplasma as a possible culprit causing the puriri decline. He also mentioned that this 'dumbbell' shaped organism occurred naturally in some species of *Coprosma*. Beever (pers comm.) was uncertain then of the vector transmitting the organism. The passion vine hopper was a possible culprit. I was shown an electron microscope image of a phytoplasma that Beever (pers. comm.) said had been recovered from the tap root. [I am fairly certain he was referring to a puriri tap root]. Recently, Dr Stanley Bellgard has highlighted other possible causes of puriri dieback—including *Phytophthora*. I am confident that the rate of decline in puriri is accelerating. In almost any patch of bush, puriri in a state of dieback can be observed. In the Waiwera/Wenderholm area, I suggest the majority of puriri are in various stages of decline. Further north puriri decline has decimated once magnificent trees.

Figure 4. Recovery after application of fertiliser. Te Kapa, Mahurangi East. June 2015.

I raised the puriri decline question with Department of Conservation botanist, Dr Carol West, who told me that the decline was recognised and one possible theory was that reserves of guano laid down by seabirds over earlier centuries had finally been depleted. *Whatever the cause it seems to me that trees can recover with a little help.*

Puriri is, of course, a major food source for kererū and tūī with its lush berries and large beautiful flowers; this fact alone dictates a need for intervention. Moreporks would also be pretty despondent if the puriri moth were to disappear from their diet.

References

Hosking, G. 1999: The health of puriri (*Vitex lucens*). Department of Conservation, Wellington. 21pp. http://www.doc.govt.nz/Documents/science-and-technical/casn245.pdf

Willems, N. 2009: Coastal indigenous forest canopy condition in the Bay of Plenty region. Environmental publication 2009/10, Bay of Plenty Regional Council. 53pp. http://www.boprc.govt.nz/media/33535/Report-100203-Env0910Coastalindigenousforestcanopycondition.pdf

Stop Press

As this issue of *Trilepidea* went into production, we learnt that MPI have identified a phytoplasma in root tissue of the affected puriri. More on this will be reported in a future issue of the newsletter.

Assistance request to locate plants to photograph

Jan Thomas Johansson Stockholm University and Hortus Bergianus, Stockholm (janthomas.johansson@bahnhof.se or janthomas.johansson@telia.com)

I and two colleagues are coming on a trip to the North Island 1–23 November, this year. The main purpose of our stay is to take pictures of flowering and/or fruiting specimens of a number of New Zealand endemic species for my international web-based book on the Phylogeny of Angiosperms (http://angio.bergianska.se). In particular, the following species are of the greatest interest:

Species	Species	Species
Ackama rosifolia	*Corynocarpus laevigatus*[1]	*Mazus radicans*
Alseuosmia spp.	*Dactylanthus taylorii*	*Melicytus* spp.
Arthropodium cirratum	*Griselinia* spp.	*Pennantia corymbosa*
Ascarina lucida	*Gunnera spp.*	*Pseudowintera* spp.
Astelia hastata (*Collospermum hastatum*)	*Herpolirion novae-zelandiae*	*Quintinia serrata*
Carmichaelia spp.	*Ixerba brexioides*	*Rhipogonum scandens*
Carpodetus serratus	*Knightia excelsa*	*Teucridium parvifolium*
Clianthus spp.	*Laurelia novae-zeelandiae*	*Toronia toru*
Corokia spp.	*Luzuriaga parviflora*	*Xeronema callistemon*[2]

[1] especially flowers! I already have photos of leaves and stem.
[2] we have no possibilities to go to Poor Knights Islands, but garden specimens are OK.

There are also many other species on my "wish list". However, the above species are the most important, since they might be more difficult for me to find without help from specialists. We would be extremely grateful for assistance in finding these species blooming.

Many warm thanks in advance!

Conference 2015

The 2015 conference in Dunedin is shaping up to be an exciting and though-provoking event. The speaker programme, workshops and field trips have now been finalised and can be viewed on our website at this link: http://nzpcn.org.nz/page.aspx?nzpcn_events_conference_2015.

Registration for the conference has been open now for some weeks and registrations have been coming in steadily. The spaces in botanical illustration workshop are now all taken, the photography one is filling steadily and at least one of the field trips is also filling up steadily. Registrations can be completed online by following the button on the home page (www.nzpcn.org.nz). **Early-bird registration closes on 1 October 2015 after which fees increase by 10%.**

NZPCN 2015 Conference Charity Auction donations update and running of the silent auction at the conference and online

Matt Ward, NZPCN Council Member (mattdavidward@gmail.com)

To ensure future of the NZPCN "David Given Scholarship" and the "Conservation Endowment Fund" we ran an auction at our 2013 conference. Our paid membership has also bolstered these funds with donations. This year, we are running another auction, but with a few twists. The auction will both be silent and run online for members who are not able to attend the conference but wish to bid.

Latest donations

This is the last update I will be able to provide before the conference in October. Since the last newsletter, we have received more donations for the auction. The auction will run from the beginning of the conference, 28 October 28 until the conference dinner on 30 October. Network members unable to attend the conference may also bid on items; for details about how see below this update. There really

is a good selection of delights up for sale. The collection of books alone is amazing, and so many of them are signed, true treasures to behold and for a good cause.

Great donations received from kind folk since my last update included amazing contributions from Rebecca Gilmore – Endemic Art Gallery, Chalky Digits, Otari-Wilton's Bush Trust, Auckland University Press, Victoria University Press, New Zealand Gardener, Project Crimson and Otago Botanical Society. Thank you all so much for your generosity. All donations have been displayed on the Network website as they were confirmed.

Here's the latest list of what is for sale:

Experiences

- A night's accommodation for two including a guided walk and breakfast at Bushy Point Fernbirds – Ecofriendly Bed & Breakfast.
- A Milford Wanderer Overnight Cruise package with Real Journeys for two adults. Unwind after the conference by taking in the beauty of Milford Sound in Fiordland National Park.
- Overnight accommodation and breakfast for two with Folster Garden Bed & Breakfast.

Art

- An oil painting of *Dracophyllum menziesii* by Dunedin artist and NZPCN member Marcia Dale. The painting is based on a photograph by Mike Thorsen.
- A limited edition framed print of "Waxeye on Pittosporum" original painted and donated by Rebecca Gilmore, Endemic Art Gallery, Roxburgh, Central Otago. RRP $350.

"Waxeye in Pittosporum" Limited edition framed print of this exquisite painting, donated by Rebecca Gilmore – Endemic Gallery.

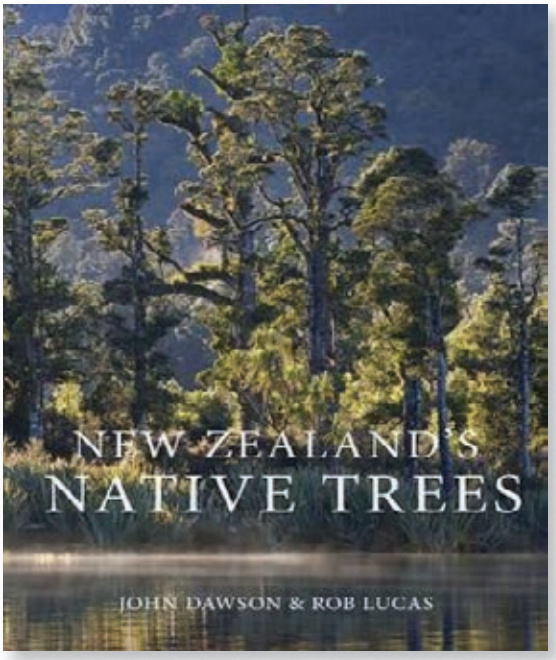
Gear

- A 'Nort' back pack donated by Cactus Outdoors.A 'One Tough Brutha' rain jacket donated by Swazi New Zealand (similar to the 'Tahr' anorak), XL RRP $349.
- A Beanie, Scarf and $50 voucher donated by Chalky Digits.

Books

- A signed copy of "Vanishing Nature: Facing New Zealand's Biodiversity Crisis" published by the New Zealand Ecological Defence Society, donated by Marie Brown.
- A signed copy of "Fieldguide to New Zealand's Epiphytes, Vines and Mistletoes" donated by Catherine Kirby.
- A signed copy of "Wilderness Heritage" donated by Burton and Potton Publishing.
- A signed copy of "Common Ground: who's who in New Zealand botanical names" donated by Val Smith.
- 2 signed copies of "Wild Dunedin: the natural history of New Zealand's Wildlife Capital" by Neville Peat and Brian Patrick, donated by Otago University Press.
- 2 copies of "The Natural History of southern New Zealand" donated by Otago University Press.
- 5 copies of the soon-to-be-released memoir by Sir Alan Mark, "Standing my ground: a voice for nature conservation" donated by Otago University Press.
- A copy of "Seeds of New Zealand - Gymnosperms and Dicotyledons" by Colin Webb and Margaret Simpson, donated by Manuka Press.

- A signed copy of "Small-leaved shrubs of New Zealand" by Hugh Wilson and Tim Galloway, donated by Manuka Press.
- A signed copy of "Wild Plants of Mt Cook" by Hugh Wilson, donated by Manuka Press.
- A copy of 'Akaroa Cocksfoot: King of grasses' by Vaughan Wood, donated by Canterbury University Press.
- A copy of 'Chatham Islands: Heritage and conservation' edited by Colin Miskelly, donated by Canterbury University Press.
- A copy of 'Great Barrier Island' edited by Don Armitage, donated by Canterbury University Press.
- A copy of 'Land very fertile: Banks Peninsula in poetry and prose' edited by Coral Atkinson and David Gregory, donated by Canterbury University Press.
- A copy of 'Living with Natives: New Zealanders talk about their love of native plants' edited by Ian Spellerberg and Michele Frey, donated by Canterbury University Press.
- A copy of 'The Natural History of Canterbury' edited by Michael Winterbourn, George Knox, Colin Burrows and Islay Marsden, donated by Canterbury University Press.
- A copy of 'Threatened Plants of New Zealand' by Peter de Lange, Peter Heenan, David Norton, Jeremy Rolfe and John Sawyer, donated by Canterbury University Press.
- A copy of 'West Coast Walking: A naturalist's guide' by Kerry-Jayne Wilson, donated by Canterbury University Press.
- A signed copy of 'Natural History of Banks Peninsula' by Hugh Wilson, donated by Canterbury University Press.
- A signed copy of 'Field Guide to New Zealand's Native Trees' by John Dawson and Rob Lucas, donated by Touchwood Books.
- A signed copy of 'Above the Treeline; A Nature Guide to Alpine New Zealand' by Alan Mark, donated by Touchwood Books.
- A signed copy (both author and photographer) of "New Zealand's Native Trees" (large edition) by John Dawson and Rob Lucas, donated by Otari-Wilton's Bush Trust.
- 2 copies of the 2016 calendar produced by the Botanical Society of Otago, donated by the Botanical Society of Otago.
- A copy of all the special NZ Gardener "Special Editions" (15 copies) Value $200.00, donated by New Zealand Gardener Magazine.



"New Zealand's Native Trees" Winner Best Illustrated Non-fiction Book and Book of the Year at the 2012 NZ Post Book Awards. One of the many signed editions up for grabs in the auction. Donated by the Otari-Wilton's Bush Trust

One of the excellent reference-worthy 15 Special Editions donated by New Zealand Gardener.

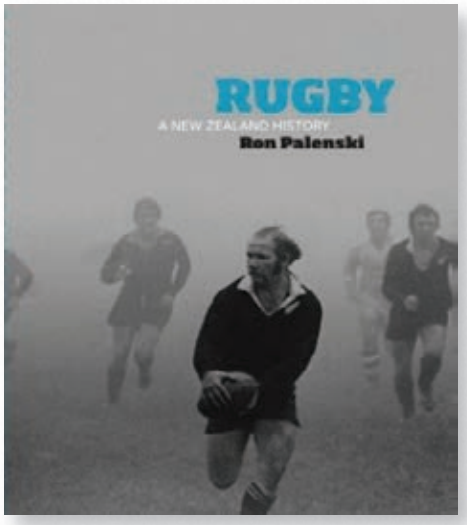
- 5 copies of "Pohutukawa - Ecology, Establishment, Growth and Management" by David Bergin and Gordon Hosking.
- A signed copy of the out-of-print 'The Mosses of New Zealand' (1992) by Beever, Allison and Child, donated by Jessica Beever.
- 2 signed copies of 'Above the Treeline: A Nature Guide to Alpine New Zealand' donated by Alan Mark.
- A signed copy of "Rugby: A New Zealand History" by Ron Palenski, donated by Auckland University Press.
- A copy of "Birds of New Zealand: A Photographic Guide" by Paul Scofield and Brent Stephenson, donated by Auckland University Press.
- A copy of "Wild Plants in Auckland" by Alan Esler, donated by Auckland University Press.
- A copy of "Maurice Gee: Life and Work" by Rachel Barrowman, donated by Victoria University Press.
- A copy of "ANZAC: Photographs by Laurence Aberhart" donated by Victoria University Press.
- A copy of "The Luminaries" hard back edition by Eleanor Catton (winner of the "The Man Booker Prize 2013"), donated by Victoria University Press.

This is the first auction I have been part of and I have been overwhelmed by the generosity of so many individuals, small businesses, university presses and other organisations. It makes me proud to be a kiwi! Thanks so much to all of the benevolent folk who will make this great cause a great success. The more we learn the more we might know.

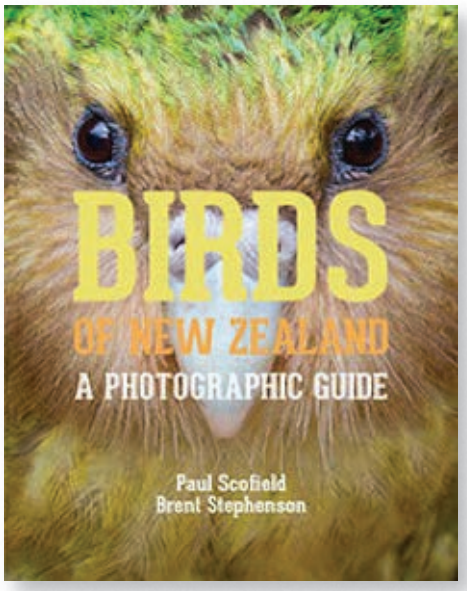
The running of the silent auction

The auction will run the length of the conference from Wednesday 28 October to the Friday 30 October evening dinner. Conference participants will need to register with me so that they can bid (you will get a number after you give me your email address). A list will be attached to each item with a reserve value on it. Bidders can simply add their bid amount and registry number as long as it is higher than the previous bid.

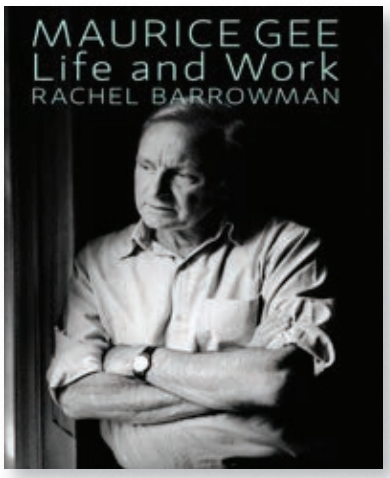
A list will also be run on the Network Forum which will allow those NZPCN members not attending the ability to bid. If someone you know likes what we are auctioning why not ask them to become a member too? I will add any bids made through the Forum to the physical list in the conference room and then update the Forum and vice a versa. Once you have made a bid via the Forum you will receive automatic updates when other bids are made, similar to how 'Trade me' works. Items won through the Forum will need to be paid for (including postage) before shipment. If you have any queries or feedback about the auction please contact me via the email address shown above.



"Rugby – A New Zealand History" a signed edition of this particularly felicitous book, kindly donated by Auckland University Press.



"Birds of New Zealand – A photographic guide" Donated by Auckland University Press.



"Maurice Gee – Life and Work" by Rachel Barrowman. Donated by Victoria University Press.

Magnificent and invasive; Favourite Plant and Worst Weed 2015: Have your say!!

Matt Ward, NZPCN Council Member (mattdavidward@gmail.com)

Voting for 2015 Favourite Plant and Worst Weed will commence on the first day of the NZPCN Conference Symposia on 29 October and run until the 30 November. A button will magically appear on the Home page of the Network website, which, when pressed, will prompt voters through easy steps to cast their vote. An option of leaving a comment is also available and highly recommended. I usually publish some of these great comments to relay the feeling of your choices.

In 2014, 30% of the vote was for Bartlett's rata—*Metrosideros bartlettii*—as the favourite plant. This "Threatened—Nationally Critical" rata is rarer than kakapo and I think it may feature highly in the list once again. Some of the comments that this special species generated included:

"*Any botanist worth their salt should take a pilgrimage to Te Paki to see this spectacular tree.*"

"*Rata Moehau is magnificent—it exudes mana.*"

"*Iconic, massive, spectacular.*"

Metrosideros bartlettii – In bloom, Te Paki. Photo: Peter de Lange

Other past winners include: a unique filmy fern, *Hymenophyllum malingii*; pohutukawa, *Metrosideros excelsa* (twice); Cook's scurvy grass, *Lepidium oleraceum*; Chatham Island Christmas tree, *Brachyglottis huntii*; willowherb, *Epilobium microphyllum;* pīngao, *Ficinia spiralis*; Chatham Island forget-me-not, *Myosotidium hortensia*; giant wire rush, *Sporadanthus ferrugineus*; and kauri *Agathis australis*. Will any previous winners triumph again?

In 2014, the worst weed according to 33% of the vote was the particularly pesky pest veldt grass *Ehrharta erecta*. This highly successful (or invasive, depending on your view) grass is now found in almost the whole of New Zealand, including montane environs. Voters had some pretty revealing things to say about this species; comments included:

"*Just trying to control it in your garden is enough to make me swear but look at what it is doing to our coastal areas, forests and lowlands.*"

"*What a pox of a plant.*"

"*I loathe it—once it's established, short of napalming your property you just can't keep on top of it. And when the dust has cleared it will probably be the first thing to recover...*"

Ehrharta erecta. Photo: Jeremy Rolfe.

Being a relatively new part of our vote, there have only been a few contenders for the title of worst weed, other title winners were: Douglas fir, *Pseudotsuga menziesii* and tradescantia, *Tradescantia fluminensis.* Both of these are terrible plants for our native environment and ensure a lot of time spent attempting to control or eradicate them. It's very likely these species will again feature up the list in 2015.

With voting to start soon, start thinking about your favourite plant, and worst weed. It will take a mere five minutes of your time to have your say. Anyone can vote as long as they have an email address. I'm hoping an orchid will win for the first time (hint, hint); one was second last year so who knows what will happen? Time will tell!!

Launching the Christchurch360 Trail (http://christchurch360trail.org.nz/)

The idea of a trail began 25 years ago with Colin Meurk, an ecologist, who over many years offered guided botanical walks around the city's outskirts. The purpose of these walks was educational, to encourage people to learn about the native biodiversity within the city's boundaries and, through knowledge, treasure it and work for its preservation while enjoying the recreational benefits. Linking existing routes, the Christchurch360 Trail forms a walking/running track that circles Christchurch.

The Trail showcases and interprets the rich array of natural, landscape, seascape and cultural features of the city that have previously been hidden. Divided into eight sections of approximately 17 km, the Christchurch360 Trail provides a unique, single or multi-day experience, with ever-changing beach, sea, estuary, river, hill, bush and city views.

For a number of years, a dedicated group of volunteers has been working on making this track become a reality through developing a website (http://christchurch360trail.org.nz/), logo, route guides and interpretation panels with the support of CCC, DOC and some funding and time from Rotary. Dialogue has begun with Ngāi Tūāhuriri Rūnanga and we look forward to an ongoing partnership there.

We are launching CHCH360 Trail as part of the **The Breeze Walking Festival** and invite you to join us, after the formalities, in walking the first kilometre of the trail along the Avon.

Regional Environment and Natural Heritage Grants Programme

The Regional Environment and Natural Heritage Grants Programme (RENH) supports projects focused on the protection, enhancement and/or restoration of regionally significant natural heritage areas and ecosystems across the Auckland region. RENH criteria include the effective management and protection of threatened species and their habitat; protection, improvement and/or the restoration of streams, waterways and riparian margins within Auckland's priority catchments and regionally focused initiatives that promote sustainable living.

RENH is now open to receive applications for the 2015/2016 financial year—applications close on 14 October 2015. Funding decisions are expected in December 2015.

More detailed information on this funding scheme and the type of projects it supports is available on the Council website. To be eligible for funding a project must meet the criteria for regional significance and contribute to at least one of the funding outcomes. Projects can be undertaken on public, private or Maori land. For further information please contact us, ph: 09 301 0101 or email: environmentalfunding@aucklandcouncil.govt.nz.

Please note that all applications must be submitted via SmartyGrants

Consultation Request on Tropical/Global Important Plants Areas (IPA) Criteria

Background

Important Plant Areas are the best global sites for wild plants and fungi containing threatened species, habitats or exceptional botanical richness. They are recognised under target 5 of the CBD Global Strategy for Plant Conservation and have been identified in 23 countries in Europe and the Mediterranean, and in 66 countries worldwide. Plantlife International has been working with national partners on IPA projects in Europe for the past 13 years, with IUCN Mediterranean Office and national partners in the Mediterranean since 2007, and with 5 national partners in the Himalaya to identify medicinal plant IPAs. The Royal Botanic Gardens Kew with its national partners is about to embark on a Tropical Important Plant Areas (TIPAs) programme. This is an appropriate time to combine the collective knowledge and experiences of the past decade to fine tune the criteria for a new phase of IPA identification in the Tropics.

Why do we need IPAs?

*P*lants are often the missing element of biodiversity planning and priority setting. Protected area networks and sites identified for birds or other groups are used as proxy for all biodiversity because the information is readily available in one place in a consistent format. IPA identification is a means for botanists and those who rely on wild plants and habitats to make national decisions about their most important sites and have their voice heard by local, national and global decision makers. They can provide a health check of the importance of existing protected areas for plant conservation, highlight gaps in protection, or identify areas that would benefit from community-based conservation efforts.

Criteria

The IPA criteria are based on A) threatened species, B) botanical richness and C) threatened habitats. The aim of this consultation is to ensure that the data lists of threatened species and habitats, threshold setting, methods for identifying sites of botanical richness, and guiding principles for selecting IPAs are suitable for use in the Tropics and other regions of the world beyond Europe and the Mediterranean. The criteria are aligned with internationally recognised threat lists including the IUCN Red List and CITES, and have provision for any future lists of globally threatened habitats or ecosystems; however we recognise that currently many plant and fungi species do not appear on any formal threat lists, and there is no current global list of threatened habitats. Therefore we advocate the principle of national, peer-reviewed, published threat lists as part of the IPA identification process, alongside regional consultation across national boundaries, as a step towards formal threat assessment. We also recognise the importance of including socio-economic plants within IPA criteria as a means of encouraging wider participation in the identification process and in the long term conservation and sustainable management of sites.

Guiding Principles

We have also included a short text on guiding principles for selecting IPAs including site size and boundaries, and selecting IPAs from a range of potential IPAs. There are several IPA identification and methodology publications available online including those that focus on boundary setting and mapping. A selection of these publications can be downloaded at http://www.plantlife.org.uk/publications/?cat=57&let=I. *Format for commenting:* we wish to produce a scientifically robust set of criteria, with transparent selection processes but which also acknowledge practical considerations in site selection and the availability of data around the world. If you disagree with a proposed criterion or guiding principal, can you give a concrete example of where they would not work, the problem it would create, or site/species/ habitats which would be missed or included unnecessarily. In addition it would be very helpful if you can suggest an alternative solution to the problem identified.

Deadline

The deadline for comments is the 30 October 2015. We will also send out a reminder at the start of October. The comments will be collated and the refined global criteria will be published in early 2016. Please can you copy any comments to both Dr Iain Darbyshire (I.Darbyshire@kew.org) and Dr. Seona Anderson (seona.anderson@plantlife.org.uk).

We would like to thank everyone for taking the time to read this and hopefully for making comments. We would also ask that you pass on this consultation to anyone you believe may be able to contribute their opinion or experience. We welcome comments from different viewpoints including scientists, government agencies, site managers, policy specialists, NGOs, development organisations and residents of potential IPAs.

We are currently looking for funds to make this consultation available in other languages and if we are successful we will send out to the appropriate contacts.

Important Plant Area (IPA) Criteria

A: THREATENED SPECIES
Goal: to capture populations of the most threatened plant and fungal species—threatened on a global or regional level, where range restricted species are recognised as inherently threatened when lack of data or capacity means their threat status not been formally assessed.

A(i) Site contains **globally** threatened species	THRESHOLDS All sites known, thought or inferred to contain **≥5%** of the national population, OR the **5 "best sites",** whichever is most appropriate. In exceptional cases, for example where there are less than 10 sites in the whole country or where there are between 5 and 10 large populations of a species, up to 10 sites can be selected. Populations must be viable or there is a hope they can be returned to viability through conservation measures	(1) Species listed as threatened on the IUCN global red list or the 1997 global Red List for Plants (if relevant or appropriate). (2) It is acceptable to include those species assessed as threatened and accepted by the IUCN review process but awaiting upload onto the IUCN Red List (e.g. species awaiting upload from SIS; assessments that have been reviewed by an IUCN approved reviewer but have not yet been entered into SIS). (3) A(i) species of high socio-economic importance (regionally, nationally or globally) can be tagged as such for analysis purposes	This sub-criterion is virtually identical to the detailed regional approach for IPA identification in Europe, with the addition of the lists of threatened species that have been assessed and reviewed according to IUCN criteria but have not yet passed through the SIS process. This sub-criterion is aligned to IUCN Key Biodiversity Area (KBA) criterion A1: Threatened Taxa
A(ii) Site contains **regionally** threatened species		(1) Species listed as threatened on IUCN regional Red Lists OR another regionally approved, peer reviewed threat lists. In some regions of the world, published, peer reviewed lists of regionally threatened species exist and can be helpful (e.g. threatened medicinal plants of the Himalaya).	This sub-criterion is virtually identical to the detailed regional approach for IPA identification in Europe. In Europe the regional threatened species are those contained within the annexes of the EU Habitats Directive (Annex II) and Bern Convention (Appendix 1). In the Tropics we do not foresee that this sub-criterion will be widely applied, but it may be applicable to particular species of regional importance e.g. highly important socio-economic species that are considered as regionally threatened and published as such.
A(iii) Site contains **site restricted endemic** species with potential threat		(1) A "Site Restricted Endemic" (SRE) is defined as a species with a total range of <100 km^2. The definition of "site restricted" is aligned to the "Critically Endangered" range (Extent of Occurrence) threshold for IUCN threat assessments. Hence, in effect, the species are defined through partial assessment against IUCN criterion B but without the need to fully determine the threat status; it is a step towards improving the information on threatened species within these regions. Endemicity is linked to an ecological range, not to political borders, and thus A(iii) species can have trans-border ranges. (2) Species should be listed as SREs on a recognised national or regional list that can be developed, peer reviewed and published as part of the IPA identification process. (3) A(iii) species of high socio-economic importance (regionally, nationally or globally) can be tagged as such, for analysis purposes	This sub-criterion is applied differently outside Europe to inside. The European IPA criteria focus on threatened national endemics using political boundaries, because countries are smaller and threat data in the form of national red lists are often available. Beyond Europe, countries are often larger and national red lists do not always exist. The concept of SREs was first introduced into IPA methodology in a pilot project in North Africa and the Middle East (Plantlife, WWF, and IUCN in the Mediterranean 2011). IPA criteria - designed wholly with plants in mind - take account of the lack of formal global conservation status assessments for the large majority of plant and fungal species (due to limited capacity and data availability) by using severe range restriction as a proxy for threat.

A(iv) Site contains **range restricted endemic** species with potential threat	THRESHOLDS All sites known, thought or inferred to contain **≥5%** of the national population, OR the **5 "best sites",** whichever is most appropriate. In exceptional cases, for example where there are less than 10 sites in the whole country or where there are between 5 and 10 large populations of a species, up to 10 sites can be selected. Populations must be viable or there is a hope they can be returned to viability through conservation measures	(1) A "**Range Restricted Endemic**" (RRE) is defined as a species with a total range of <5,000 km^2. The definition of "range restricted" is aligned to the "Endangered" range (Extent of Occurrence) threshold for IUCN threat assessment. Hence, in effect, the species are defined through partial assessment against IUCN criterion B but without the need to fully determine the threat status; it is a step towards improving the information on threatened species within these regions. Endemicity is linked to an ecological range not to political borders and thus A(iv) species can have trans-border ranges. (2) Species should be listed as **RREs** on a recognised national or regional list that can be developed, peer reviewed and published as part of the IPA identification process. (3) A(iv) species of high socio-economic importance (regionally, nationally or globally) can be tagged as such for analysis.	This sub-criterion is applied differently outside Europe to inside. In Europe, A(iv) "near endemic / restricted range species with demonstrable threat" referred to political endemicity along the lines of country boundaries. The use of national near-endemic species is of questionable value when working in large countries, where national near-endemics may have a very large range and be unthreatened. The concept was first introduced in a pilot IPA identification project in North Africa and the Middle East (Plantlife, WWF and IUCN in the Mediterranean, 2011). A(iii) and A(iv) are recorded separately to allow for more detailed analysis of sites and species.
B: BOTANICAL RICHNESS Goal: to capture sites of exceptionally plant and fungal diversity, focussing on high quality species assemblages, regardless of threat. This is done by selecting sites which contain high concentrations of important or valuable species (**axiophytes**) - which indicate either quality habitat or a species-rich location. Where data are available, the richest sites per habitat can be selected (comparing like with like); this is possible for e.g. data-rich countries in Europe. Where species data for habitats is not systematically available, richest sites are chosen on the basis of high concentrations of important/valuable species per location; this is likely to be more appropriate for use in the Tropics. In principle, this criterion seeks to be representative - to ensure the best quality habitats are represented within the sites of the national IPA network. A number of factors can be considered when selecting the best quality habitat/species assemblages, based on recommendations from the Nature Conservation Review (1977) and the EU SAC selection process: size (extent), diversity, naturalness, rarity, fragility, typicalness, position in an ecological/ geographical unit, history, value, intrinsic appeal, degree of representivity, conservation of habitat structure and functions, restoration possibilities. N.B. B(ii) and B(iii) fulfil the same function, in identifying the richest locations based on concentrations of ' important' species. The sub criteria have been spilt because they reflect different value systems for important species: B(ii) values the rarer/ irreplaceable/unique species, whilst B(iii) values useful species to humans including those that have cultural or spiritual value. There may be overlap between the species within these categories hence one threshold applies across the two sub criteria.			
B(i) Site contains a **high number of species** within a range of **defined habitat or vegetation types.**	THRESHOLD Up to **10%** of national resource (area) of each habitat or vegetation type OR **5 "best sites"**, whichever is the most appropriate	(1) The development and use of national indicator species for each habitat/ vegetation type is encouraged given sufficient data. Indicator species chosen for Bi should be characteristic, important and valuable species (axiophytes) that indicate good quality habitat. (2) Botanical richness is linked to habitats in this sub-criterion to give an indication of habitat quality - the best peat bogs, the best chalk grasslands etc., since it is important to compare like with like. Sites which have exceptional richness because they hold a mosaic of habitats within a small area should be picked up using B(ii) below. (3) This criterion should only be applied for defined habitats where there is a sufficient level of information on species composition in order to determine habitat quality. It is likely to be difficult to apply systematically in the tropics and elsewhere outside of Europe, where habitat classifications at an appropriately fine scale and lists of indicator species for habitat quality are unlikely to exist.	This sub-criterion is identical to the Criterion B used for European IPAs - with increased emphasis on the recommendation to use species that indicate good **quality** habitat, and the proviso that this criterion should only be used where there is data of sufficient quality.

B(ii) Site contains an **exceptional number** of important species of restricted range (axiophytes).	THRESHOLD Site contains **5%** of the selected important/valuable species on either list or the **30 richest locations** (combining Bii and Biii).	(1) B(ii) important or valuable species can be selected from the following categories of species: a) **restricted range species** with a total range of <20,000 km^2 b) **national endemic species** c) **national Red List species** not covered by criterion A (2) Lists of species used should be published and justified as part of the IPA identification process as a 'recognised national list of axiophytes'. (3) The range threshold for restricted range species in this sub-criterion is aligned to the "Vulnerable" range (Extent of Occurrence) threshold for IUCN threat assessment under criterion B but there is no requirement for these species to be threatened for use here; it merely defines their restrictedness. (4) Sites selected should have reasonable ecological/geographical integrity - whether a habitat mosaic or otherwise and not greater than 1% of the area of the country or 50,000 km^2.	
B(iii) Site contains an **exceptional number of useful / culturally valuable species** (axiophytes).		(1) B(iii) important or valuable species can be selected from the following categories of species and should focus on those species that would benefit from site-based conservation measures: a) **socio-economically important wild-harvested species** , including medicinal plants, food plants, resin/dye plants, timber species b) **crop wild relatives** c) Other **culturally and spiritually** important plants d) **CITES-listed species listed on Appendix 1 or specifically listed in Appendix 2** (i.e. excluding plant groups where whole families / genera are listed on Appendix 2 such as orchids, succulent Euphorbia spp.) (2) All indicator species list should be published and justified as part of the IPA identification process as a 'recognised national list'. (3) Sites selected should have reasonable ecological/geographical integrity - whether a habitat mosaic or otherwise and not greater than 1% of the area of the country or 50,000 km^2.	The conservation of wild socio-economically important species is of considerably global importance, but this was not comprehensively covered in the IPA methodology in Europe. IPA identification using these species has been piloted in a limited way (e.g. by Plantlife and national partners in the Himalaya in 2006), and will be highly relevant in the Tropics where the conservation of biodiversity is most likely to be achieved when demonstrably linked to human livelihoods.

C: THREATENED HABITAT
Goal: to capture the largest, intact areas of threatened and/or extremely restricted (and thus highly likely to be threatened) natural or semi-natural habitats, and severely declining habitats that may once have been common. This is regardless of how botanically rich they are.

IMPORTANT NOTE: Criteria C(i) - C(iii) do not distinguish between threatened and restricted habitat. This is a pragmatic (not theoretical) decision because in many countries outside Europe there are no official threatened habitat lists and a habitat may be referred to as threatened because it is restricted and/or infrequent and/or declining. Within Europe the distinction is clearer but as fragmentation of habitats is such much more acute, restricted and infrequent habitats are more likely to be threatened - and regional lists are available. Where very limited habitat/vegetation data exists, the process of IPA identification can begin the process of developing habitat data resources in each country based on expert opinion.

C(i) Site contains **globally restricted/threatened** habitat or vegetation type	THRESHOLD All sites known, thought or inferred to contain **≥5%** of the resource (area) of the threatened habitats, or a total of **20-60%** of the national resource, whichever is the most appropriate	IMPORTANT NOTE: (1) C(i) restricted or threatened habitat or vegetation types taken from a globally recognised lists. (This list does not exist at present but may do in future so is included to 'future proof' the criteria).	In the detailed European IPA criteria, C(i) refers to priority threatened habitats on the EU Habitat Directive. Globally threatened or restricted habitats were not considered so this is an additional criterion albeit one that cannot be applied until an appropriate list is developed. This sub-criterion is potentially aligned to IUCN KBA criterion A2: Threatened Ecosystems
C(ii) Site contains **regionally restricted/ threatened** habitat or vegetation type		(1) C(ii) restricted or threatened habitats or vegetation types taken from a regionally recognised list. This list can be developed, peer reviewed and published as part of the IPA identification process if neighbouring countries are involved. There are currently no threatened habitat list for any world regions beyond Europe that are classified at an appropriately fine scale to be easily applied to the existing criterion C. (2) The % threshold is derived from the EU Habitats Directive.	This criterion is identical to criterion C in the European IPA criteria, which was spilt into C(i) - EU Habitats Directive priority habitats, and C(ii) - remaining EU Habitats Directive habitats or Bern Convention habitats See note to sub-criterion C(i) for comparison with the KBA methodology.
C(iii) Site contains nationally restricted/ threatened habitat or vegetation type, AND/OR habitats that have severely declined in extent	All sites known, thought or inferred to contain **≥10%** of the resource (area) of the threatened habitats, or up to a total of **20%** of the national resource, whichever is most appropriate AND/OR The 5 '**best sites'** for each habitat that is known, thought or inferred to have declined in extent (area of occupancy) by >50% since 1900.	(1) C(iii) restricted or threatened habitats or vegetation types, taken from a nationally recognised list. This list can be developed, published and peer reviewed as part of the IPA identification process. (2) This sub-criterion will capture the most intact examples of those habitats which are threatened or highly restricted or severely declining within the country (and potentially in the region where there is no regional list available). It will also capture those habitats restricted within the country, even though they are more common elsewhere if they are an extremely important national resource and/ or they are important as 'edge of range' examples. (3) The % threshold for restricted or threatened habitats or vegetation types is derived from the lower limit (20%) for Special Area of Conservation selection under the EU Habitats Directive. (4) This sub-criterion is more appropriate to use in the larger and/or data poor countries where data is held on a national level - in time it will help countries obtain a greater understanding of threatened / restricted habitats in their countries and how they relate to the wider regional and/or global picture. (5) The criterion can be applied to any habitat within a country that has severely declined.	

Guiding Principles for Selecting IPAs: Global Criteria

IPAs are not legal site designations; they are a means to identify a scientifically sound network of key sites for wild plants using the best available data. They can inform and improve existing protected area networks, identify key gaps in protection, or be part of community-based conservation programmes in protected or unprotected areas. The important role of national decision making and the value of regional consultation is recognised in both the identification and ongoing conservation of IPAs.

General

- The word'plant' here encompasses vascular plants, algae, lichens, liverworts, hornworts, mosses as well as fungi.
- The selection of sites should be based as far as possible on sound data, quantifiable species population and habitat area thresholds, and a transparent selection process, but recognising the role of peer-reviewed expert opinion at the national and regional level.
- The aim of the IPA Programme is to identify and protect the best global sites for wild plants; however the number, size and range of IPAs within each participating country is a national decision
- A site can qualify as an IPA if it satisfies one or more of the criteria, i.e. a site can qualify if it satisfies either Criterion A, B, or C or any combination of the criteria; however consideration could be given to prioritising sites that qualify under more than one criterion and/or sub-criterion during the site selection process in order to focus conservation action.

Criterion A – Threatened Species

- The national IPA network should represent the full range of the national Criterion A species list.
- Where data are available, sites that contain a significant proportion of the Global (or Regional) population of a species, in line with the population threshold for Criterion A, should be included in the IPA network.
- For particularly dispersed Criterion A species with no obvious population centres, separate IPAs should not be selected for those species alone when it is possible to include them within IPAs selected primarily for other species or criteria.
- The degree of threat to the population and the need for protection should be taken into account, but IPAs should be selected only for populations which are viable or for which there is hope that ameliorative measures can be taken to ensure a return to viability.

Criterion B – Botanical Richness

- Where practical, the creation of a list of indicator species for good quality, botanically-rich examples of a particular habitat (e.g. peat bog, dry grassland, coastal dry forest) is one means of rapidly measuring and comparing richness at sites of that habitat type.
- Creating a national list of the most valuable species (axiophytes), focussing on globally range-restricted species, and/or nationally or regionally important wild-harvested socio-economic species, is a means of measuring and comparing botanical richness where limited data sets are available.
- Creating indicator lists of important wild-harvested socio-economic plants is a means of facilitating and encouraging wider stakeholder consultation on the identification of key sites for wild plant diversity outside of the scientific and protected area communities. The species selected as socio-economic indicators should be amenable to site-based conservation measures. Naturalised alien species should not be included on this list except where a strong case can be made for their inclusion; this is a national decision.
- Complementarity – sites selected under Criterion B should attempt to include the greatest number of different species rather than selecting multiple sites which contain largely the same species assemblages.

Criterion C – Threatened Habitats

- The national IPA network should represent the full range of national Criterion C habitats.
- The threshold for selecting IPAs is based on area in order to preserve the largest continuous extents of each threatened, restricted or severely declining habitat.
- Factors such as land management history and species diversity can also be considered in site selection.
- The degree of threat to the habitat and the need for protection should be taken into account and should be documented in the resultant IPA designation.

Genetic Diversity of Threatened Species, Socio-Economic Plants& Crop Wild Relatives

- Conserving the range of genetic diversity of threatened species or those species of economic or cultural value, including wild relatives of commercial crop species, should be considered when selecting IPAs.

Socio-Economic& Culturally Important Species

- The conservation of wild-harvested socio-economic plants is of both local and global importance. The selection of IPAs with a focus on socio-economic importance, including those of cultural and spiritual value, is a means to conserve biodiversity linked to livelihoods and also to encourage community-level participation in the long term conservation and sustainable management of IPAs.

Site Size & Boundaries

- There is no fixed minimum or maximum size for IPAs, however the site should have reasonable ecological/geographical integrity. The final decision on the size of any particular IPA is a national decision, however a maximum size guide could be less than 1% of the area of the country or 50,000 km^2.
- An IPA is defined so that as far as possible:
  - It is different in character or habitat or botanical significance from the surrounding area.
  - It exists as an actual or potential protected area or an area that could be managed for conservation.
- There are no set rules for the treatment of small sites that lie close to each other. These sites could remain as individual IPAs or could be merged to create a single larger IPAs, depending on local and national considerations. Where possible a mosaic of interlinked habitats would confer many conservation benefits.As a practical example, the mapping process for the large, interlinked Scottish West Coast IPA is available online on the Plantlife website.
- Site boundaries – obvious boundaries such as rivers, roads or distinct changes in land use can be used to mark the boundaries of sites. In larger regions where there are less obvious site boundaries or changes in habitat type, site boundaries can be delimited by geological features such as ridge-lines, or hilltops.
- Where possible IPA should have buffer zones around the core area and Zones of Opportunity (areas where habitat restoration and preventing isolation of species or habitats) is possible. There is a decision tree for deciding site boundaries and identifying Zones of Opportunity in the UK available online on the Plantlife website (Dines & Hutchinson 2008).
- IPAs that fall wholly or partially within existing protected areas do not necessarily have to match the size or boundary of that protected area.

Site Selection

- IPAs can be identified on any land, private, public or protected.
- The degree of threat and the need for protection should also be considered in the selection process and fully documented if the site is selected as an IPA.
- The possibility of linking sites through ecological corridors to prevent isolation of populations and to build resilience against the effects of climate change should also be considered in the final selection of IPAs.

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):

Australian National Seed Science Forum

March 2016: The Forum will be held at the Australian PlantBank hosted by the Australian Botanic Garden, Mount Annan, in collaboration with the Australian Network for Plant Conservation and the Australian Grains Genebank. The Forum will commence with an evening event on Monday 14 March; the main science programme will be presented on 15-16 March 2016. The Forum will be a rare opportunity to bring together leading botanical and agricultural institutions, seed scientists and conservation and restoration experts to share ideas that showcase the importance of seed science to the future of plant conservation and food security in Australia. An exciting programme of local and international experts is planned, speaking on seed conservation, storage, preservation and germination. More details on the National Seed Science Forum will be provided in the near future. Invited keynotes and a call for presentations will be announced soon. Please share information on this Forum with your colleagues and through your networks.	**Information:** www.seedpartnership.org.au. **Subscribe to announcements:** info@seedpartnership.org.au

Auckland Botanical Society

Meeting: Wednesday 7 October at 7.30 p.m. for a talk by Robert Hoare, Landcare Research, titled 'Hunches about munches. A whatmothdunnit of leaf-mines, nibblings and caterpillar signs for the botanical Poirot'. **Venue:** Unitec Room 115-2017.	**Contact:** Maureen Young, email: youngmaureen@xtra.co.nz.
Field trip: Saturday 17 October to Glen Kowhai/Duck Creek Reserve, Mahurangi.	**Leader:** Maureen Young, email: youngmaureen@xtra.co.nz.
Meeting: 5 November at 7.30 p.m. for a talk by Peter de Lange, DoC botanist, on his recent visit to Rangatira Island (South East Island), Chatham Islands – a nature reserve which was farmed until 1961. **Venue:** Unitec Room 115-2017.	**Contact:** Maureen Young, email: youngmaureen@xtra.co.nz.
Field trip: Saturday 21 November to Omaha Kahikatea Forest.	**Leader:** Dave Wilson. **Contact:** Maureen Young, email: youngmaureen@xtra.co.nz.
Field trip: Saturday 5 December to Wenderholm Regional Park for the Christmas Picnic/Field trip.	**Leader:** Janeen Collings. **Contact:** Maureen Young, email: youngmaureen@xtra.co.nz.

Kaipatiki Environment Centre

Nursery Bites: 1.00 -4.00 p.m. for seven Wednesdays from 7 October; practical nursery experience, learn to identify and grow native plants.	**Tutor: Andrea Hunt**, our Restoration Manager. Booking & info.

Waikato Botanical Society

Field trip: Saturday 17 October to Opuatia Wetland.	**Leader:** Catherine Beard, ph: 07 858 1034 (wk.) or 027 337 4337, email: cbeard@doc.govt.nz.
Field trip: Saturday 14 November to Mangapu Kahikatea Remnants.	**Leader:** Thomas Emmitt, ph: 07 878 1055 (work) or 021 152 3030, email: temmitt@doc.govt.nz.

Rotorua Botanical Society

Field trip: Saturday 17 October to Okareka Mistletoe Restoration Project for a weed control/plant releasing work day. **Meet:** 8.45 a.m. at corner of Summit and Loop Rds, Okareka (lake end). **Grade:** medium-hard—activities suitable for all ages and abilities will be provided.	**Leader:** Paul Cashmore, ph: 07 349 7432 (wk) or 027 650 7264, email: pcashmore@doc.govt.nz.
Field trip: Friday 30 - Saturday 31 October (Sunday 1 November optional) to East Cape revisited #9. **Meet:** for those coming on Friday, meet at Tims bach on the Friday night; for those coming on Saturday morning meet at DOC Opotiki (Information Centre, Bridge Street) time to be advised. Grade: to be advised. **Cost:** $20 donation for accommodation for those staying Saturday night. Bring: 4WD if you have one.	**Leader:** Tim Senior, ph 0800 368 288 ext 6010 (wk) or 07 315 7371 (hm), email: tim.senior@boprc.govt.nz

Whanganui Museum Botanical Group

Field trip: Saturday 3 October to Koitiata (Turakina Beach). **Meet:** at the Police Station at 9.00 a.m. or 9.30 a.m. at Leader's place, Koitiata. Leader in field: Laurel Stowell.	**Contact:** Robyn Ogle, email: robcol.ogle@xtra.co.nz.
Meeting: 6 October at AGM & members' evening; bring pictures, books, plant material or simply talk about something of botanical interest.	**Venue:** Davis Lecture Theatre, Whanganui Regional Museum, Watt St, Whanganui

Wellington Botanical Society

Field trip: Saturday 3 October toBodhinyanarana Buddhist Monastery, Stokes Valley. Botanise this 51-ha property with mixed areas of regenerating forest including beech on the ridges. Meet 9.30 a.m. at the end of Stokes Valley Rd at 17 Rakau Grove. Limited parking inside monastery gates, plenty outside.	**Co-leaders:** Sunita Singh ph 387 9955 / 027 405 2987 and Simon Fern.
Meeting: Monday 19 October: Zero Invasive Predators (ZIP)—who we are, and what we're doing? **Speaker:** Phil Bell. ZIP is a research and development entity, founded by the NEXT Foundation and DOC. This talk will detail the work ZIP is doing to develop a new approach to predator management in NZ—the 'Remove and Protect' model. **Student speaker Matt Ryan, VUW:** Ocean-atmosphere interactions from south-west NZ, over the last half a million years: insights into how Westland's vegetation, and by inference climate, has responded to global and local climatic changes over the last half a million years.	**Venue:** 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 18 October to Dun Saddle. **Meet:** at the Church steps at 8.00 a.m. **PLEASE** register with the leader by Friday 16 October for our PLB protocol and in case of cancellation.	**Leader:** Penny Palmer, ph: 03 539 1329.

Canterbury Botanical Society

Meeting: Monday 5 October, speaker to be confirmed. **Venue**: Upper Riccarton Library, 71 Main South Road.	**Contact:** Gillian Giller, email: ggillerma1@actrix.gen.nz.
Field trip: Thursday evening, 12 November, to 4.00 p.m. Sunday 15 November for the Canterbury Botanical Society Spring Camp at Waiau. **Accommodation:** booked at the Lodge at the Waiau Motor camp: bunks $27/night, single rooms $30 to 36/night; $30 reimbursement for car-pooling; pot-luck dinner on Friday and $8 for a shared meal on Saturday night. Bring your own breakfast, lunch, snacks, tea and coffee.	**Enquiries:** Alice Shanks, ph: 337 1256, email: alice@caverock.net.nz.

University of Canterbury – BIOL305-16SU1 Practical Field Botany

Summer course: 21–29 January for an intensive, 8-days to teach students and professionals basic skills in field botany field component with work before and after. Enrolment opens 6 October 2015.	**Course coordinator and lecturer:** Dr Pieter Pelser, ph: 03 364 2987 ext 45605; email: pieter.pelser@canterbury.ac.nz.

Christchurch360 Trail

Saturday 3 October: 11.00–12.30 p.m., distance 5 km, 'Wetlands – hidden gems and launch'	
Sunday 4 October: Godley Head to Sumner.	**Enquiries:** David Penman ph: O21 929 003, email: pendavid@gmail.com
Sunday 4 October: Travis Wetland to Spencer Park.	**Enquiries:** Judith Millar ph: 021 729 662 or 03 355 4834, email: ejmillar11@gmail.com.
Sunday 4 October: Sign of the Kiwi to Halswell Quarry.	**Enquiries:** Cynthia Roberts ph: 021 123 1060, email: cynthia@nzecologist.com.
Registration essential for bus numbers for the Christchurch 360Trail walks but those not using our buses are welcome to join any of the walks.	

2015 John Child Bryophyte and Lichen Workshop

Gunns Bush Camp, Waimate: Thursday 8 October to 10 am Tuesday 13 October	**Interested? Email:** Fleming.betina@gmail.com

Otago Botanical Society

Field trip: Saturday 3 October to Silverstream. Meet: at the Botany car park at 9.00 a.m. Bring: sturdy footwear, lunch and a parka.	**Contact:** Kate Caldwell, ph: 027 890 8840, email: Kate.Caldwell@dcc.govt.nz.
Meeting: Friday 9 October, 10.00 a.m. to 2.00 p.m. for the Botany Student Colloquium and guest lecture by Angela J. Brandt. Venue: Physical Education seminar room 214 (on Union Street).	**Contact:** Greg Nelson, email: NelsonG@landcare.research.co.nz.
Meeting: Wednesday 14 October at 5.20 p.m. for a talk by Angela J. Brandt, Landcare Research, titled 'Products of history: Immigration timing of New Zealand plant ancestors affects present-day communities'.	**Venue:** Zoology Benham Building, 346 Great King Street, behind the Zoology car park by the Captain Cook Hotel. Via the main entrance of the Benham Building go to Seminar Room, Rm. 215, 2nd floor.