



TRILEPIDEA

NEWSLETTER OF THE NEW ZEALAND PLANT CONSERVATION NETWORK

Please send news items or events to events@nzpcn.org.nz

Postal address: P.O. Box 16-102, Wellington, New Zealand

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President's message

The Network has recently become a member of the Global Partnership for Plant Conservation. This partnership brings organisations together to support the worldwide implementation of the Global Strategy for Plant Conservation (see article in the newsletter). The Network has been implementing the first iteration of the Global Strategy for the past 8 years. The themes described by the Global Partnership for Plant Conservation are useful to consider the actions that the Network is involved in:

- Understanding and documenting plant diversity—a great deal of work has been put into developing the national on-line flora website, including national lists of native and naturalised plants, factsheets for each of those plants, accurate information on threatened plants and their status, as well as site plant lists. The Network has also been involved in the publication of books, providing access to New Zealand-relevant plant conservation literature, the promotion of best practice tools for conserving threatened species and fostering relevant research.
- Conserving plant diversity—a national seed bank has been established; threats to plants are on the website, as well as information about plant restoration and legal protection mechanisms for private land owners. There is on-going advocacy for the legal protection of threatened plant species, as well as input to specific conservation issues, such as the MacKenzie Basin land tenure review.
- Using plant diversity sustainably—this is more of an issue overseas where indigenous ecosystems are harvested on an on-going basis. The on-going review of legal protection mechanisms for threatened species contributes to this theme because the goal is to minimise threats from international trade.
- Promoting education and awareness about plant diversity—the network regularly puts out news releases about plant conservation issues, provides a newsletter, has a “Vote for Your Favourite Plant” competition, on-line plant quiz, conferences, publications and annual awards.
- Building capacity for the conservation of plant diversity—the establishment of the Network and links to other organisations contributes to this theme, as does the development of the plant conservation training modules and courses.

There is always more to do, of course, but it is pleasing to see the progress that has been made. An important project that is underway this year is a national visioning exercise for the website (funded by TFBIS). This exercise will involve many people and agencies around the country and will set the direction of the website for the next five years. If you have ideas that you would like to see, please e-mail the network at info@nzpcn.org.nz. Another exciting project that has been funded by TFBIS is the development of a PDF maker factsheet system for the website. This will go live in the next month and enable people to make their own factsheets out of website species pages.

Submissions have been made by the Network to the Maryburn Station and Wolds Land Tenure Reviews. Eleven threatened and “at risk” plant species have been recorded on the lateral moraines in both those areas, while the upper part of the Maryburn outwash plain is a stronghold for the critically endangered plant *Leptinella conjuncta*, which is known only from two other populations in Otago. The Network requested that the lateral moraines and the older part of the outwash plain be protected as part of a dryland reserve or under a conservation covenant that ensures that the land is managed in a way that provides for the survival of these plants.

Philippa Crisp, Greater Wellington

PLANT OF THE MONTH – *ACIPHYLLA SUBFLABELLATA*



Aciphylla subflabellata. Photo: Gillian Crowcroft.

Plant of the month for April is *Aciphylla subflabellata*. *Aciphylla subflabellata* forms a stout rosette of yellow green to grey green leaves. As with many other *Aciphylla*, the leaves terminate in a sharply pointed tip, making it one to watch out for when tramping. The species epithet *subflabellata* refers to the leaves somewhat fan-like appearance, with the slender leaflets positioned more or less in the same plane as the leaf axis. Male and female flowers are borne on separate plants and appear in summer on stout stems that reach 500–600 mm long.

It is endemic to the South Island, found in the east from south-eastern Marlborough to Southland, in montane and subalpine areas. It is widespread, but not considered common and its numbers are thought to be declining. Its lowland habitats have been significantly modified and it is browsed by cattle and pest animals.

Aciphylla spp. are perennials in the same family as the carrot (Apiaceae) and, like carrots, they are relatively easily grown from fresh seed. *Aciphylla subflabellata* can be grown in pots and sunny positions in well drained, friable soils. *Aciphylla* spp. are notoriously difficult to transplant so a final planting site needs careful selection.

The Network fact sheet for *Aciphylla subflabellata* can be found at: www.nzpcn.org.nz/flora/details.asp?ID=215

Subscriptions for Individual, Student and Unwaged members

Hopefully, by the time you receive this newsletter, all those whose subscription renewal falls between 30 June 2010 and May 2011 should have had a reminder and a request to pay the subscription. We would prefer that you renew your subscription using your credit card on-line (as for shop purchases). Paying by cheque or by internet banking is still possible and a subscription renewal notice may be downloaded from the website:

- www.nzpcn.org.nz/publications/Subscription-NZPCN.pdf

This has the necessary details for payment by cheque or by internet banking. If you use internet banking, please make sure that your name appears on our statement and preferably send an e-mail to info@nzpcn.org.nz informing us that you have made such a payment.

Any Individual, Student or Unwaged members who have already paid their 2010–11 subscription have had their anniversary date amended accordingly to the 15 December 2011. However, if anyone receives a reminder who has already paid their 2010–11 subscription, please send an e-mail to info@nzpcn.org.nz giving the details when the cheque was banked or the internet payment was made. Similarly, if you get a reminder but believe you are part of a Corporate or NGO membership, send an e-mail to info@nzpcn.org.nz. Conversely, if you don't get a reminder but think you should please also send us an e-mail.

CURRENT FORUM THREAD

- Has anyone insightful information about *Pittosporum kirkii* such as information on flowering? Have you seen specimens flower every year or only every other year? Have you seen nectar-feeding birds?

New names for New Zealand *Triticeae* Grasses

Peter J. de Lange, Department of Conservation (pdelange@doc.govt.nz)

In a recent paper, Barkworth & Jacobs (2011) have undertaken a full revision of those grass genera previously treated in Australasia as *Australopyrum*, *Elymus* and *Stenostachys*. Their treatment brings together a wealth of data, especially genomic studies (see Stewart et al. 2005, Liu et al. 2008). That work affects the New Zealand taxa as follows (new names given in bold):

Australopyrum

Australopyrum enysii (Kirk) Connor is removed and placed within *Stenostachys* as ***S. enysii* (Kirk) Barkworth et S.W.L.Jacobs**. The New Zealand endemic *Australopyrum calcis* is retained but the subspecies (subsp. *calcis* and subsp. *optatum*) are rejected without explanation. While the move of *Australopyrum enysii* to *Stenostachys* makes morphological sense, and accords with my own unpublished nrDNA ITS data set (P. J. de Lange, J.K. Keeling & R.C. Gardner, unpubl. data), the rejection, without explanation, of the two subspecies of *A. calcis* is something I recommend is not followed in New Zealand until the exact basis for that reasoning is given. In my view, morphologically, the two subspecies as recognised by Connor et al. (1993) are clearly distinguishable.

Stenostachys

The acceptance of *Stenostachys* comes as a slight surprise considering other agrostologists (R.A. Soreng, pers. comm.) are rather dubious about its distinctiveness. Nevertheless its acceptance accords with current New Zealand Botanical thinking. The placing of *Australopyrum enysii* (see Connor 2005) in *Stenostachys* as ***S. enysii* (Kirk) Barkworth et S.W.L.Jacobs** also seems to make sense in relation to cytological and, admittedly limited, DNA sequence data available for that uncommon species.

Elymus

None of the New Zealand species accepted as *Elymus* are retained in that genus. Barkworth & Jacobs (2011) recognise two genera: ***Anthosachne*** (a move foreshadowed by others - notably the Chinese agrostologists C. Yen and J.L. Yang (alas written in literature this monoglot simply cannot read!)) and a new monotypic genus of New Zealand ***Connorochloa*** (the epithet honouring Dr Henry E. Connor FRSNZ whom the paper notes completely rejects the basis for this genus's recognition!). ***Connorochloa*** is where the somewhat anomalous *Elymus tenuis* (Buchanan) Á.Löve et Connor has been placed as its sole member, ***C. tenuis* (Buchanan) Barkworth, S.W.L.Jacobs, et H.Q.Zhang**. The recognition of this genus was already strongly hinted at by Oliver et al. (2011). ***Anthosachne*** is used for all the remaining *Elymus* species present in New Zealand (including the exotic *E. scaber*) as follows:

***Anthosachne aprica* (Á.Löve et Connor) C.Yen et J.L.Yang**

≡ *Elymus apricus* Á.Löve et Connor

***Anthosachne falcis* (Connor) Barkworth et S.W.L.Jacobs**

≡ *Elymus falcis* Connor

Anthosachne multiflora* (Hook.f.) C.Yen et J.L.Yang subsp. *Multiflora

≡ *Triticum multiflorum* Hook.f.; *Agropyron multiflorum* (Hook.f.) Cheeseman; *Agropyron kirkii* Zotov; *Agropyron multiflorum* var. *longisetum* Hack.; *Agropyron kirkii* var. *longisetum* (Hack.) Zotov; *Elymus multiflorus* var. *longisetus* (Hack.) Á.Löve et Connor; *Elymus multiflorus* (Hook.f.) Á.Löve et Connor subsp. *Multiflorus*

***Anthosachne sacandros* (Connor) Barkworth et S.W.L.Jacobs**

≡ *Elymus sacandros* Connor

***Anthosachne scabra* (R.Br.) Nevski**

≡ *Triticum scabrum* R.Br.; *Agropyron scabrum* (R.Br.) P.Beauv.; *Vulpia scabra* (R.Br.) Nees; *Elymus scaber* (R.Br.) Á.Löve; *Roegneria scabra* (R.Br.) J.L.Yang et C.Yen; *Anthosachne australasica* var. *scabra* (R.Br.) C.Yen et J.L.Yang

***Anthosachne solandri* (Steud.) Barkworth et S.W.L.Jacobs**

≡ *Triticum solandri* Steud.; *Elymus solandri* (Steud.) Connor

It remains to be seen if Landcare Research adopts these new genera and/or combinations (see Nga Tipu o Aotearoa <http://nzflora.landcareresearch.co.nz/>). Nevertheless the basis for these changes and/or reinstatements of *Triticeae* genera seems to be firmly rooted in detailed studies of the *Triticeae* genome (see <http://herbarium.usu.edu/Triticeae/genomes.htm>) and considering the significance of this as the basis for taxonomic revision of the *Triticeae* (see Connor 1994; Connor 2005; Oliver et al. 2011), the work is not easily ignored. Nevertheless, of the genera treated by Barkworth & Jacobs (2011), ironically, the authors only express some slight reservations about the only genus they themselves describe as new within the paper *Connorochloa*! Though, in this case, the concern is not about the genus, but rather whether it is truly monotypic.

References

- Barkworth, M.E.; Jacobs, S.W.L. 2011: The *Triticeae* (*Gramineae*) in Australasia. *Telopea* 13: 37-56.
- Connor, H.E. 1994: 1994: Indigenous New Zealand *Triticeae*: *Gramineae*. *New Zealand Journal of Botany* 32: 125-154.
- Connor, H.E. 2005: Flora of New Zealand – Gramineae Supplement II: Pooideae (Poeae, Triticeae). *New Zealand Journal of Botany* 43: 493-507.
- Connor, H.E.; Molloy, B.P.J.; Dawson, M.I. 1993: *Australopyrum* (*Triticeae*: *Gramineae*) in New Zealand. *New Zealand Journal of Botany* 31:1-10
- Liu, Zp; Chen, Sy; Pan, J; Li, Xf, Su M; Wang, Xf; Li, Xf; Liu, Gs 2008: Phylogenetic relationships in *Leymus* (Poaceae: *Triticeae*) revealed by the nuclear ribosomal internal transcribed spacer and chloroplast trnL-F sequences. *Molecular Phylogenetics and Evolution* 46: 278-289.
- Oliver, A.G.; Harnish, K.; Sun. G. 2010: Genomic constitution and phylogenetic position of several New Zealand *Triticeae* species revealed by two single copy nuclear genes. *Australian Systematic Botany* 59: 1-6.

On-line bookshop

For the information of new members of the Network (and a reminder to other members), the Network has a number of publications available for purchase on-line. Members may purchase them at a significant discount. To do this you must go to the website (www.nzpcn.org.nz) login and then go to “Visit the Network Shop” on the left hand side menu. The prices you will then see are the discounted ones. Among the popular publications currently are: *New Zealand Vascular Plant Checklist 2010*, *Introduction to Plant Life in New Zealand* and, of course, *Threatened Plants of New Zealand*.

Review of the National Plant Accord list

MAF is now formally starting the review of the National Pest Plant Accord list. The focus of this review is on considering applications to add species to or remove them from the list rather than a complete, independent review of all of the species currently on the Accord list.

Please see the following links to information on the process for adding to or removing species from the Accord:

- Overview of process for amending the NPPA list (see webpage: <http://www.biosecurity.govt.nz/pests-diseases/plants/accord/amending-list.htm>)
- The webpage includes links to the application form (<http://www.biosecurity.govt.nz/files/pests/plants/nppa/nppa-proposal-form.doc>) and evaluation criteria (<http://www.biosecurity.govt.nz/pests-diseases/plants/accord/tag-criteria.htm>) to help guide applicants.

The submission period is open until 5.00 p.m. on Friday 29 April. Submissions should be sent to the NPPA Coordinator at nppa@maf.govt.nz. If you have any queries please contact the NPPA Coordinator (Katherine Garnett) on the NPPA e-mail address.

Feel free to circulate this through your networks.

Remarkable discoveries of kakabeak in the Mohaka and Waiau River valleys

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Clianthus maximus.
Photo: Peter de Lange.

In November 2010, Pete Shaw, working for Simon Hall under the auspices of the Forest Life Force Restoration Trust, discovered three previously unrecorded plants of *Clianthus maximus* (kakabeak or ngutukaka) beside the Mohaka River. He found them by hiking upstream during the flowering season, near the village of Kotemaori, and spent several hours scanning the cliffs above the river that were inaccessible to goats.

Kakabeak is commonly found in gardens but, with fewer than 120 individual plants now known from the wild, it is one of New Zealand's most threatened species. That makes these recent discoveries all the more important for conservation of the species. Also occurring in the river valley on the rocky outcrops were the rare native plants *Pimelea longifolia* and *Scandia rosifolia* and a meadow of Mexican daisy—an exotic weed—growing in the river gravels.

In December 2010, the Mohaka plants were revisited in an RNZAF Iroquois in an attempt to recover plant material for propagation. Gareth Boyt of the Department of Conservation's Rangataiki Area Office was carried on the end of a 60 m winch cable. As well as retrieving material from two plants for propagation at a nursery in Napier, Gareth also spotted yet another kakabeak close to the others bringing the number of new plants found in the Mohaka in 2010 to four.



Pete Shaw above the Mohaka River.

To date, seven kakabeak have been found by the Trust team, four on bluffs near the Mohaka River and another three on bluffs near the Waiau River, Hawke's Bay. In addition, another plant was re-found near the Waiau River in 2008 by Willie Shaw and Pete Shaw following up on Willie's initial discovery of a plant there 1983. Currently, 48 seedlings sourced from the Waiau plants are planted out in a purpose-built enclosure at Simon Hall's Maungataniwha Native Forest property, with another 150 plants under propagation at nurseries in Napier.



Pete Shaw hiking up the Mohaka River.

The Forest Life Force Restoration Trust has also gathered seed over two seasons from *Pittosporum turneri* at Pohokura, near the Napier-Taupo Highway. The seed have been propagated at the Taupo Native Plant Nursery and, currently, over 10,000 seedlings are under propagation there. This has been a direct result from intensive possum control work undertaken at Pohokura.

As well as this significant plant species recovery work, the Trust has initiated a kiwi restoration project at Simon Hall's Maungataniwha Native Forest property and, after four seasons, this project has returned 36 kiwi chicks to the Cape Kidnappers and Ocean Beach Wildlife Preserve, along with 35 kiwi chicks released back into the wild at the Maungataniwha Native Forest.

New location for endangered moss

Peter J. de Lange, Department of Conservation (pdelange@doc.govt.nz)

Fissidens with 34 representatives currently known to be present in New Zealand is the largest contributing moss genus in the country (Beever 1999; J.E. Beever, pers. comm.). The genus is very distinctive with its members easily recognised by the arrangement and structure of their leaves. These, as noted by Beever et al. (1992), are aligned in two rows flattened into one plane, so that each stem resembles a small fern. Understandably, as *Fissidens* spp. are numerous, morphologically plastic, and superficially similar looking plants, the genus as a whole has had a complex taxonomic history. However, an excellent illustrated key is available (Beever et al. 2002) and the genus will be treated in detail in the upcoming 'Flora of New Zealand, Mosses' being prepared by Landcare Research.



Figure 1. *Fissidens rigidulus* var. *rigidulus*, Te Pahi. Probably the most widespread and common *Fissidens* moss seen in streams and waterways throughout New Zealand. Photo: Jeremy Rolfe.

Ecologically, *Fissidens* is an important group of mosses in New Zealand; taxa such as *Fissidens asplenioides*, *F. leptocladus*, *F. pallidus*, *F. rigidulus* var. *rigidulus* (Fig. 1) and the naturalised *F. taxifolius*, are common and an important component of the groundcover on bare soil, slopes, banks, stream sides and water courses, as well as in urban areas in many parts of New Zealand. With such a large genus, it also stands to reason that some *Fissidens*, such as *F. anisophyllus*, *F. berteroi*, *F. integerrimus*, *F. oblongifolius* var. *oblongifolius* (Fig. 2), *F. perangustus* and *F. strictus*, seem to be genuinely scarce and/or threatened (see Beever 1995, 1996; Beever & Stone 1992, 1998).



substrate. This is a useful character diagnostic of members of the *Fissidens oblongifolius* group. Photo: Jeremy Rolfe.

Figure 2. *Fissidens oblongifolius* var. *oblongifolius*, North Cape. Long regarded as uncommon and ranked as "Data Deficient" by the New Zealand moss panel. We now know that this is the dominant moss within the serpentinite exposure at North Cape. In this image the fronds are just starting to dry out, in doing so note how they curl away from the

Of the uncommon species, *F. berteroi* (Fig. 3), a fully aquatic species, is also probably the best known threatened moss in New Zealand on account of its large size, ease of recognition and the fact that numerous populations have recently (i.e. since 2005) been discovered in the Auckland urban area (de Lange 2005, 2008; de Lange et al. 2009), around Masterton and in urban Wellington (Perrie 2010), as well as on the Chatham Islands (Fife & de Lange 2008; de Lange et al. 2009). Field work at North Cape between 2009 and 2011 (see de Lange et al. 2011) has now confirmed that this area is, indeed, as indicated by Beever & Stone (1998), the national stronghold of *F. oblongifolius* var. *oblongifolius* (Fig. 2), which despite its scarcity elsewhere in the New Zealand Botanical region (see comments by Beever & Stone 1998) rates as one of the most abundant mosses on the ultramafics of North Cape (Fig. 4), growing there in a range of habitats quite out of character with those usually seen elsewhere in New Zealand (see Beever & Stone 1998; Beever et al. 2002).



Figure 3. *Fissidens berteroi*. Probably the best known threatened moss in New Zealand. This distinctive *Fissidens* is now known to be locally common in some waterways within Auckland City, Masterton and Wellington. Photo: Peter J. de Lange.



Figure 4. *Fissidens oblongifolius* var. *oblongifolius* forming an almost pure moss sward along the ravine walls, serpentinite blocks and tree trunks within “Todea Hall”, Surville Cliffs Plateau. Photo: Jeremy Rolfe.



Figure 6. *Fissidens integerrimus*. Rehydrated and photographed 2011, c. 20 years after it was collected north of Auckland. Photo: Jeremy Rolfe.

Two species, *Fissidens integerrimus* and *F. strictus* sit on the scarce end of the abundance spectra within the New Zealand flora (Beever 1995; Beever & Stone 1992; Beever et al. 2002). Both occupy stream and waterfall habitats where they may be fully or partially submerged, or present within the splash zone. Despite the plethora of such habitats throughout New Zealand, neither is common. At the time of writing, *F. strictus* (Fig. 5) is still known from only four sites, three in North Auckland and the other, inexplicably, on the Auckland Islands (Beever 1995). While this huge disjunct simply screams out as a collecting anomaly, I can vouch that despite crawling up many apparently suitable streams, and being showered in waterfalls throughout the country I have yet to even see this—for a *Fissidens*—distinctive species! Although *F. strictus* should occur elsewhere in New Zealand, it does also seem to be genuinely scarce, meaning that its perceived



Figure 5. *Fissidens strictus*. Rehydrated and photographed 2011, c. 20 years after it was collected north of Auckland. Photo: Jeremy Rolfe.

Fissidens integerrimus (Fig. 6) also seems to be genuinely scarce (Beever & Stone 1992; Beever et al. 2002), though it is not, like *F. strictus*, especially distinctive in the field, resembling a diminutive *F. rigidulus*, a species with which it often grows, and from which it is chiefly distinguished by its generally smaller size (5–15 mm long cf. 10–120 mm long in *F. rigidulus*), and the lack of prominent leaf border. Beever et al. (2002) knew it only from North Auckland where four populations occur spanning from Kerikeri and Puketi south to the Waitakere Ranges. Nevertheless Beever & Stone (1992; p. 245—my emphasis in bold) observed that: “Being small, dark, and frequently submerged, this moss is inconspicuous; it is **likely to be much more widespread in New Zealand than its present known distribution indicates**”.

In May 2008, that observation proved correct when I found another *Fissidens integerrimus* population growing on Rangiauria (Pitt Island) in the Chatham Islands group in the Waipapaku Waterfall at Second Water (de Lange et al. 2009). All these populations occur in streams often within and around waterfalls with plants growing on basalt or basaltic andesite rocks in streams flowing either through forested or through highly modified indigenous vegetation. Unlike *F. strictus*, which seems to prefer very fast moving, clean water within intact indigenous vegetation, *F. integerrimus* seems more tolerant of exposure and water quality.

During February 2011, I participated in an on-going field survey of North Cape (see de Lange et al. 2011) during which our party traversed the Whiriwhiri Stream. This stream is one of the larger streams draining the gabbro country south and east of the serpentinite area.

The Whiriwhiri Stream is, by Te Pahi standards, a veritable gem of a waterway covering a range of habitats from forested cobble stream bed to deep stream canyons, complete with waterfalls and plunge pools. Unfortunately, our traverse came late in the day and, with daylight lessening, we had to move quickly up the stream to reach the old North Cape Road before nightfall. Thus, mosses and

liverworts tended to be low on the list of botanical priorities and were only being randomly gathered while waiting for members of our field party to catch up. So it was, that while waiting in one area, I gathered a range of submerged mosses growing on gabbro rock under a small waterfall. These included what I recognised as *F. rigidulus* var. *rigidulus* and *Thamnobryum pandum*. Associated with these larger mosses was a smaller, blackish green moss growing completely immersed in the fastest flowing section of the waterfall. This moss “looked” for the entire world like *F. integerrimus* but knowing that species only from a chance find on the Chatham Islands I wasn’t that keen to push the idea without getting a second opinion. That second opinion came when I handed the gathering to Jessica Beever in early March. She examined the collection and soon confirmed that it was, indeed, *F. integerrimus*. In this case, I have no idea of the exact abundance of the plant and a further survey of the Whiriwhiri Stream is definitely needed. However, from my limited recollection, I certainly didn’t think it was that common there.

The discovery, nevertheless, brings to six the known locations where this uncommon moss has now been found in New Zealand, a distribution which, aside from the Chathams, still ties this species to North Auckland. I can also advise that while mosses may not be your thing, you may want to consider more carefully the little plants you are standing on next time you walk up a stream in New Zealand. *Fissidens* are easily recognised and logic dictates that both *F. integerrimus* and *F. strictus* just have to be more common than current herbaria evidence suggests.

Acknowledgements

I’d like to thank Jessica Beever for checking my North Cape moss gatherings and determinations and commenting on a draft of this short note. I remain grateful, too, for the company of my colleagues in the North Cape surveys, namely Andrew Townsend, Janeen Collings and Jeremy Rolfe, all of whom have had to endure grovelling in narrow stream ways, crawling up ravines and cliff faces and burrowing under scrub—taken to places where I have often demanded one of them had to come see a small piece of green fuzz and then take its photograph!

References

- Beever, J.E. 1995: Studies of *Fissidens* (Bryophyta : Musci) in New Zealand : *F. strictus* Hook.f. & Wils. and *F. berteroi* (Mont.) C.Mull. *New Zealand Journal of Botany* 33: 291–299.
- Beever, J.E. 1996: Studies of *Fissidens* in New Zealand: *F. blechnoides* sp. nov. and *F. anisophyllus* Dix. *Journal of Bryology* 19: 257–266.
- Beever, J.E. 1999: Studies of *Fissidens* in New Zealand: a synopsis and key to taxa. *New Zealand Journal of Botany* 37: 659–670.
- Beever, J.E.; Stone, I.G. 1992: Studies of *Fissidens* (Bryophyta: Musci) in New Zealand: *F. taxifolius* Hedw. and *F. integerrimus* Mitt. *New Zealand Journal of Botany* 30: 237–246.
- Beever, J.; Allison, K.W.; Child, J. 1992: The mosses of New Zealand. Second Edition. Dunedin, University of Otago Press.
- Beever, J.E.; Stone, I.G. 1998: Studies of *Fissidens* (Bryophyta: Musci) in New Zealand: Section *Amblyothallia*. *New Zealand Journal of Botany* 36: 71–90.
- Beever, J.E.; Stone, I.G. 1999: Studies of *Fissidens* (Bryophyta: Musci): new taxa and new records for New Zealand. *New Zealand Journal of Botany* 37: 643–657.
- Beever, J. Malcolm, B.; Malcolm, N. 2002: The moss genus *Fissidens* in New Zealand – an illustrated key. Nelson, Micro-Optics Press.
- de Lange, P.J. 2005: Threatened aquatic moss found in an eel tank! www.nzpcn.org.nz/news_detail.asp?status=3&ID=45 (accessed 31 March 2011).
- de Lange, P.J. 2008: More surprise finds of *Fissidens berteroi* in Auckland City. www.nzpcn.org.nz/news_detail.asp?status=3&ID=177 (accessed 31 March 2011).
- de Lange, P.J.; Fife, A.J.; Beever, J.E. 2009: The mosses of the Chatham Islands. www.chathams.co.nz/content/view/239/116/ (accessed 31 March 2011).
- de Lange, P.J.; Collings, J.; Townsend, A.; Rolfe, J. 2011: Surville Cliffs kohuhu (*Pittosporum serpentinum*) survey (field seasons 2009 & 2010). *Trilepidea* 87: 3–5.
- Fife, A.J.; de Lange, P.J. 2008: Mosses. Pp. 108–109. In: Miskelly, C. (ed.). *Chatham Islands: heritage and conservation*, 2nd edition. Christchurch, Canterbury University Press.
- Perrie, A.C. 2010: The aquatic moss *Fissidens berteroi*: observations of habitat characteristics from populations in the Wellington region. *Wellington Botanical Society Bulletin* 52: 75–81.

The Network becomes a member of the Global Partnership for Plant Conservation

The Network has now become a member of the Global Partnership for Plant Conservation. This partnership is made up of a diversity of groups working in different areas for plant conservation, such as protected areas, species, botanic gardens, agricultural biodiversity, forestry, wetlands, etc. It brings together international, regional and national organisations to support worldwide implementation of the Global Strategy for Plant Conservation. Its objectives are:

- to provide a framework to facilitate harmony between existing initiatives aimed at plant conservation;
- identify gaps where new initiatives are required; and
- promote mobilization of the necessary resources.

The Partnership represents a voluntary commitment by participating organisations to the GSPC. The functions of the partnership include, to:

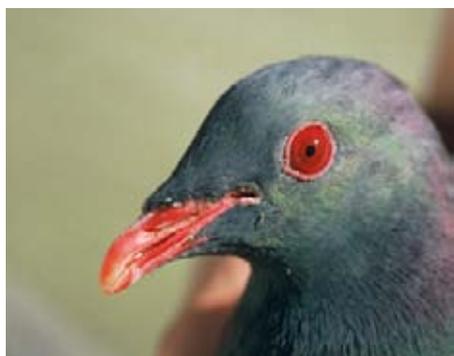
- support the Executive Secretary of the Convention on Biological Diversity, the Parties and the flexible coordination mechanism for the Global Strategy for Plant Strategy to implement the strategy and help monitor progress in the achievement of the 16 outcome targets;
- promote implementation of the Global Strategy for Plant Conservation through the activities and initiatives of its participating organizations, other partners and associated networks;
- support the development of collaborative initiatives amongst its members in support of the achievement of the GSPC targets;
- support the development and implementation of national and regional strategies for plant conservation and strengthen integration of the elements and targets of the GSPC into sectoral and institutional programmes and initiatives;
- stimulate, encourage and support the development of national partnerships for plant conservation;
- assist in the development and dissemination of relevant models with protocols for plant conservation, best practices and case studies and provide relevant scientific and technical tools where available, for the implementation of the GSPC;
- participate in the flexible coordination mechanism of the GSPC as established by the CBD Executive Secretary;
- establish a web-based portal on the plant conservation activities of its members worldwide, as a resource for interaction and communication between initiatives and organisations active in plant conservation, working in close collaboration with the Clearing House Mechanism of the CBD;
- identify gaps where new initiatives are required;
- support capacity building initiatives for plant conservation especially in developing countries;
- facilitate education and public awareness on plant conservation and the Global Strategy for Plant Conservation;
- maximise and mobilise existing and new resources to support the implementation of the Strategy at all levels.

For more information about the Global Partnership see:

- [GPPC - Plants 2010](#)

Bird loss limits recruitment of New Zealand's large-seeded trees

The widespread extinction of fruit-eating birds (frugivores) was always thought to potentially limit regeneration and dispersal options for fleshy-fruit producing plants, but only now has the link been proven.



In research recently published in the prestigious journal *Proceedings of the Royal Society B*, researchers Debra Wotton (Landcare Research) and Dave Kelly (University of Canterbury) have established the serious consequences for plants of the breakdown in this ecological partnership.

Drs Wotton and Kelly used an experimental approach to show that two large-fruited [native](#) tree species ([taraire](#) and [karaka](#)) are seriously affected by reduced bird densities, with regeneration over two years falling by 57–84%. Bird dispersal not only gave better [seedling](#) growth and survival, but also

protected seeds and seedlings from predatory introduced mammals. This shows that protecting birds is important for the conservation of forest plants. At the research sites (one near Auckland and the other near Whangarei), dispersal of both species depended on a single frugivore and many fruits remain uneaten.

“This research demonstrates the importance of seed dispersal for local plant population persistence and validates concerns about the consequences of frugivore declines”, Dr Wotton said. The research demonstrated that trees with large-fruits (> 14 mm wide) lost most of their progeny unless the fruits both passed through a bird and established well away from the parent plant. Such massive regeneration failure limits the ability of these trees to respond to changing environments.

Although declines of large-bodied frugivores are well documented, the effects on plant recruitment have rarely been demonstrated and remain poorly quantified. At one extreme, dispersal failure might prevent regeneration completely, leaving forests full of ‘living dead’ adult trees and eventually, depending on tree longevity, lead to the collapse and [successional](#) replacement of mature forest stands. However, because plant regeneration is sometimes surprisingly robust in the face of disperser loss, Drs Wotton and Kelly wanted to determine the specific mechanisms and effects for any potential declines in tree regeneration. For more information: Dr Debra Wotton, Landcare Research (e-mail: wottond@landcareresearch.co.nz; ph: 03 321 9605).

UPCOMING EVENTS

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

XVIII International Botanical Congress

Melbourne 23–30 July: Probably the cheapest option for New Zealanders to ever be able to attend this international event. Registrations are now open

See: www.abc2011.com/news/Issue3-1.htm for further details.

Conservation Biology Conference 2011

Change of venue and dates: as a result of the 22 February earthquake that damaged much of Christchurch, including the Convention Centre, the ICCB conference 2011 has had to be shifted to Auckland with a consequential change of dates. The conference will now be held 5-9 December 2011 at the Sky City Auckland Convention Centre.

SCB is now accepting abstracts for oral, poster, and speed presentations for the 25th International Congress for Conservation Biology (ICCB 2011), *Engaging Society in Conservation*. Please visit: www.conbio.org/Activities/Meetings/2011/register/abstracts.cfm, abstracts must be submitted electronically by 30 April 2011.

Please visit: (www.conbio.org/2011) for the most current information on the meeting. We will update it regularly over the next few weeks to bring you the latest information on the venue, accommodation, conference trips, social events, and more.

People, Plants & Parks Conference 2011

Conference: Wednesday 18 – Friday 20 May. The conference theme is *Sharing Knowledge, Valuing Your People, Securing the Future*. **Venue:** Museum of New Zealand Te Papa Tongarewa, Wellington.

Information: www.nzrecreation.org.nz/Default.aspx?section=parks

The Global Partnership for Plant Conservation conference

Conference: Tuesday 5 July – Thursday 7 July. The conference theme is *Supporting the worldwide implementation of the Global Strategy for Plant Conservation*. **Venue:** Missouri Botanical Garden, St Louis, Missouri, U.S.A.

Information: www.mobot.org/gppc2011/ or e-mail: gppc2011@mobot.org

Auckland Botanical Society

Meeting: Wednesday 4 May at 7.30 p.m. a talk by Mike Wilcox titled 'The Order Asparagales'. **Venue:** Unitec School of Health Sciences, Gate 4, Building 115. Room 2005.

Contact: Maureen Young, e-mail: youngmaureen@xtra.co.nz.

Field trip: Saturday 21 May to Pakiri swamp forest/estuary/beach.

Contact: Maureen Young, e-mail: youngmaureen@xtra.co.nz.

Waikato Botanical Society

Field trip: Saturday 14 May a working bee in the threatened plant garden. Bring gloves, old clothes and boots for weeding, planting and propagating. **Meet:** 11.00 a.m. at Waikato University Gate 9, Hillcrest Rd, or down the hill at the glasshouses compound.

Contact: Liz Overdyck, ph: 07 825 9743, e-mail: eg3@waikato.ac.nz

Rotorua Botanical Society:

Field trip: Sunday 1 May to Mountforts' QEII covenant, Manawahe. **Meet:** The car park, Rotorua at 8.30 a.m. or 9.30 a.m. at 583 Herepuru Rd, Matata. **Grade :** medium.

Leader: Jo Bonner, ph: 07 308 0411, e-mail: spinifex@naturallynative.co.nz

Wanganui Museum Botanical Group

Field trip: Saturday 30 April to Parikino swamp forest, Whanganui River Road. Mostly easy walking; paddling optional. **Meet:** Police Station 9.00 a.m.

Leader: Clare Ridler.

Meeting: Tuesday 3 May a talk by Rudolf Schulz titled *Brachychiton*. **Venue:** Museum's Davis lecture theatre.

Contacts: Robyn and Colin Ogle, ph: 06 347 8547, e-mail: robcol.ogle@xtra.co.nz

Wellington Botanical Society

Field trip: Saturday 7 May to Otari-Johnston Hill Reserve. **Meet:** 9.40 a.m. at Otari gate next to Wilton Bowling Club driveway.

Co-leaders: Chris Horne, ph: 475 7025, 027 474 9300, Barbara Mitcalfe, ph: 475 7149.

Meeting: Monday 16 May a Members' evening with your slides and an auction of natural history books followed by a talk by Emilie-Fleur Dicks titled 'A happy partnership—the cellular mechanisms that support coral-algal symbiosis'.

Venue: lecture theatre MYLT101, 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 15 May to Carluke Scenic Reserve. **Meet:** at Selwyn Place between the church steps and the large gum tree at 9.00 a.m. or at the junction of SH6 and the road to French Pass (just before Rai Valley township going from Nelson) at 9.50 a.m.

Leader: Richard Brown, ph: 03 546 9922.

Meeting: Monday 16 May at 7.30 p.m. a talk by Geoff Ridley, author of "A Photographic Guide to Mushrooms and other Fungi of New Zealand". **Venue:** Jaycees Room in Founders Park, Nelson.

Contact: Cathy Jones, ph: 03 546 9499, e-mail: jonesc@doc.govt.nz

Canterbury Botanical Society

Meeting: Friday 6 May at 7.30 p.m. talks by the two 2010/11 Student Grant recipients, Lizzie Wandrag and Ellen Cieraad. **Venue:** room A5, Canterbury University.

Contacts: Miles and Gillian Giller, ph. 03 313 5315.

Field trip: Saturday 14 May to Orton Bradley Park (to be confirmed)

Contacts: Miles and Gillian Giller, ph: 03 313 5315.

Botanical Society of Otago

Meeting: Wednesday 27 April at 5.20 p.m. the AGM and Photographic Competition. Entries will be on display. **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. Please be prompt as we have to hold the door open.

Contact: [David Lyttle](#),
ph: 03 454 5470.

Field Trip: Saturday 7 May a Fungal Foray to Te Anau (Kepler Track Rainbow Reach to Motorau Hut). **Start:** 900 a.m. at the Botany Department car park. Numbers may be limited so please contact the trip leader by Friday 29 April.

Contact: [David Orlovich](#),
ph: 03 479 9060.

Meeting: Wednesday 11 May at 12.00 noon a talk by Jess Yardley titled 'An investigation into the symbiosis of *Pseudocyphellaria crocata*'. **Note:** special time and venue: Union St Lecture Theatre, cnr Union St West and Great King St.

Contact: [Trish Fleming](#),
ph: 03 479 7577.

Meeting: Wednesday 18 May at 5.20 p.m. a talk by John Barkla of DOC titled 'Botany of the North Hector Range'. **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. Please be prompt as we have to hold the door open.

Contact: [Allison Knight](#),
ph: 03 479 7577.

Meeting: Wednesday 25 May at 12.00 noon a talk by Dr Ralf Rautenberger, DGF Postdoctoral Fellow, Dept of Botany, University of Otago, titled 'Antioxidative strategies of intertidal macroalgae to radiation stress'. **Note:** special time and venue: Union St Lecture Theatre, cnr Union St West and Great King St.

Contact: [Trish Fleming](#),
ph: 03 479 7577.
