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

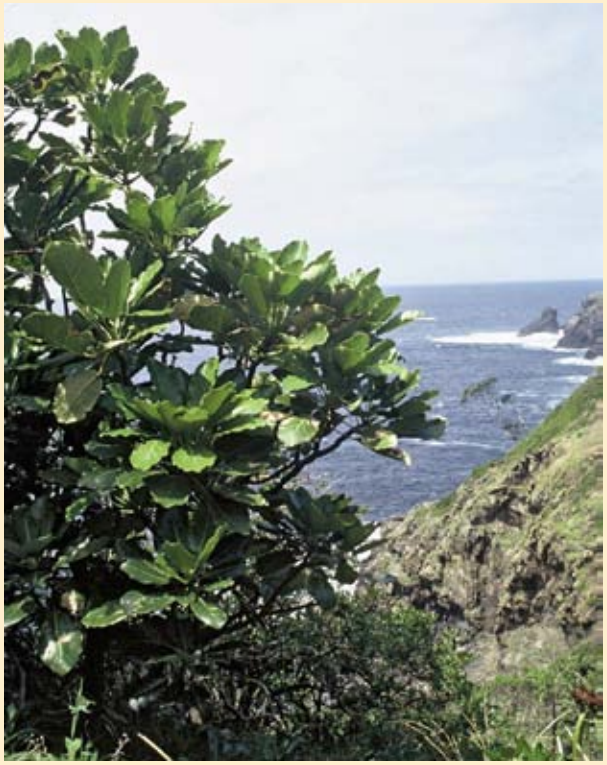
E-NEWSLETTER: NO 80. JULY 2010 Deadline for next issue: Monday 16 August 2010

Message from the President

I'm pleased to see some excellent articles in this month's newsletter. Please keep sending them in. It is good news that the government has decided not to mine the lands protected by Schedule 4 of the Crown Minerals Act. We have recently written to the Minister of Conservation, asking to meet with her to discuss the legal protection of New Zealand's threatened plant species. As you will be aware, a number of animal species, such as katipo have been recently granted legal protection, but we have yet to get any legal protection for our plant species that are on the brink of extinction.

As an adjunct to last month's editorial focus on ecosourcing, an interesting tool to assist in determining how "original" a patch of vegetation may be, is being developed by an invertebrate scientist. Sourcing seed can be a problem where much of the original vegetation has been cleared and seed collectors can be unsure as to whether or not their source vegetation has been planted. Nicholas Martin has been working on developing fact sheets for herbivorous invertebrates that could be used for such purposes. Some invertebrate herbivores of our native plant species are quite immobile (as a population) and their presence is a good indicator of the "originality" of the vegetation patch. Nicholas has said that he will write something on this topic for the next newsletter.

PLANT OF THE MONTH – *MERYTA SINCLAIRII*



Meryta sinclairii on Great Island, Three Kings. Photo: Peter de Lange.

Plant of the Month for July is *Meryta sinclairii* (pukanui or puka). This is an endemic tree which can grow up to around 8m tall with a trunk of about 50cm diameter. Its large glossy leaves are striking, growing up to 500 mm long × 200 mm wide.

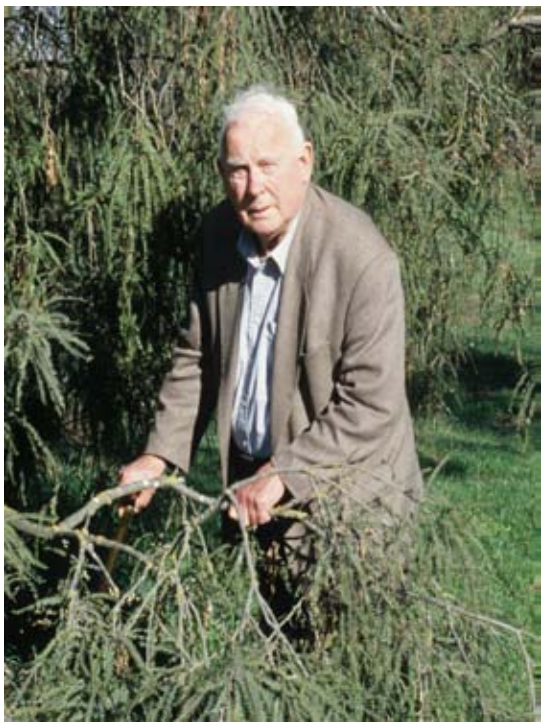
Originally restricted in its range to the Three Kings Island group where it is the dominant tree species in coastal forest and scrub, it is now naturalised on the main islands and is a very attractive and popular garden plant in frost free areas, growing best in coastal situations in free draining soils.

Meryta sinclairii is naturally uncommon and, although abundant on the Three Kings islands, it is at risk from introduced fungal diseases and rodent introduction to the island. The Network fact sheet for *Meryta sinclairii* may be found at: www.nzpcn.org.nz/vascular_plants/detail.asp?PlantID=208

Great man of New Zealand botany dies

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

Dr Eric Godley M.Sc., PhD, FRSNZ, Hon FLS, OBE, first President of the New Zealand Botanical Society, veteran member of the Auckland Botanical Society, progenitor of the New Zealand Journal of Botany, past Director of the former DSIR Botany Division, world renowned reproductive biologist, botanical historian and mentor to numerous New Zealand botanists passed away on 27 June 2010.



Eric Godley holding a branch of *Sophora godleyi*. Photo: Peter Heenan.

Dr Eric Godley (1919-2010) much loved mentor of numerous New Zealand botanists was a well respected and active New Zealand botanist right until the very end of his long life. Eric, as he was affectionately known, touched the lives of most New Zealand botanists be it through his sage advice, mentorship, and management of people who worked for him during his time as Director of the former DSIR Botany Division, or through his numerous articles chronicling the lives of past New Zealand botanists. Eric was an unassuming man who quickly saw what was needed, looked for the best people to fill those needs and patiently encouraged them to fulfill their destiny. He was once quoted as saying that "if he saw one of his staff on the beach during a work day he would not be concerned because he knew that they would still be thinking about botany".

Eric was an excellent administrator and was pivotal in making the former DSIR Botany Division the great institute of New Zealand botanical learning that it became during the 1980s. He was also responsible for bringing to New Zealand such eminent botanists as David Drury and Bill Sykes to study the Asteraceae and naturalised plants. He encouraged the late Andy Thomson to study the life of Leonard Cockayne and ultimately to establish a special research group devoted to the study of New Zealand botanists and botanical history. Eric also helped forge the lichen career of David Galloway by convincing the then government of the need for a lichen flora. He also helped push for Brian Molloy's transfer from the Ministry of Agriculture to DSIR Botany Division. Eric supported plant conservation, cytology and genetics. He took an interest in seaweeds, he liked fungi and saw a need for a Desmid flora. He was a kind, fair, polite and considerate man who said little and did plenty. People today could learn a lot from the example he set.

I remember Eric as a kindly man who wrote encouraging letters to me about my botanical endeavours when I was a teenager, and later as the man who quite correctly admonished me for stupidly destroying the correspondence I once had between myself and the late Jim le Comte of Alouette Nurseries, Ashburton. Eric showed an interest in my work at a time when I was labelled by many as merely "a geologist with botanical inclinations" and he helped get me in touch with many now retired DSIR Botany Division staff, all of whom I still maintain regular contact with today. I feel honoured that, along with Peter Heenan, we were able to recognise his remarkable contribution to New Zealand botany by naming a kowhai after him—*Sophora godleyi*. That meant much to Eric because kowhai was one of his enduring loves.

Eric lived a full life and a good life. He will be sorely missed though I am glad that he briefly touched on my life and my career.

A new species of fork fern – the nationally critical *Tmesipteris horomaka*

Leon Perrie, Te Papa, PO Box 467, Wellington, (leonp@tepapa.govt.nz)

Four named species of *Tmesipteris* fork ferns have been recognised in New Zealand since Bob Chinnock's 1975 revision: *T. elongata*, *T. lanceolata*, *T. sigmatifolia*, and *T. tannensis*. *Tmesipteris elongata* and *T. tannensis* are the more common species and are widely distributed; the other two species have more northerly distributions. Fork ferns are usually epiphytic on tree ferns (*Cyathea* or *Dicksonia*), with *T. tannensis* the only species to take to other substrates with any appreciable frequency.

Tmesipteris horomaka from Banks Peninsula. Photo: Leon Perrie.

A fifth undescribed species has been known from Banks Peninsula for the last 20 years or so. It has appeared in plant lists with tag names such as "Banks Peninsula", "polyploid", or "octoploid". We have recently formally described this species as *Tmesipteris horomaka* Perrie, Brownsey et Lovis (Perrie *et al.* 2010).

As the latter pair of tag names above suggest, *Tmesipteris horomaka* is a polyploid with eight sets of chromosomes (and about 208 pairs of chromosomes in total). This separates it from the other *Tmesipteris* species in New Zealand, which all each have only four sets of chromosomes (= 104 pairs of chromosomes).

Tmesipteris horomaka is most similar morphologically to *T. elongata* and *T. tannensis*, and is probably their allopolyploid (with an origin involving hybridisation and a doubling of chromosome number). *Tmesipteris horomaka* has blunt-ended leaves like *T. tannensis*. However, the synangia (reproductive structures) of *T. horomaka* are rounded like those of *T. elongata* rather than being distinctively pointed as is usual for *T. tannensis*. Detailed images comparing the leaves and synangia of these three species are available in Perrie *et al.* (2010).

The epithet *horomaka* is a Maori name for Banks Peninsula. It indicates where *Tmesipteris horomaka* was first identified. Following investigation of the collections of the major herbaria and field work in many eastern South Island sites, *T. horomaka* is still known only from Banks Peninsula (including the Port Hills). However, it may yet prove to have a wider distribution, and I welcome specimens (where you have permission to collect) of blunt-leaved *Tmesipteris* plants with rounded synangia from South Island sites outside Banks Peninsula.

Tmesipteris elongata, *T. tannensis*, and *T. horomaka* all occur on Banks Peninsula, with the latter being by far the most frequently encountered locally. However, you are still going to have to look quite hard for *T. horomaka*; we recorded it from only c. 80 tree ferns across 11 populations. Though many *Tmesipteris* stems can occur on a single tree fern, the small number of tree fern "hosts" puts *T. horomaka* in a precarious position. For this reason, we suggested it have a Nationally Critical threat classification (see Perrie *et al.* (2010) for more discussion of the conservation status of *T. horomaka*).

NZPCN fact sheet for *Tmesipteris horomaka*: www.nzpcn.org.nz/flora_details.asp?ID=6656

References

Chinnock, R.J. 1975: The New Zealand species of *Tmesipteris* (Psilotaceae). *New Zealand Journal of Botany* 13: 743-768.

Perrie, L.R.; Brownsey, P.J.; Lovis, J.D. 2010: *Tmesipteris horomaka*, a new octoploid species from Banks Peninsula. *New Zealand Journal of Botany* 48: 15-29. [pdf available from Leon Perrie: leonp@tepapa.govt.nz or 04 381 7261]

World's rarest tree gets some help

John Platt (Originally published at www.scientificamerican.com. Reprinted by permission of the author.)

The tree species known only as *Pennantia baylisiana* could be the rarest plant on Earth. In fact, the Guinness Book of World Records once called it that. Just a single tree exists in the wild, on one of the Three Kings Islands off the coast of New Zealand, where it has sat, alone, since 1945. It didn't used to be so solitary, but humans introduced goats to the island, which ate every other member of its species.

Pennantia baylisiana growth habit (far left), flowers (left), immature fruit (above). Photos: Jeremy Rolfe.

Over the last few decades, scientists have tried to create more *P. baylisiana* trees but, aside from getting cuttings to grow, simple biology got in the way: the tree was thought to be female, and it appeared to need a male to properly generate fruit and seeds.

While preparing a recovery plan for the species in the early 1990s, Peter de Lange, a scientist with the New Zealand Department of Conservation (DOC), found several intriguing pieces of information. First, gardeners on the New Zealand mainland had several *P. baylisiana* seedlings (all cloned from cuttings of the original plant), which proved to be pure examples of the species, not hybrids of other *Pennantia* species as had originally been thought. Second, one of the seedlings had actually produced fruit following manual pollination. This led de Lange to conclude that the wild tree might not truly be female after all. Additionally, similar research published around the same time suggested that the tree was female but appeared to also bear a low level of male-like qualities that would allow it to pollinate itself.

Since then, hundreds of *P. baylisiana* seedlings have been sold by mainland nurseries, but scientists delayed taking trees or seeds back to Three Kings Islands for fear of introducing diseases or fungal pathogens that could harm the healthy wild tree. But this year, de Lange and his team have returned to Three Kings Islands with the intention of planting 1600 *P. baylisiana* seeds. The seeds, says de Lange, have been carefully prepared to eliminate any possibility of disease, "We removed the flesh, air-dried the seeds and then washed them in 10% hypochlorite and then 70% ethanol in a laminar flow hood. We found the seeds germinated fine after this treatment and preliminary screening showed no evidence of virus or other diseases."

So *P. baylisiana* seeds are returning to their native land, and it is hoped that new trees will soon follow. The seeds are expected to take 6–10 years to grow large enough to themselves start flowering. The project will continue until there are 500 viable adult trees.

De Lange says this stage is exciting, but there is still risk, "Of course this action does not address the fact that all seedlings are derived from one tree," he says, "so the species is severely bottlenecked,"

meaning it lacks the genetic diversity that could protect it in the long run from diseases and other factors. "But we have the knowledge that the species is a polyploid [has extra chromosomes], so hopefully it has plenty of resilience."

Meanwhile, de Lange reports that his colleagues have not been idle on the island. Janeen Collings, a botanist with DOC, has planted several cuttings near the original tree, several of which have grown and, with her help, produced fruit. "While birds probably took most mature fruit, some she managed to get and sow in the field," de Lange says. Although the seedlings grew, they unfortunately died within a year. "Although this sounds unpromising, when you consider the islands are virtually inaccessible and it's expensive to get there, and to do this type of work you need to visit three to four times a year, her work is spectacular to say the least," de Lange says.

MAKE A DONATION TO THE NETWORK

On-line donations can now be made to the Network to help with the delivery of a range of plant conservation programmes including:

- The David Given Threatened Plant Research Fund
- Saving Threatened Plants
- Maintaining and improving the website
- Saving threatened plant communities
- Help one of our partners
- Help running the Network

If you would like to make a donation go to www.nzpcn.org.nz/nzpcn_donations.asp, decide on an amount and choose where you would like your money to go.

A classic High Country QEII open space covenant

Protecting landscape, historical and biodiversity values in Central Otago

In Waikerikeri Valley near Clyde, a spectacular schist rockland landscape was protected by Richard and Jacqui Parsons with the 252ha Waikerikeri covenant in April 2009.

'This area is a highly representative example of a Central Otago schist landscape covered with grey scrub,' says Dr Brian Molloy, QEII High Country Regional Representative. 'It is one of the best examples of a protected dryland ecosystem in a district where there is a paucity of significant protected areas, especially at lower altitudes.'

An excellent collection of semi-arid Central Otago plants is protected by the covenant including *Elymus apricus* (Naturally Uncommon), *Poa "colensoi"* (unnamed), *Melicytus* sp. (unnamed), *Carmichaelia petriei*, *C. compacta* (Declining), *Hebe pimeleoides* subsp. *faucicola* (Naturally Uncommon), *Helichrysum intermedium*, *Vittadinia australis*, *Acaena buchananii*, *Pimelea aridula* (Declining) and *Sophora microphylla*. The wide range of other native plants includes an abundance of *Olearia odorata*, *Muehlenbeckia australis* and *M. complexa*. The insect, lizard and invertebrate faunas are unidentified as yet but are likely to be significant. Birdlife includes falcons (Nationally Endangered), pipits, harriers, grey warblers and finches.

Waikerikeri Valley featured prominently in early gold mining in the district. A stone walled mining water race in the covenant is a historic relic of that era. Being an old mining area, the grey scrub alongside Waikerikeri Creek was heavily infested with 'camp follower' weeds such as hawthorn, willow, elder, sweet brier and wild currant.

With contributions from the Biodiversity Condition Fund, the landowner and QEII, sixty hectares have been treated with the herbicide Answer® to control the weeds and allow the grey scrub to recover and expand. Nine hectares of willows were treated with Roundup®.

'The Waikerikeri covenant combines all the elements of a first class recipe for an open space covenant from the early mining and prospecting history through to pastoral farming and now the protection of the biodiversity,' Brian concludes.

The remnants of original vegetation provided the motivation for the Parsons to protect the area with QEII. 'The property was under pastoral lease and during tenure review only the high altitude land on the Dunstan Mountains was allocated to the Department of Conservation,' says Richard. 'Once the low altitude areas became freehold, it was a good opportunity to put a covenant in place.'

New on-line key to New Zealand *Coprosma* species

A new key to New Zealand *Coprosma* by David Glenny, Jane Cruickshank and Jeremy Rolfe has been launched by Landcare Research. This Lucid 3 interactive key aids identification of any of the 53 species of *Coprosma* currently recognised in New Zealand. The key is illustrated with 500 images of species and the features used to identify them and has a factsheet for each species that provides a list of distinct features, comparisons with similar species, description, habitat and distribution details, and references to literature.

The key is designed for those with some experience in plant identification and will allow species to be identified without fruit being present. A glossary is linked to each factsheet to help the user understand the terminology used in the factsheets. The TFBIS (Terrestrial & Freshwater Biodiversity Information System) Programme fully funded this project. For more information about the key go to the Landcare Research website (www.landcareresearch.co.nz) or click on the link:

- Coprosma key (Landcare Research)

New Zealand plants overseas

Tony Foster spotted these New Zealand plants while on holiday in the USA. Follow the link to see New Zealand plants abroad: http://bushmansfriend.blogspot.com/2007/09/nz-plants-in-usa.html

What's flowering or fruiting in your neck of the woods?

Some of the species recorded flowering on the phenology recording system since it began in June.
Top row, from left (indigenous): *Acianthus sinclairii*, *Coprosma grandifolia*, *Diplodium alobulum*, *Dysoxylum spectabile*, *Teucridium parvifolium*. Bottom row (naturalised): *Allium triquetrum*, *Aloe arborescens*, *Berberis darwinii*, *Dipogon lignosus*, *Senecio angulatus*. Photos: Jeremy Rolfe.

Since the national phenology recording system went live in June, a wide range of records has been lodged (see under the Flora navigation heading). *Network members are automatically registered as Phenology recorders and need not re-register*.

Recent phenological observations include:

- Kohekohe flowering in Auckland and Porirua.
- *Dactylanthus taylorii* flowering near Napier.
- *Acianthus sinclairii* flowering near Waikanae.
- Tree lucerne, Japanaese honeysuckle and nasturtium flowering in Wellington.
- And gorse is flowering in many places.

Go to the "View Results" section to see what is happening around the country.

Log on to the Network website and start recording

Log in as a Network member and follow the instructions for recorders. The instructions can be downloaded here:

- Instructions: *www.nzpcn.org.nz/page.asp?flora_phenology_instructions*

Or download the Phenology Field Form for use recording your in-field observations:

- Phenology Field Form: *nzpcn.org.nz/publications/Phenology-record-sheet-100623.pdf*

Historical data can be loaded up for past observations. Please encourage your friends and colleagues to register and start logging observations.

Wellington Botanical Society Jubilee Award 2010 applications sought

Wellington Botanical Society invites applications for an award of up to $2500 to encourage and assist applicants to increase knowledge of New Zealand's indigenous flora and commemorate the Society's 50th Anniversary in 1989. Applications should be made in typescript to: Secretary, Wellington Botanical Society, PO Box 10 412, Wellington 6143 by 15 November 2010. For more information, see either *Trilepidea* No. 78 or the Wellington Botanical Society website: www.wellingtonbotsoc.wellington.net.nz/awards/jubilee.html

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):

Auckland Botanical Society

Meeting: Wednesday 4 August at 7.30 p.m. the Lucy Cranwell Lecture by Art Whistler titled 'Ethnobotany of the Pacific'. **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 to Kauri Glen Park, North Shore.	**Contact:** Maureen Young (e-mail: youngmaureen@xtra.co.nz).

Waikato Botanical Society

Field trip: Threatened Plant Collection Working Bee Saturday 28 August. A working bee in the threatened plant garden. Please bring gloves, old clothes and boots for weeding, planting and propagating activities. **Meet:** 11am at Waikato University Gate 9, Hillcrest Rd, or down the hill at the glasshouses compound.	**Contact:** Liz Overdyck ph 846 0965 eg3@waikato.ac.nz

Rotorua Botanical Society

Field trip: Sunday 8 August. Pataua Island/Oscar Reeve Scenic Reserve, Ohiwa. **Meet:** Carpark at 8.00 am or corner of Ruatuna Rd and SH2 at Ohiwa at 9.45 a.m. **Bring:** Gumboots—will need to cross mudflats at low tide! Estuarine wetlands and saltmarsh through to regenerating indigenous forest and scrub.	**Leader:** Paul Cashmore 07 348 4421 (hm), 07 349 7432 (wk) pcashmore@doc.govt.nz
Meeting: Thursday in August (date to be confirmed) 7.30 p.m. Rotorua Botanical Society Lecture. Dr. Tim Martin—Flora, vegetation and history of Kaikoura Island, off Great Barrier Island. Tim will speak on the flora, vegetation and history of Kaikoura Island located off the west coast of Great Barrier Island. It is currently the subject of a major ecological restoration intiative.	**Venue:** Rotorua Women's Club on Hinemaru St., near Princes Gate Hotel.
Field trip: Sunday 12 September - Rata trip to Whirinaki. **Meet:** The carpark at 8 a.m. or at Murupara DOC office, SH 38, 9 a.m	**Leader:** Gareth Boyt 07 366 5194 (hm) 07 366 1086 (wk) gboyt@doc.govt.nz /Paul Cashmore 07 348 4421 (hm), 07 349 7432 (wk) pcashmore@doc.govt.nz.

Wanganui Museum Botanical Group

Field trip: Sunday 1 August. Castlecliff revegetation. **Meet:** Duncan Pavilion, Castlecliff Beach, 9.15 a.m.	**Leaders:** Graham Pearson, Lynne Douglas and Esther Williams.
Meeting: 3 August: AGM, followed by members' show and tell.	
Field trip: Sunday 5 Sept: Bason Botanic Reserve: **Meet:** 9.00 a.m. at Bason carpark. See recent plantings and also, in the native gully, flowering of a natural population of spider orchids (*Corybas trilobus*).	**Leaders:** Vonnie Cave, Clive Higgie.

Wellington Botanical Society

Wellington BotSoc meetings are usually held at 7.30 p.m. on the third Monday of each month at Victoria University, Wellington, Lecturer Theatre M101, ground floor Murphy Building, west side of Kelburn Parade. Enter building off Kelburn Parade about 20m below pedestrian overbridge.

Meeting: Monday 16 August: Evening meeting – 1. Annual General Meeting, 2. AP Druce Memorial Lecture – Northland - special plants, special places.	**Speaker:** Lisa Forrester, Biodiversity Officer, Northland Regional Council.
Field trip: Saturday 7 August: Field trip – Coastal cliffs, Breaker Bay to Tarakena Bay. Botanise Palmer Head to Point Dorset. See Linum monogynum and possibly Melicytus obovatus in the wild. Strong boots recommended. **Meet:** 9 a.m. Breaker Bay car park. Bus no 11 to Seatoun Park.	**Leader:** Frances Forsyth, phone 384 8891.

Nelson Botanical Society

Field trip: August 15. Field trip to Jimmy Lee Creek.	**Contact:** Rebecca Bowater ph 545 1260
Field trip: September 19. Field trip to Sunday Creek covenant, Dovedale.	**Contact:** Sue Hallas ph 545 0294
Meeting: August 16. Spring alpines from the Vercors region in France.	**Contact:** Lawrie & Lena Metcalf
Meeting: September 21. Restoration at Otuwhero and Kokorua.	**Contact:** Roger Gaskell (DOC Motueka) rgaskell@doc.govt.nz

Canterbury Botanical Society

Meeting: Botanical Workshop on Saturday 14 August 2–5 p.m. at Canterbury University with Paul Broady. A lab experience looking down microscopes. As interesting as our outdoor summer activities but without needing food and drink for the day, warm clothing, boots and jackets!!!

Field trip: Summer Camp 2011, will be at the Cobb Reservoir at the dam site. Arrive on Tuesday 4 January 2011 and depart on Tuesday 11 January 2011. We have booked 2 three-bedroom houses which are basic family type homes. All bedding must be taken. There are no shops nearby so all food needs to be taken. No cell phone coverage.

Botanical Society of Otago

Meeting: Wednesday 11 August, 2010, 5.30–7.00 p.m. Rare and Threatened Lichens. Illustrated talk by Allison Knight. **Venue:** Zoology Benham Building, 346 Great King Street, behind the Zoology car park by the Captain Cook Hotel. Use main entrance of the Benham Building to get in and go to the Benham Seminar Room, Rm. 215, 2nd floor.	**Contact:** Allison Knight, phone: (03) 479 7577.

Environment Institute of Australia and New Zealand

Annual Conference: Tuesday 26 October to Friday 29 October at Te Papa, Wellington. The title of the conference is "From Discovery to Delivery: Science, Policy, Leadership and Action". These are the four elements that, together, are essential for sound environmental management.	**Information:** www.confer.co.nz/eianz2010.

2010 Australian Systematic Botany Society Conference

The conference with the theme "Systematic botany across the ditch: links between Australia and New Zealand" will be held from Monday November 29 to Friday December 3 at Lincoln University. Subject areas include palaeobotany, biogeography, phylogeny, algae, hybridisation, and biosecurity/weeds.

Contact: For registration form, speakers abstracts form, accommodation, field trip details and other information: www.landcareresearch.co.nz/news/conferences/asbs2010/index.asp or email: ASBS2010@landcareresearch.co.nz.

AVAILABLE NOW AT THE NZPCN ON-LINE SHOP

www.nzpcn.org.nz/shop_products.asp

Threatened Plants of New Zealand

Peter de Lange, Peter Heenan, David Norton, Jeremy Rolfe & John Sawyer

NZ's 189 extinct or threatened plant species described in detail with information about identification, threats and distribution.

Threatened plant poster

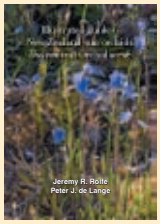
Full colour A2 poster of NZ threatened plants.

Introduction to plant life in NZ

Plant training module. This includes chapters on plant names, where plants grow and why, the plant life cycle and growth form and plant identification.

NZ Naturalised Vascular Plant Checklist

Clayson Howell and John Sawyer



Illustrated guide to New Zealand sun orchids, *Thelymitra* (Orchidaceae)

Jeremy Rolfe and Peter de Lange

Identification key illustrated with colour photos and detailed descriptions of sun orchids in New Zealand. A5, 64 pages, full colour throughout.