



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

E-NEWSLETTER: No 86. JANUARY 2011

Deadline for next issue: Tuesday 15 February 2011

Guest Message from a Council Member

Habitat Profiling versus Serendipity

One of the satisfying aspects of being a plant ecologist is gradually attaining a degree of familiarity with our indigenous flora and thus be able to build up a habitat profile for each species to the extent that it is possible to predict where in the landscape individual species might grow. This is a very useful skill for anyone, such as myself, in the job of threatened plant management. It draws on disciplines such as biogeography, geomorphology, geology, soil science and hydrology to name a few, to provide the building blocks that contribute towards each species' habitat—the collective reason why species are patterned in the landscape the way they are.

How many times have field botanists, arriving at a particular site, have presciently thought “this is where such and such a species should be”, just before actually finding it there? This surely must be habitat profiling at work at the subconscious level.

The challenging task of successfully surveying for nationally threatened or data-deficient species—which are often very localised and sparsely dispersed over large areas—one is spared the realm of impossibility by being able to construct a habitat profile for each target species and, using this, to “telescope” into parts of the landscape that have a similar set of attributes. Obviously, trawling the botanical literature and visiting known sites for the target species are two of the best ways to create and build the profile; attributes such as altitude, slope, aspect, exposure to sun/frost, shadiness, landform, micro-topography, substrate, geology, hydrology, disturbance regime and plant associates are all important components of the profile and are often not recorded on herbarium labels. Also, with the advent of mapping software and digitised aerial photographs, topomaps, and maps of geology, vegetation cover and climate, these have become tools with which to remotely assimilate attributes of the landscape to identify possible sites for survey, at least at a meso-scale.

By way of example, our enigmatic moonwort (*Botrychium* aff. *lunaria*), a nationally critical fern of alpine marble, was habitat profiled as a precursor to dedicated surveys. Rediscovered in December 1980 by members of the Wellington Botanical Society (see the recently digitised vols 15 and 18 of *Canterbury Botanical Society Journal* on the Network website!) after nearly 100 years of elusion, it was found growing amongst turf in a marble sink-hole on the summit of Hoary Head in North-West Nelson. Closer study of this habitat, and that of a subsequently discovered population on Mt Owen massif, revealed that the accumulated snow in the dolines is required to lie long enough to inhibit the establishment of tall grasses and shrubs and promote the development of low turf vegetation. Being only 5 cm high, moonwort can't abide anything higher than it; *Coprosma atropurpurea*, in particular, appears to be a good host. The

CURRENT FORUM THREADS

- How can one get rid of *Selaginella kraussiana* without killing the grass in which it is found?
- Eastern cottonwood, *Populus deltoides*, has been found naturalising in the Whangarei District on the banks of the Hatea River, Parihaka. Does anyone know of other sites?

PLANT OF THE MONTH – *MELICYTUS FLEXUOSUS*



Melicytus flexuosus. Photo: John Barkla.

Plant of the month for January is *Melicytus flexuosus*. This is a divaricating shrub that can reach 5 m tall with dark interlacing, almost leafless branches. The sparse linear shaped leaves are dark green or brown-green, on branches pitted with tiny white spots. Strongly perfumed, the pale yellow flowers appear in August to November and make this plant a worthwhile addition to your garden. Unfortunately, *M. flexuosus* is not often commercially available, but seems to grow well in gardens with conditions similar to where it is found in the wild.

Melicytus flexuosus is endemic to New Zealand, widespread throughout the South Island but restricted to the Pureora-Taihape region in the North Island. It is usually found on fertile alluvial terraces and flood plains in sites prone to heavy frosts and summer drought, often on forest margins and amongst scrub in frosty hollows. The Network fact sheet for *M. flexuosus*

can be found at: www.nzpcn.org.nz/flora_details.asp?ID=179

marble substrate provides very sharp drainage and, most likely, free calcium. Also, moonwort is fugacious—its single sterile frond and occasional fertile frond lasting above ground, at most, for only 4 months. So, in this case, geology, landform, altitude, aspect, hydrology, snow-lie, vegetation structure, species composition and phenology all contributed towards creating an ecological profile with which to constructively survey for moonwort. The alpine marblelands of Mt Arthur and Mt Owen massifs were subsequently scrutinised by aerial photos for this particular profile. Candidate areas were then surveyed during the summer months over a number of seasons. As a result, several new populations have been discovered on Mt Owen. Of course, this is an iterative process, with each newly discovered locality providing information that further refines the habitat profile.

For some species, their habitats have been so well-prescribed that I have been able to use their habitat profiles to hypothesize possible regional extinctions of species where there are no historic records. Two examples of this are the threatened small-leaved trees, *Coprosma pedicellata* (nationally vulnerable) and *Pittosporum obcordatum* (declining). Both these species have a large latitudinal range, from Southland to Gisborne for *C. pedicellata*, and from Southland to Northland for *P. obcordatum*. Both have similar habitat profiles being confined to active flood plains especially associated with recent landforms such as levees, backwaters, blind depressions and cut-off meanders. They are subject to flooding and silt deposition and successful recruitment appears to require such events. They tolerate water-logging, seasonal drought and severe frosts, often growing in temperature inversion basins with other small leaved and deciduous tree and shrub species.

The curious thing about their distribution though, is that neither has ever been recorded from the northern South Island despite the Nelson/Marlborough regions being within their ranges and, at least historically, both regions supporting extensive floodplain forests with the requisite habitat profile. Years of opportunistic surveys of alluvial forest remnants in these regions proved fruitless

because, unfortunately, the species' specific habitat requirements appeared to have been lost. I deduced that originally *C. pedicellata* and *P. obcordatum* almost certainly occurred in the northern South Island but, after failing to discover them, eventually came to the disappointing conclusion that they had probably become regionally extinct through early and thorough destruction of their floodplain habitat before their presence could be documented.

So you can imagine my surprise in late 2009 when I got the following text from Nelson plant ecologist Philip Simpson:

“Hi Shannel, attached are three photos of *P. ob.* - your call please! It is a single 4–5-m tree in cold wet frost flat river terrace on the true right Owen River, growing with needle-leaf tōtara, ribbonwood, *Hoheria angusifolia*, and *Melicytus flexuosus*. An amazing place, privately owned, stock damaged, but the owner protects it. I'm not sure whether the *P. ob* is known. Can you tell me? This stuff is research for my book so I need to get it right! Cheers, Philip”.



Pittosporum obcordatum. Photo: Jeremy Rolfe.

And there, in the photos, was the heart-leaved foliage and the hexagonal branch divarications of *P. obcordatum*! I felt vindicated. As it happened, Philip and a colleague, Roger Frost, were studying a site north of Murchison recommended by Roger as having a particularly good population of needle-leaved tōtara (*Podocarpus acutifolius*) for Philip's book on tōtara. They had chanced upon a single tree of *P. obcordatum* at the end of the day, attracted to it by its distinctive architecture.

A subsequent survey of the site with Philip, revealed 12 additional adults but, just as importantly, a habitat that had a profile perfectly matched for this species! Here were the recent alluvial surfaces with levees and depressions forged from flood events; the forest remnant was bristling with small-leaved divaricates and a deciduous tree canopy and situated in a particularly cold part of a basin which experiences harsh frosts. It had been spared clearance by the grace of the current and previous owners. The site has been since recognised as one of the best ecosystems of its type in the northern South Island.

Incidentally, the type locality for *Pittosporum obcordatum* is Akaroa, where it was first discovered by Raoul in 1840, and named by him six years later. But it has never been found on Banks Peninsula since, making Back Valley, in eastern Fiordland 460 km to the south, the closest South Island population to the newly discovered Owen River site!

It just goes to show that although habitat profiling is a useful tool, the capricious hand of serendipity also has a large bearing on the discovery of new populations of rare plants. Hopefully, it will be only be a matter of time before *C. pedicellata* turns up in the northern South Island in similar circumstances.

Shannel Courtney

Department of Conservation (scourtney@doc.govt.nz)

Australian Network for Plant Conservation – call for articles

In *Australasian Plant Conservation* issue 19(4), March–May 2011, we aim to look at plant conservation activities on land owned and/or managed by Aboriginal/Indigenous communities. This includes land that is held under native title, various Land Rights regimes, land in the Indigenous Protected Area (IPA) network and traditional lands that communities are helping to manage.

Articles on overseas experience with relevance to Australia are also welcome. Relevant plant conservation activities include native vegetation management to retain habitat value and component plant species; conserving species traditionally used as food or medicinal plants or for cultural purposes; and actions related to the recovery of plant species or ecological communities listed under state and national environmental laws. Articles may focus on any aspect of plant conservation, including planning, partnerships, education and on-ground activities.

We also hope to have overview articles on the recognition and value of traditional knowledge, and we would be interested in articles on good practice in work between Aboriginal and non-Aboriginal people and organisations on conservation issues. Articles should be no longer than 1200 words. Where possible, they should be illustrated with one or two photographs that have been cleared with the appropriate people for publication, and have appropriate captions and photographer credits. Authors of articles submitted to APC bear the main responsibility for ensuring appropriate permissions for the content and use of stories and images. **The deadline for articles is 12 February 2011.** If you would like to submit an article, please contact Rosemary Purdie, Editor, *Australasian Plant Conservation*, by e-mail (Rosemary.Purdie@environment.gov.au). Contacting her at an early stage of interest or writing is helpful.

Pohuehue - *Muehlenbeckia* Meisn. (Polygonaceae) and its Relatives

Tanja M. Schuster, Department of Biology, Wake Forest University, Winston-Salem, North Carolina, 27109 U.S.A., (viridis13@gmail.com)

The buckwheat family Polygonaceae Juss. includes approximately 1,200 species (Stevens 2010) and is predominantly north temperate in distribution. For example, 35 of its 49 genera occur in North America (Freeman & Reveal 2005) whereas 12 are native to the Southern Hemisphere. Polygonaceae are subcosmopolitan in their distribution (Thorne 2000) and are components of most floras. They are often associated with disturbed habitats and are ecologically important as primary successors or as invasive species (e.g. *Emex spinosa* (L.) Campd. in northern America and *Reynoutria japonica* Houtt., also known as *Fallopia* Adans., in Europe and North America).

Muehlenbeckia, a genus that includes vines, shrubs and decumbent, spreading subshrubs, is restricted to the Southern Hemisphere and has a disjunct Australasian—American distribution pattern. Nineteen species of *Muehlenbeckia* occur in Australasia and nine in Central and South America (Brandbyge 1992; Schuster et al. in review). Most species of *Muehlenbeckia* are found in Australia and many of these are associated with habitats frequently disturbed by fire. Five species are native to New Zealand (Moore & Edgar 1970): *M. astonii* Petrie, *M. australis* (G.Forst.) Meisn., *M. axillaris* (Hook.f.) Endl., *M. complexa* (A.Cunn.) Meisn. and *M. ephedroides* Hook.f. *Muehlenbeckia axillaris* also occurs in Tasmania, southeastern Australia and on Lord Howe Island, *M. complexa* is additionally found on Lord Howe Island and *M. australis* also grows on Norfolk Island. *Muehlenbeckia astonii* (de Lange & Jones 2000) and *M. ephedroides* (on the North Island) are considered threatened (de Lange et al. 2009).

Muehlenbeckia have an ocrea, a more or less cylindrical structure that wraps the stem above the node. Ocreae are a diagnostic character for most Polygonaceae except members of tribe Eriogoneae that occur in the deserts of North America. In addition, most *Muehlenbeckia* have fleshy fruits at maturity. The succulent fruit is formed by the five, rarely four, tepals that become accrescent and more or less enclose the three-sided nutlet. Although the degree of fleshiness can be rather variable within a given species or even an individual plant, all species of *Muehlenbeckia* that occur in New

Zealand have mature fruits that are white. This is in contrast to the species from Central and South America that have blackish-red fruits (Brandbyge 1992). *Muehlenbeckia platyclada* (F.Muell.) Meisn., that is native to the Solomon Islands and New Guinea, also has pinkish to dark red fruits and is used horticulturally. This species has a unique habit compared with other species of *Muehlenbeckia* since it has flattened, photosynthetic stems (phylloclades), which is why it is commonly known as ‘tape-worm plant’ (Fig. 1). Based on this habit, *M. platyclada* has been treated as a separate, monotypic genus and is also known as *Homalocladium platyclados* (F.Muell.) L.H.Bailey). However, molecular studies have shown that this species is included in *Muehlenbeckia* (Sanchez et al. 2009; Schuster et al. in review). Several other species, such as the wire-vine *M. complexa* and the divaricating shrub *M. astonii*, are used in horticulture and the floristic trade. The fruits of some species of *Muehlenbeckia* are used locally in Australia for food.

Meisner (1841) erected the genus *Muehlenbeckia* by segregating two species of *Coccoloba* P. Browne ex L. and *Polygonum* L. each. He based this on the mature perianth becoming fleshy, the presence of fimbriate, brush-like stigmas and dioecy (Fig. 2). Hence, *Muehlenbeckia* is one of the many genera that once belonged to *Polygonum sensu lato*. The delimitation of genera in this taxonomically problematic group and their evolutionary relationships are still being worked out. Recently, several large-scale studies have addressed these and other issues in Polygonaceae (Lamb-Frye & Kron 2003; Sanchez & Kron 2008; Galasso et al. 2009; Sanchez et al. 2009). On account of the fleshy fruits and wood anatomy characters, *Muehlenbeckia* was traditionally treated as belonging to tribe Coccolobeae (now “defunct”) along with *Antigonon* Endl., *Brunnichia* Banks ex Gaertn. and *Coccoloba* (e.g. Gross 1913; Haraldson 1978). Species of *Coccoloba* also have an accrescent perianth that forms a fleshy fruit at maturity. However, molecular data have shown that *Antigonon*, *Brunnichia* and *Coccoloba* belong to another subfamily in Polygonaceae, the Erigonoideae Arn. (Sanchez & Kron 2008). Based on molecular data, *Muehlenbeckia* is not associated with these genera and is a member of tribe Polygoneae in subfamily Polygonoideae Eaton (Lamb-Frye & Kron 2003; Sanchez et al. 2009). Other genera included in Polygoneae are *Atraphaxis* L., *Fallopia*, *Polygonum* L., *Polygonella* Michx. and *Reynoutria* Hoult. Species of *Reynoutria* have traditionally been included in *Fallopia*, but recent studies have shown that it is a separate genus (Sanchez et al. 2009; Schuster et al. in review). In addition, these analyses have shown that *Fallopia* is *Muehlenbeckia*’s closest relative. Some species of *Fallopia* are vines that are native to Asia and others, especially those that are weedy and associated with agriculture, are widely distributed.



Fig. 1. Phylloclades, clusters of flowers and mature fruits of the ‘tape-worm plant’ *Muehlenbeckia platyclada* (F.Muell.) Meisn. Photo: Tanja M. Schuster.



Fig. 2. Female flowers of *Muehlenbeckia adpressa* (Labill.) Meisn. from Green Cape, Australia, with non-functional staminodes lacking anthers. Photo: Tanja M. Schuster.

Analyses of molecular data using seven gene markers (nuclear: ITS and second intron of *LEAFY*; chloroplast: *matK*, *ndhF*, *3'rps16-5'trnK*, *trnL-trnF* and *3'trnV-ndhC*) show that within the clade formed by species of *Muehlenbeckia* (22 sampled) there are three subclades that roughly correspond to species that occur in New Zealand, Australia and America (Schuster & al. in review). This study and preliminary biogeographic analyses indicate that most species native to New Zealand (*M. axillaris*, *M. complexa* and *M. ephedroides*) are sister to all other *Muehlenbeckia* sampled. The placement of *M. astonii* does not receive clade support in these analyses. In addition, *M. australis* from New Zealand is sister to all species sampled from Central and South America that form a well supported clade, and this relationship is also well supported. Much systematic work remains within Polygonaceae and, in particular, the evolutionary relationships of genera segregated from *Polygonum sensu lato* need more detailed investigation. For example, in New Zealand *Muehlenbeckia complexa* includes an aggregate of varieties (e.g., *M. complexa* var. *grandifolia* Carse, *M. complexa* var. *microphylla* (Col.) Ckn., and *M. complexa* var. *trilobata* Col.) Cheesem.) that need to be investigated with molecular methods.

Acknowledgements

Many people in various capacities have helped me during this study and all of them will be thanked in my Ph.D. dissertation (Spring 2011). However, Karen L. Wilson from the National Herbarium of NSW, Royal Botanic Gardens, Sydney deserves a special thank you here for being so generous with her knowledge, time and help with field work. In addition, I would like to thank herbarium staff at AK, Ilse Breitwieser, Ines Schönberger and Steve Wagstaff from CHR and Barry Sneddon from Te Papa for their kind help and sending herbarium material of *Muehlenbeckia*. Finally, I am grateful to one anonymous reviewer for helpful comments on the manuscript.

References

- Brandbyge, J. 1992: The genus *Muehlenbeckia* (Polygonaceae) in South and Central America. *Botanische Jahrbücher für Systematik* 114: 349–416.
- de Lange, P.J.; Jones, C. 2000: Shrubby tororaro (*Muehlenbeckia astonii* Petrie) recovery plan: 2000–2010. *Threatened Species Recovery Plan 31*. Department of Conservation, Wellington.
- de Lange, P.J.; Norton, D.A.; Courtney, S.P.; Heenan, P.B.; Barkla, J.W.; Cameron, E.K.; Hitchmough, R.; Townsend, A.J. 2009: Threatened and uncommon plants of New Zealand (2008 revision). *New Zealand Journal of Botany* 47: 61–96.
- Freeman, C.C.; Reveal, J.L. 2005: Polygonaceae. pp. 216–221, 479–481. In: *Flora of North America*. Vol. 5. (eds. Editorial Committee). New York, Oxford University Press.
- Galasso, G.; Banfi, E.; de Mattia, F.; Grassi, F.; Sgorbati, S.; Labra, M. 2009: Molecular phylogeny of *Polygonum* L. s.l. (Polygonaceae), focusing on European taxa: preliminary results and systematic considerations based on *rbcL* plastidial sequence data. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano*. 150: 113–148.
- Gross, H. 1913: Beiträge zur Kenntnis der Polygonaceen. *Botanische Jahrbücher für Systematik* 49: 234–339.
- Haraldson, K. 1978. Anatomy and taxonomy in Polygonaceae subfam. Polygonaceae Meisn. emend. Jaretzky. *Symbolae Botanicae Upsalienses* 22: 1–95.
- Lamb-Frye, A.S.; Kron, K.A. 2003: Phylogeny and character evolution in Polygonaceae. *Systematic Botany* 28: 326–332.
- Meisner, C.F. 1841: *Muehlenbeckia*. *Plantarum vascularium genera fasc.10:227*. Leipzig.
- Moore, L.B.; Edgar, E. 1970: *Flora of New Zealand*. Vol. II. Government Printer, Wellington.
- Sanchez, A.; Kron, K.A. 2008: Phylogenetics of Polygonaceae with an emphasis on the evolution of Eriogonoideae. *Systematic Botany* 33: 87–96.
- Sanchez, A.; Schuster, T.M.; Kron, K.A. 2009: A large-scale phylogeny of Polygonaceae based on molecular data. *International Journal of Plant Sciences* 170: 1044–1055.
- Schuster, T.M.; Wilson, K.L.; Kron, K.A. In review. Phylogenetic relationships of *Muehlenbeckia*, *Fallopia* and *Reynoutria* (Polygonaceae) investigated with chloroplast and nuclear sequence data.
- Stevens, P.F. 2010: Angiosperm phylogeny website, version 9. (Updated continuously.) www.mobot.org/MOBOT/research/APweb/
- Thorne, R.F. 2000: The classification and geography of the flowering plants: Dicotyledons of the Class Angiospermae. *The Botanical Review* 66: 441–647.

***Centrolepis strigosa* – a rarely seen annual**

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

Centrolepis strigosa (Centrolepidaceae) is a mostly Australian species that is known in New Zealand from two broad areas, western Northland (near Dargaville and the Kai Iwi lakes) and from Southland (Bluff Hill and near Invercargill) (see Healy & Edgar 1980; p. 115–116). Because of this disjunct distribution, *Centrolepis strigosa*, hitherto regarded as indigenous (Kirk 1891; Cheeseman 1906, 1925; Moore & Edgar 1970), was then treated as naturalised by Healy & Edgar (1980).

This decision seems unjustified because there are other Australian species with a similar disjunct distribution regarded as indigenous here e.g., *Drosera pygmaea*, so I prefer to treat *Centrolepis strigosa* as indigenous (see de Lange et al. 1999; de Lange & Rolfe 2010). Currently, the species is treated as ‘At Risk/Naturally Uncommon’ qualified ‘Data Poor’ (DP), ‘Secure Overseas’ (SO) and ‘Sparse’ (Sp) (de Lange et al. 2009). I have written this note to encourage people to look for this plant because I strongly suspect it is more widespread than currently believed.

Centrolepis strigosa is a rather unassuming, tufted hispid plant of open, lowland sandy soils. It is very easily overlooked except (possibly) when it is in flower and/or fruit (Fig. 1). As noted by Moore & Edgar (1970) and Healy & Edgar (1980), the flowers are borne on a wiry, 10–70 mm long scape as a terminal “complex” set within two opposite, unequal glume-like bracts (Fig. 2). Usually there are 4–8 pseudoanthia (i.e. partial inflorescence) per bract, each furnished with three hyaline fringed bracteoles, sheathing the solitary male flower and accompanying 4–8 female flowers. The foliage (Fig. 3) comprises a dense tuft of filiform blue-green, red-green to dark green hispid leaves, all of about equal length (10–30 mm long), the lamina of which broadens at the base and has a distinct acicular apex.



Fig. 1. *Centrolepis strigosa* in the wild at Lake Waikare, Kai Iwi Lakes. Photo. Peter de Lange.



Fig. 2. *Centrolepis strigosa* inflorescences showing the paired, unequal bracts. Photo. Jeremy Rolfe.

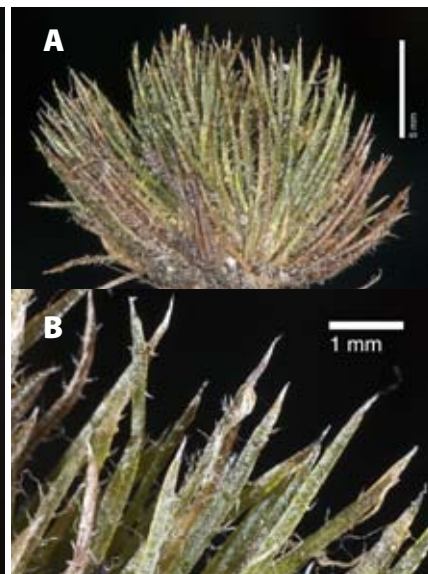


Fig. 3. Leaves of *Centrolepis strigosa* showing A, a vegetative plant and B, a close up of the foliage to show the hispid hairs and acicular leaf tips. Photo. Jeremy Rolfe.

Centrolepis strigosa was first recognised for New Zealand by Thomas Kirk who found it at Bluff Hill (Kirk 1891). Healy & Edgar (1980; p. 116) claimed that it was first recognised from the North Island from Lake Kai Iwi where it was collected in November 1970. However, there are no herbarium specimens from Lake Kai Iwi collected from that time (the closest is one made by J. K. Barlett in January 1977 (CHR 319045)) and I suspect that Healy & Edgar (1980) inadvertently confused the location of Bartlett’s 1977 Lake Kai Iwi gathering with one made by Ruth Mason & Alan Esler on the 21 November 1970 from Bayly’s Basin Road, west of Dargaville (CHR 214231 (Duplicate: AK 216436)).

My experience with the species started first in Tasmania where I collected it in April 2000 growing on open sandy ground under *Melaleuca*, near the Huon Highway, 3 km south of Strathblane. Within New Zealand, aside from being aware that it was present around the Kai Iwi lakes, I had never had the good fortune to see it until January 2010 when I found it on the shores of Lake Taharoa (the largest of the three Kai Iwi lakes—see AK 308939) and again, later in the same month at Lake Ototoa (AK 308971), the largest dune lake on the South Kaipara Peninsula. This year I found more plants at Lake Waikare (which seems to be a well known station judging by herbarium records), the northernmost of the Kai Iwi lakes. Interestingly, despite repeated searches I have not seen it at Lake Kai Iwi.

Although I have never seen this species in New Zealand any time before January, herbarium records at AK and CHR suggest that it can be seen from November through to June. Plants are strictly annual and, where I have observed it at Lakes Ototoa, Taharoa and Waikare, the life cycle seems to be tied to seasonal fluctuations in the water levels of these lakes, because plants are never found far from the shoreline, always on sandy ground in sites that would normally be submerged by (in some cases) 1 m of water. In these habitats, *C. strigosa* grows with a range of mostly seasonal annual herbs including *Illecebrum verticillatum* (Caryophyllaceae), *Juncus capitatus* (Juncaceae), *Isolepis levynsiana* (Cyperaceae) and *Vellerophyton dealbatum* (Asteraceae). Other less commonly recorded associates include *Crassula sinclairii* (Crassulaceae), *Drosera pygmaea* (Droseraceae), *Gonocarpus micranthus* (Haloragaceae), *Juncus articulatus* (Juncaceae), *Myriophyllum votschii* (Haloragaceae) and, at the Kai Iwi lakes only, *Trithuria inconspicua* (Hydatellaceae) and *Gratiola pedunculata* (Plantaginaceae—itself a major range extension of this species which had been known previously only from the Karikari Peninsula (de Lange 1997)).

At Bayly's Basin, Mason & Esler recorded the species from "Roadside relic *Leptospermum* scrub" (notes on CHR 214231) and "relic gumland" (notes on AK 216436). This habitat seems to have gone from there now and I have not seen the species in other similar habitats nearby. Nevertheless it would be worth keeping any eye out for it, for though this record seems unusual in the context of the New Zealand lakeside habitat that I have seen it in, all South Island records (and mine from Tasmania) come from lowland sandy open ground well away from wetlands and lake sides. The current New Zealand distribution is, as Healy & Edgar (1980) observed, anomalous though I am sure that diligent searching in sand country elsewhere in New Zealand will find additional populations¹. In this respect, *C. strigosa* has a distribution pattern similar to that initially described for *Drosera pygmaea* (see Cheeseman 1925; Allan 1961), which is another easily overlooked indigenous species that grows with *Centrolepis* at both the Kai Iwi lakes and Bluff Hill, and is now known from a number of connecting stations mostly along the western North and South Islands (see de Lange et al. 2010).

Acknowledgements

I am grateful to Ewen Cameron (AK), Ines Schönberger and Jane Cruickshank (both of CHR) for access to collections of *Centrolepis strigosa* in their care. Jeremy Rolfe took the images of *Centrolepis* used in this article. Thanks, too, to Joshua Salter for her comments on a draft of this article.

References

- Allan, H.H. 1961: Flora of New Zealand. Vol. I, Wellington, Government Printer.
- Cheeseman, T.F. 1906: Manual of the New Zealand Flora. Wellington, Government Printer.
- Cheeseman, T.F. 1925: Manual of the New Zealand Flora. Wellington, Government Printer.
- de Lange, P.J. 1997: *Gratiola pedunculata* (Scrophulariaceae): a new addition to the New Zealand flora. *New Zealand Journal of Botany* 35: 317-322.
- de Lange, P.J.; Heenan, P.B.; Given, D.R.; Norton, D.A.; Ogle, C.C.; Johnson, P.N.; Cameron, E.K. 1999: Threatened and uncommon plants of New Zealand. *New Zealand Journal of Botany* 37: 603-628.
- de Lange, P. J., Norton, D.A., Courtney, S.P., Heenan, P.B., Barkla, J.W., Cameron, E.K., Hitchmough, R. and Townsend, A.J. 2009. Threatened and uncommon plants of New Zealand (2008 revision). *New Zealand Journal of Botany* 47: 61-96.

1 As was the case when, in late January 2010, I made a quick search of similar lakeshore habitat at Lake Ototoa.

- de Lange, P.J.; Rolfe, J.R. 2010: New Zealand Indigenous Vascular Plant Checklist 2010. Wellington, New Zealand Plant Conservation Network.
- de Lange, P.J.; Heenan, P.B.; Norton, D.A.; Sawyer, J.W.; Rolfe, J.R. 2010: Threatened plants of New Zealand. Christchurch, Canterbury University Press.
- Healy, A.J.; Edgar, E. 1980: Flora of New Zealand. Vol. III. Wellington, Government Printer.
- Kirk, T. 1891: Description of new species of *Centrolepis* Labill. Transactions and Proceedings of the New Zealand Institute. Vol. 23: 441-443.
- Moore, L.B.; Edgar, E. 1970: Flora of New Zealand. Vol. II. Wellington, Government Printer.

Motukarara nursery a winner

The Department of Conservation's Motukarara Conservation Nursery and Resource Centre has just received a Christchurch Civic Trust award. The award recognised "the development of a public facility that demonstrates how particular botanical species suit their regional ecosystems and offers such plants for sale". It's well deserved recognition and the only award the Trust gave to something other than a building this year. Nursery and Centre Manager, Jorge Santos, is the man behind the vision for and development of the nursery over more than 25 years, and the leader of a dedicated nursery team—both staff and volunteers.

"Restoration of an ecosystem is more delicate and long term than restoration of a building," noted Jorge. "The nursery propagates a wide diversity of Canterbury plants and many are publicly available. The resource centre is designed as a hub for information and education about biodiversity restoration in Canterbury, backed up by a number of publications and a resource for teachers."

It is a place of beauty—a snapshot of Canterbury biodiversity—with specially developed display gardens representing indigenous habitats such as coastal areas, wetlands, lowland forests, subalpine areas and the plains. It also has a collection of threatened plants. "Encouraging and supporting communities, iwi, groups, individuals, schools, students and councils wanting to restore Canterbury's natural heritage has always been important for the nursery. Development of the gardens has been driven by this," says Jorge.

"We developed an ethno-botanical garden—Nga Tipu Whakaoranga o Tutekawa—to show how Māori depended on native plants for the necessities of life – food, firewood, shelter, clothing, and medicine," said Jorge. "It is rewarding to see it now being used by Ngāi Tahu weavers as a place to source plant materials."

All the gardens are accessible twenty four/seven—it's a 'must see' for visitors to Christchurch with an interest in plants, conservation and restoration, and it attracts international admirers. The Civic Trust award is a very appropriate acknowledgement of what the nursery and resource centre, under Jorge's leadership, have achieved and what they provide for the community. Congratulations to Jorge and his team.

Celebrating Forests for People

The United Nations General Assembly declared 2011 as the International Year of Forests to raise awareness on sustainable management, conservation and sustainable development of all types of forests. Welcome to the International Year of Forests, 2011 (Forests 2011) web site, a global platform to celebrate people's action to sustainably manage the world's forests: www.un.org/en/events/iyof2011/

There, you will find information regarding events being organised throughout the International Year as well as interactive web tools and resources to promote dialogue on forests. Tell us how you plan to celebrate "forests for people" during 2011, so that we may show case your stories and initiatives through this website.

A series of interesting facts about forests is continually cycling at the bottom of the major image on the above Home page. Have a look at them.

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):

Conservation Biology Conference

25th International Congress for Conservation Biology:

Christchurch, New Zealand, 28 November – 2nd December 2011. Join us for five days as we celebrate 25 years of groundbreaking research, premier networking opportunities, and dynamic discussions among the leading minds in conservation biology. This year's theme, Engaging Society in Conservation, addresses biodiversity around the world—specifically biodiversity's continued declines at an ever-increasing pace, while much of society carries on with business as usual. How can conservation biologists engage with the broader society to achieve positive outcomes for conservation without compromising our scientific rigour or integrity?

Do you have a solution to share?

Remember when you met Ed Monton in Canada in 2010; 2011 is the year of Kia Ora the Kakapo! Stay tuned for the first meeting between Ed and Kia Ora, coming soon!

Additional information: www.conbio.org/2011 or contact the scientific programme committee at 2011@conbio.org.

Auckland Botanical Society

Field trip: Friday 28 to Monday 31 January 2011 the Auckland Anniversary Weekend Camp at Waikawau Bay, Coromandel Peninsula.

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

Field trip: Saturday 19 February at Muriwai Regional Park at 2.00 p.m. **Leader:** Mike Wilcox.

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

Meeting: Wednesday 2 March, the AGM followed by a talk by Alison Wesley titled 'Flora of Chile and Patagonia. **Venue:** Unitec School of Health Sciences, Gate 4, Building 115. Room 2005.

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

Field trip: Saturday 19 March to Awhitu Dune Lakes. **Leader:** Tricia Aspin.

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

Waikato Botanical Society

Field trip: Saturday 12 February a working bee at the Threatened Plant Collection. Please bring gloves, old clothes and boots for weeding, planting and propagating activities. **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: Friday 4 or Saturday 5 February to Sunday 6 or Monday 7 February to the Reserves of the Matawai–Raukauroa area. **Meet:** Matawai Camp (see below) Friday night or Saturday morning 9.00 a.m. (contact the trip leader by the previous Monday as we will car pool as much as possible). For those who don't or can't take Monday off there is the option of leaving on Sunday afternoon.

Grade : Medium. **Accommodation:** Matawai Camp, behind church opposite petrol station main street, Matawai. Bunkroom and tent sites available. (RBS has a bunkroom of 8 bunks booked). Communal showers and toilets and self-contained kitchen. **Cost:** Bunk \$25 per night, tent site \$20 per night.

Leader: Paul Cashmore, ph: 07 348 4421 (hm), 07 349 7432 (wk), e-mail: pcashmore@doc.govt.nz.

Wanganui Museum Botanical Group

Field trip: Sunday 27 February to Taihape to search for *Pittosporum obcordatum*. **Meet:** Wanganui Police Station at 8.30 a.m. or at 10.20 am in Taihape, by arrangement; arrive at the Rowlands' home 10.30 a.m.

Meeting: Tuesday 1 March at 7.30 p.m. A talk by Peter Cave titled 'Overland from Kathmandu to Istanbul'. Venue: Museum's Davis lecture theatre.

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

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

Wellington Botanical Society

Field trip: Saturday 5 February. Kaitoke Weir – "Warrens Saddle". Botanise from the weir car park up to "Warrens Saddle", through original forest with podocarp/broadleaf in the valleys and beech/rātā on the spurs and ridges; return via another route. Help prepare a species list. Track is rough and uneven, requiring moderate fitness. **Meet:** 8.30 a.m. in Kaitoke car park. From SH2, take Waterworks Rd, cross bridge over Pakuratahi River, go up short rise and park on left by interpretive centre, opposite ranger's office. **Map:** Topo50-BP33.

Leader: Owen Spearpoint 027 285 8083w or 562 8780h; deputy-leader: Chris Horne 475 7025.

Nelson Botanical Society

Field camp: 28 to 31 January, Anniversary Weekend camp at Cobb Valley.

Field trip: Sunday 20 February to Parachute Rock, Nelson Lakes National Park.

Leader: Shannel Courtney, ph: 03 546-6622 (hm) 03 546-3148 (wk), e-mail scourtney@doc.govt.nz.

Leader: Bee Grant, ph: 03 539 6364.

Canterbury Botanical Society

Meeting: Friday 4 February a talk by Susan Wiser, Landcare Research, titled 'Littoral plants'. **Venue:** room A5, Canterbury University.

Field trip: Friday 12 February to Selwyn Gorge, *to be confirmed*.

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

Meeting: Friday 4 March a talk by Marta Treskov, Isaac Conservation Centre, titled 'Lichens'. **Venue:** room A5, Canterbury University.

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

University of Canterbury summer course: Practical Taxonomy for Field Biologists BIOL 305

Summer course: designed to meet the need for training in the collection, preparation, and identification of botanical specimens.
Venue: Mountain Biological Field Station at Cass, Canterbury.
Dates: Thursday 27 January to Friday 4 February 2011.

Information: www.biol.canterbury.ac.nz/biol305 or contact Dr Pieter Pelsler, ph: 03 364 2987 ext 45605, e-mail: pieter.pelsler@canterbury.ac.nz.
