BOTANICAL SOCIETY

OF OTAGO

Newsletter Number 65 March 2012

BSO Meetings and Field Trips

21st March 5:20 pm. **Hidden Wealth—the Biodiversity of the Denniston Plateau.** A talk by Rod Morris. Rod Morris is a highly respected film-maker and wildlife photographer but did not felt the need to become an activist as well until visiting Stockton, New Zealand's largest open-caste coal mine near Denniston 18 months ago. He became increasingly troubled at what he sees happening as a consequence of the proposed mining project; ecological destruction on a massive scale in one of New Zealand's most important areas for biodiversity. The plants and animals of the Denniston Plateau (many of them poorly known or scientifically undescribed), are at risk from the 'Escarpment Mine' proposal put forward by Australian mining company Bathurst Resources. Rod wrote an article for the August 2010 issue of *Forest and Bird* magazine, about his impressions of Stockton, and since then has been collaborating with the Forest and Bird Society on publicising the hidden biodiversity of the Denniston Plateau and the threat that open caste mining poses to this area. BSO members may also have read an evocative piece more recently on the Denniston by Debs Martin in the latest (Feb 2012) issue of *Forest and Bird* magazine. See meeting details on p. 3.

24th March Saturday 8:30 am. **Field trip to Knight's Biodiversity Reserve, Tuapeka West.** John and Allison Knight are stewards of some of the last remaining native vegetation on the banks of the Clutha River from the lakes to the sea. Their 228 ha block opposite Birch Island and the Blue Mountains encompases a surprising variety of ecosystems. On the river flat and stream sides kahikatea, totara, matai & pokaka grow amongst gnarly old beech trees, with a broadleaf/divaricating shrub understory. In places the podocarps dominate, higher up there are almost pure stands of *Nothofagus solandri* and *N. menziesii*. Stands of huge old kanuka are evidence of early milling. On the sunniest northerly faces are remnants of original dry land shrub and kowhai

community, including the uncommon *Teucridium parvifolium*. John, Allison and Ben worked hard last year to build a 2 km long fence to protect examples of these communities from browsing and foraging animals. They hope this new biodiversity reserve will encourage regeneration of the understory and allow vulnerable plants to re-establish. Come and help to create a base-line species list, clear around the fence-line or just look around. Wear strong footwear with good grip for the steep slopes. Bring pen, hand-lens, lunch etc. 113 km drive each way. Return late afternoon. Rain-date Sunday 25th March. Contact Allison Knight, 487 8265

2nd April Deadline for entries for the Photographic Competition. Entry forms are available from the Department of Botany Office, or can be downloaded from the BSO website.

18th April 5:20 pm, **AGM and Photographic Competition**. Judging of the 6th BSO photographic competition and a brief AGM. Entries will be on display, photographic tips given and prizes presented. See meeting details on p. 3.

21st April Field trip to Craigieburn Reserve, Ross Creek. A joint trip with Forest and Bird. Leader: Paul Pope. Details to be announced.

26th April (Thursday) 7:30 pm **Denniston Natural Heritage Values** A meeting to be held in conjunction with Royal Forest and Bird Protection Society and the Entomological Society. Speakers to include Emeritus Professor Sir Alan Mark, Rod Morris, Lars Ludwig and Sue Maturin. **Note special venue:** Castle 1 Lecture Theatre, University of Otago.

19th May Propagation of New Zealand Native Plants. A workshop conducted by Alice Lloyd-Fitt. Dunedin Botanic Gardens. Details to be announced.

May 22nd 5:20 pm, **Hocken visit to see the Banks' Florilegium**. Anna Jackman, Hocken curator. Meet at the Hocken Library, Anzac Avenue.

20th June 5:20 pm, **Alpine Gems of the South Island** Speaker Dave Toole Invercargill. A photographic journey in search of alpine plants. See meeting details on p. 3.

23rd June Field trip to Goat and Quarantine Islands Leader: Bill Wilson (cost $10.00 for boat leaving from Portobello). Trip subject to weather. Rain day 24th June. Meeting time to be announced; see BSO web site.

18th July 5:20 pm **A talk by Landcare Research ecologist Susan Walker.** Title to be announced. See meeting details on p. 3.

July **Field trip to a Central Otago fossil stromatolite location** with Tina Summerfield, Alex Fergus and Daphne Lee. Details to be announced; see BSO web site.

15 August 6:00 pm, **11th Annual Geoff Baylis Lecture. Relationships of marine algae in New Zealand: new discoveries provide more pieces for the puzzle. Speaker: Dr Wendy Nelson, NIWA.** Talk to be held in Burns 2 Lecture Theatre, University of Otago. Drinks and nibbles will be available from 5 pm in the Castle Lecture Theatre Concourse.

3rd September Deadline for entries for the BSO Audrey Eagle Botanical Drawing Competition.

Meeting details: Talks are usually on Wednesday evening, starting at 5:20 pm with drinks and nibbles (gold coin donation), unless otherwise advertised. Venue is the 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, Room 215, 2nd floor. Please be prompt, as we have to hold the door open. Items of botanical interest for our buy, sell and share table are always appreciated. When enough people are feeling sociable we go out to dinner afterwards – everyone is welcome to join in. Talks usually finish around 6:30 pm, keen discussion might continue till 7 pm.

Field trip details: Field trips leave from Botany car park 464 Great King Street, unless otherwise advertised. Meet there to car pool (10 c/km/passenger, to be paid to the driver, please). 50% student discount now available on all trips! **Please contact the trip leader before Friday for trips with special transport, and by Wednesday for full weekend trips**. A hand lens and field guides always add to the interest. It is the responsibility of each person to stay in contact with the group and to bring sufficient food, drink and outdoor gear to cope with changeable weather conditions. Bring appropriate personal medication, including anti-histamine for allergies. Note trip guidelines on the BSO web site: http://www.botany.otago.ac.nz/bso/.

Contents

Chairman's Notes

David Lyttle

Welcome to the first BSO newsletter of 2012. I would like to thank all contributors to this newsletter and hope the flow of reports, articles and photographs continues. However this newsletter is a little thin on meeting and trip reports. It is essential that we keep our members informed of our activities in order to maintain a vibrant and active society so please can we have reports of each trip and meeting we hold. If the task is not left to a few individuals and spread around amongst all members (the time spent in the NZ education system should have given everyone the ability to write a sentence or two) it will contribute to the vitality of the BSO and enjoyment of all our members.

Last December on a trip to Mt Kyeburn I found and photographed a small daisy belonging to the genus *Brachyscome*. However, the usual avenues for making an identification soon came to a dead end and I was forced to delve into the fine print in the dustbin of the incertae sedis section of Vol 1 of the Flora of New Zealand. It turns out a number of *Brachyscome* species were described by the Dunedin botanists Simpson and Thomson in 1940s and 1950s. George Simpson was a builder and John Scott Thomson managed the family soft-drink manufacturing business. The two friends botanised extensively in Otago and further afield and published many of their findings in a series of papers in Transactions of the Royal Society of New Zealand. Scott Thomson was also an accomplished photographer and gardener growing various New Zealand alpine plants (including *Haastia pulvinaris*) at his home in Wakari. The 4th edition William Martin's book The Flora of New Zealand has as its frontispiece a picture of Scott Thomson's garden and many of Thomson's pictures of plants in the wild and in cultivation are used to illustrate it. The Simpson and Thomson papers are a mix of location records, observations on different plant and formal descriptions of new taxa and would be unlikely to appeal to the journal editors of today. An example is "*Hymenanthera dentata* R. Br. var. *angustifolia* Benth. In *coprosma* scrub near the foot of Lake Manapouri, collected by Mr. Burton Murrell, Catlins River Valley, near streams." *Melicytus flexuosus* still grows in both locations today. Despite being amateurs both men were without doubt very accomplished field botanists and many of their species are still accepted today. In some respects I feel that I am

following the footsteps of these two men around Otago and I hope that some one will be encouraged to take Simpson and Thomson's neglected *Brachyscomes* and give them the status they deserve.

References

Godley EJ 1996. Biographical Notes (23): John Scott Thomson FLS, FCS, Hon. FRHZOH (1882–1943). *New Zealand Botanical Society Newsletter* **45** (September), 11–14.

Martin W 1961. *The Flora of New Zealand* 4th edition. Whitcombe and Tombs.

Allan HH 1961. *Flora of New Zealand Vol 1*. RE Owen, Government Printer, Wellington, New Zealand.

Simpson G 1945. Notes on Some New Zealand Plants and Descriptions of New Species (No. 4). *Transactions of the Royal Society of New Zealand* **75**, 187–202.

Editor's Notes

David Orlovich

Alex has had a busy summer botanising in Fiordland and down on the Subantarctic Islands, so in his absence David Lyttle and I have put this issue together.

Please submit copy for next newsletter by 29 June 2012.

Editor's guidelines: Try to aim for a 0.5–1 page of 14 pt Times for news, trip/meeting reports and book reviews, and 1–5 pages, including illustrations, for other articles. Electronic submission (by email to the editor: fergus.alex@googlemail.com) is preferred. Send photos as separate files and remember to include photo captions and credits.

Disclaimer: The views published in this newsletter reflect the views of the individual authors, and are not necessarily the views of the Botanical Society of Otago.

Find out about the Denniston peripatus at Rod Morris' talk on March 25. Photo by Rod Morris.

Correspondence and News

Honour for lichenologist Dr David Galloway

The BSO would like to extend its congratulations to BSO member and arguably New Zealand's pre-eminent lichenologist Dr David Galloway who in December last year was elected a foreign member of the Royal Society of Arts and Sciences in Gothenburg, Sweden. David is the author of the definitive Flora of New Zealand Lichens, and it is gratifying to see that his labours have gained international recognition through his election to this prestigious Society.

Right: David Galloway, lichenologist on a BSO field trip to Sutton Salt Lake August 2006. Photo by David Lyttle.

The BSO Audrey Eagle Botanical Drawing Competition is back!

Sharpen your pencils and prime your paintbrushes – BSO's Audrey Eagle Botanical Drawing competition will be held again this year, and every second year from now on, entries permitting. Botanical artistry is not a widespread skill, so there's a good chance of winning the first prize of $100, second prize of $50 or third prize of $25!

Judging criteria

1. Botanical accuracy
2. Detail, especially of important identification features
3. Clarity of lines
4. Proportional representation and scale
5. Layout
6. Suitability for reproduction in newsletter (grey scale) or website (colour)
7. Accurate caption, e.g., botanical name of plant, where it came from, date drawn.
8. Botanical notes or comments of interest e.g., key to botanical details, history, distribution, uses, variations etc. (The NZPCN website could be helpful)
9. Preference will be given to plants that have been rarely illustrated eg a lichen or an uncommon wetland plant would be more valuable scientifically than a kauri.
10. Above all, artistic merit carries the highest rating.

Conditions of entry

Entries must be submitted with an entry form, by **Monday 3 September 2012** to the Botanical Society of Otago, PO Box 6214, Dunedin North 9059, or hand it in to the Department of Botany Office.

The drawing must be your original work. There is a limit of 3 entries, with a minimum size A4, maximum A3.

You should include a title and notes of botanical interest

Judges, will be kept unaware of your identity while judging

Entries will be displayed and prizes awarded at the BSO monthly meeting in September or October 2012.

BSO may use copies, with due acknowledgement, in the *Newsletter* and website.

Entries are open to current BSO members—our subscription is very low!

No prizes will be given if there are no entries of sufficient quality.

If there are insufficient entries they may be re-entered in the postponed competition.

There is no entry fee, so please include an addressed, pre-paid envelope or tube if you would like your drawings returned.

Colloquium Prize Winners' talks, 12 October 2011

The three winners of the prizes donated by The Botanical Society of Otago to the Botany Postgraduate Research Colloquium repeated their prize-winning talks to an interested audience at our October meeting. Jaz Morris, winner of the Honours Student's section, showed how greenhouse conditions could affect the physiology of giant kelp. Diego Urrutia Guevara, who won the Masters Student's section talked about the response of alpine plant and soil composition to induced environmental conditions on the Old Man Range, New Zealand. Tim Crawford, winner of the PhD student's section explained profiling low-oxygen electron transport in the cyanobacterium *Synechocystis* sp. PCC 6803. All three gave excellent presentations and showed how they were worthy recipients of their prizes. These annual talks by top students on their novel research are always well worth attending.

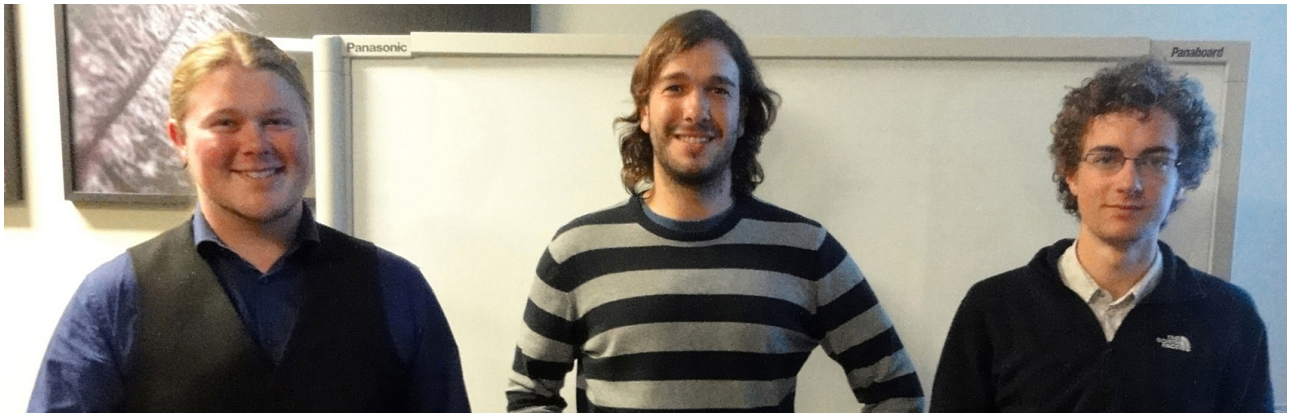


Photo: Tim Crawford, Diego Urrutia Guevara and Jaz Morris receiving their prizes.

Articles

A note on *Lilium formosum* var. *pricei*

Jean Bretherton

I read with interest Peter Johnson's article on the plants of Formosa (*BSO Newsletter* 64) within which *Lilium formosum var. pricei* was discussed. While working at the Botanic Garden on the fundraising venture for the Information Centre many years ago I used to sell these lovely little lilies to the public. Plants were supplied by the Botanic Garden. I purchased one and noticed that they produced plenty of seeds. But the perfume was the selling point! Just delightful! Regretfully I no longer have the lily so if anyone has some spare seeds I would love to 'container grow' it again.

Successful cultivation of the declining native mistletoe, *Tupeia antarctica.*

Alf Webb

Some years ago it was suggested that I might like to look out for the mistletoe *Tupeia antarctica* on the Otago Peninsula. I have been unable to find any plants from the Glenfalloch—Collinswood area from where it has been recorded, but I have come across several felled hawthorn trees there that may have had the mistletoe on them. In 2008 I gathered a few ripe fruits from plants near the Bullock Track where it can be seen growing on tree lucerne (*Chamaecytisus palmensis*). I pressed some seeds onto tree lucerne near our house at Broad Bay. As one of the branches was an inch diameter where I stuck the seed, I initially thought that it might be too mature for the mistletoe to gain a hold but this was not so. The tacky coating of *Tupeia* seed is remarkable in the way it remained sticky for a year in all weather on the branches, and after about 18 to 24 months, a green shoot could be seen emerging from the seed turning to penetrate directly into the bark of the host. This situation appeared to remain unchanged for a similar amount of time except for a possible bit of swelling of the branch in the area of the attached seed. Finally, this past summer, a small shining green sprig has emerged in contrast to the tomentose foliage of the host.

Fig. Cultivated *Tupeia antarctica* growing on tree lucerne, *Chamaecytisus palmensis* at Broad Bay. Photo by Alf Webb.

Interestingly, in 1907 G.M. Thomson, in his "Notes by the Wayside" wrote that *Tupeia antarctica* was "the most common mistletoe in the environs of Dunedin". I am told the marble leaf (*Carpodetus serratus*) is a good host plant so I might try that next as a native host. *Tupeia antarctica* also attaches readily to the now far more common mistletoe *Ileostylus micranthus* as seen on the big Tasmanian blackwood growing at the end of Stonelaw Terrace. Although a certain degree of patience is required before any result is evident, I can think of no other plant that can be grown so successfully by being totally neglected.

Megalaria orokonuiana—a new species of lichen discovered in the Orokonui Ecosanctuary!

Allison Knight

When Alyth asked me if I would run a workshop on lichens at the Ecosanctary in June 2010 I thought I'd better check the area out and find some common ones for people to learn about – and maybe photograph some as well to help illustrate the introductory field guide to lichens that I'm writing.

On the second scout around I noticed that a green lichen crust covered in black dots of apothecia (fruiting bodies) was very common on tree trunks in the forest. I thought this was probably the cosmopolitan *Megalaria grossa*, but was reluctant to scrape any off to check. We came to a kanuka grove, which was exceptionally rich in lichens. There, on peeling bark at the base of an old kanuka, was a likely looking *Megalaria*, so I happily photographed it and took a sample home to check the identity. When I examined it under the microscope I was quite disappointed because it was obviously not the common *Megalaria grossa*, and of no immediate use for the workshop or the field guide.

However, when I looked at the key in the Flora of New Zealand Lichens, I got excited again, because there was a record of the rare *M. spodophana* with a similar granular 'isidiate-furfuraceous' thallus. Charles Knight, the Auditor-General, collected it in Wellington the century before last! Nylander published the description in 1888. It's only known from the type specimen, so it would be exciting to find another specimen after all these years.

To check the match further, I sliced one of the tiny apothecia, only 1 mm across, with a razor blade, carefully transferred the minute slices to a drop of water on a glass slide, and slid a glass cover slip over the top. After a few gentle taps the spores emerged and I could measure them at 400 × magnification. To my puzzlement they were nearly twice as big as the spores of *M. spodophana*. It wasn't going to be that easy to identify this puzzling lichen.

So I sent a photo and description to David Galloway, the most eminent

lichenologist in New Zealand and author of our comprehensive Lichen Flora, for his opinion. He suggested that I get in touch with Alan Fryday, the international expert on *Megalaria* who is a busy lichenologist at Michigan State University. Alan was puzzled, too. He said he would send away for the type specimen of *M. spodophana*, which is held in the Nylander collection in the Helsinki Herbarium, and would compare it with my lichen from Orokonui, if I sent him a sample.

Eventually, when he had the two lichens together, and time to compare, them he agreed that they were not the same. After more months of careful deliberation and further checking that there was nothing else like it in the world, Alan concluded that the Orokonui lichen must be a new species, and we should publish the description.

When the question of a name came up I asked that we name it in honour of the Ecosanctuary. Initially Alan suggested *Megalaria orokonuensis*, as '-ensis' is a suffix that indicates place found. I thought 'orokonuiensis' would roll off the tongue and relate to the place better, but Alan said it is taxonomically more correct to drop the last vowel in the place name. Eventually we settled on *Megalaria orokonuiana*, but printing this new name anywhere at all had to be embargoed until the proper scientific report came out.

There was plenty more writing to and fro before we submitted the paper to *Australasian Lichenology*, and then more again to do once the referees' reports came in. Alan registered our new lichen with Mycobank, which gives every fungus known in the world a unique reference number. Finally, in late February this year, I got word that the paper has been published, and the name is official at last. Orokonui Ecosanctuary has its very own rare lichen, found nowhere else in the world. It's amazing what exciting things you can find when you start out looking for very common lichens!

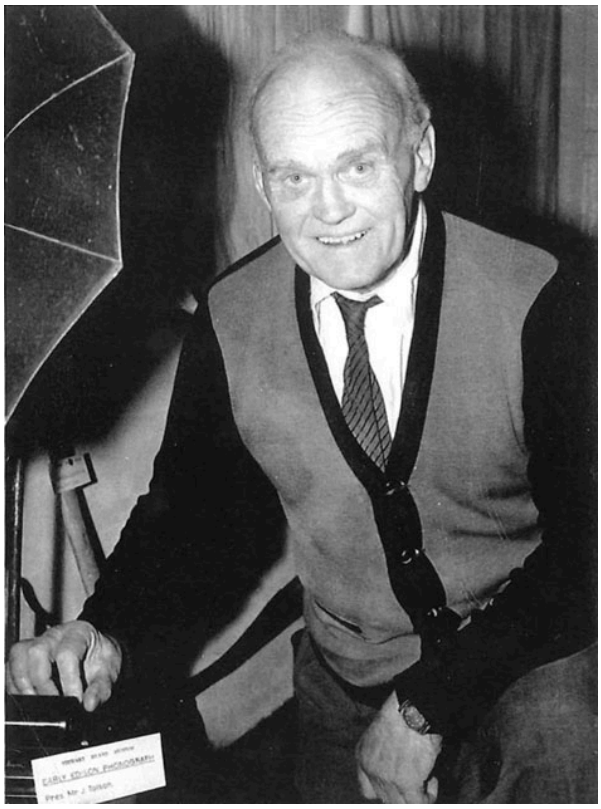
The journal with the new species of lichen discovered at Orokonui is on-line. Just Google '*Australasian Lichenology*' and look for *Australasian Lichenology* **70** (January 2012), 26–29.

Megalaria orokonuiana. Photo by Allison Knight.

Rakiura Profiles: Cedric Smith

Mary Anne Miller

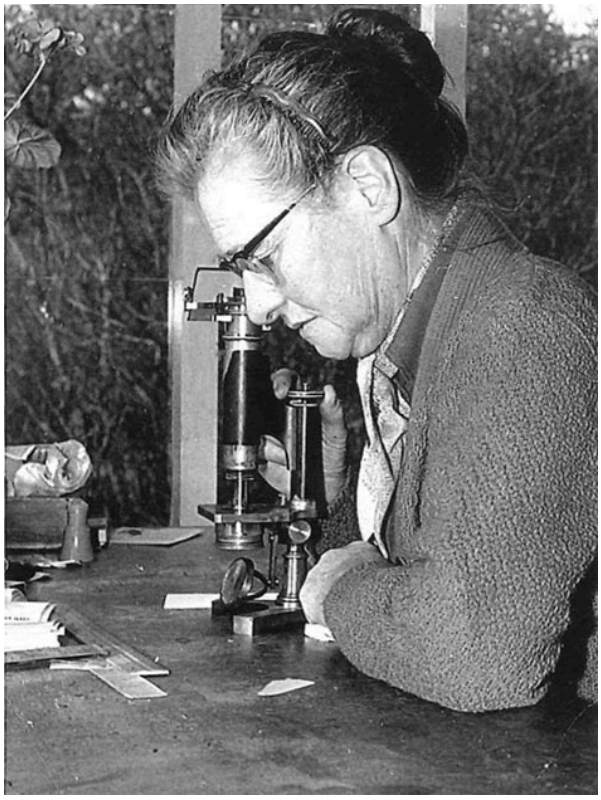
The orchids of Stewart Island became a major interest of Cedric Smith (1891–1963).



Cedric Smith

Born in Invercargill, he trained as a surveyor at the University of Otago. However after World War I he could no longer work in the discipline so in the mid-1920s with a full war disability pension he went back to the place of youthful holidays and his honeymoon, Stewart Island. For the next 40 years he and wife Elsie formed botanical, shell and other local collections. Over these years many visitors with queries on natural history were directed to their house in Halfmoon Bay. Following his work on Stewart Island orchids, Cedric started on the mosses, lichens and fungi until his energies were concentrated on establishing the Rakiura Museum of which he was the founding (honorary) director when it opened in 1960.

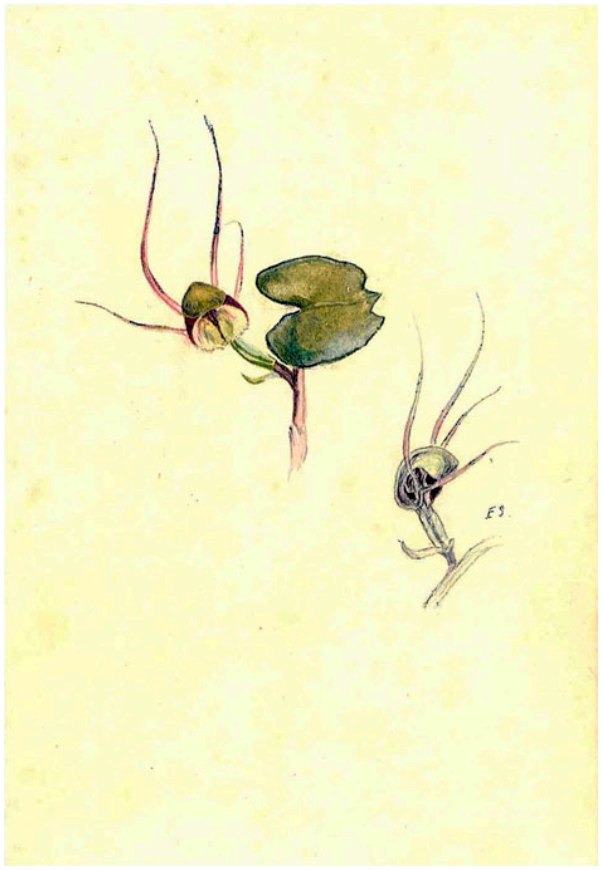
Cedric's knowledge of southern orchids greatly assisted Dan (Edwin D) Hatch, an amateur botanist who published in the 1940s and 1950s and who named *Thelymitra venosa* var. *cedricsmithii* Hatch 1952 (synonym *Thelymitra cyanea* (Lindl.) Benth. 1873) in his honour. Not only did Cedric document and preserve specimens (orchids were mounted between thin panels of glass), he sent samples to Hatch and the Dominion Museum. He also shipped fresh samples packed in moss to his daughter at school in Invercargill for illustration. However his greatest assistant was Elsie.



Elsie Smith

Cedric and Elsie (Elizabeth Keith Annand Simmers (1896–1970) married in 1921. Her father was the headmaster of Timaru Boys High School and it was here under the influence of the art master she honed her drawing skills. Although Elsie's specialist subject was conchology, in particular microscopic shells of the southern region, her delicate orchid watercolours were a valuable record of local flora. These 3 watercolours are from a collection of 33 still in the family.

Nematoceras acuminatum



Nematoceras trilobum

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Natusch S 1992. *An Island called home, Rakiura, New Zealand*, Craigs, Invercargill.

Robinson J 2011. Personal communication.

St George I 2011. *The 2011 list of New Zealand Orchid Taxa*.

Acknowledgement

Thanks to Mrs Judith Robinson for providing this selection of Elsie's orchid watercolours.

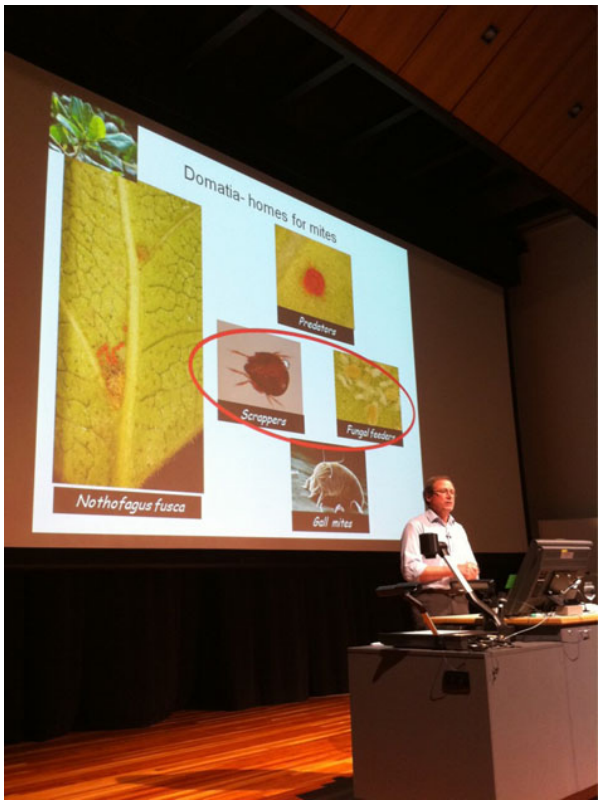
Meeting and trip reports

The 10th Annual Geoff Baylis Lecture

Andrew J. Tanentzap, Landcare Research Dunedin

The 10th Annual Baylis Lecture was held in conjunction with the University of Otago Botany Department on Wednesday 14th September. Prof Bill Lee (Landcare Research, Dunedin and recently, Auckland University) delivered the 2011 lecture, entitled *Complex relationships with friends and foes: How native plants manage the risks*, to an eager crowd that filled the foyer of the Castle Lecture theatre well before the start of the talk. Bill has a long history of designing innovative field experiments for studying ecological interactions and applying this research towards halting declines in native biodiversity; first as a DSIR scientist and most recently as head of a large, multi-year Collaborative Research Initiative based at Landcare Research—Manaaki Whenua.

The audience was privileged to hear Bill delivery a captivating and engaging lecture on the myriad of ways that native plants interact with other organisms in their environments. Bill set the context for his talk by posing a quintessential question in biology: " Why is the world green"? Bill argued that the many ways in which plants cooperate with organisms in their environments to resist their enemies provides an explanation for a green world. Using a series of fascinating examples, Bill carefully highlighted the beneficiaries of interactions between plants and the organisms in their environments, the mechanisms, risks, and costs involved, and how these interactions were vital to plant populations.



Bill Lee giving the Baylis Lecture. Photo by David Orlovich.

Bill distinguished three types of biological interactions: cooperation, avoidance, and a 'tug of war' between plants and their enemies. The first of these three interactions was particularly fitting for a Baylis lecture given that Prof Geoff Baylis was a global pioneer in studying mutualisms between plants and mycorrhizal fungi. Mycorrhizal fungi increase phosphorus uptake by plant roots, an important strategy for persisting on the old weathered soils that dominate New Zealand (Baylis 1967). However, Bill noted how much remains to be explored in Geoff Baylis'

legacy in how the biology and ecology of root hairs influence plant-mycorrhizal interactions (Fitter 2004). Bill then referred to his own work on how mites that reside within domatia of *Coprosma* leaves may combat pathogenic fungi, ultimately increasing plant fitness (Monks et al. 2007). As an example of avoidance interactions, Bill cited the wiry and tensile branches of native plants that are presumed to be anachronisms remaining from the time when moa (Dinornithidae) roamed the landscape of New Zealand. Finally, Bill discussed an exhaustive range of studies on native *Drosera* species, mast seeding snow tussocks (*Chionochloa* spp.), and dispersal and pollination of native shrubs, illustrating the many types of struggles that plants are engaged in with insects and birds.

Overall, the 10th Annual Baylis Lecture emphasized the need to consider the importance of context-specific biotic interactions. Plants have strategies to beat their foes and benefit from their friends; the world is green because plants are in control.

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Fitter AH 2004. Magnolioid roots—hairs, architecture and mycorrhizal dependency. *New Phytologist* **164**, 15–16.

Monks A, O'Connell DM, Lee WG, Bannister JM, Dickinson KJM 2007. Benefits associated with the domatia mediated tritrophic mutualism in the shrub *Coprosma lucida*. *Oikos* **116**, 873–881.

Akatore Field Trip Saturday 17 November 2011

Robyn Bridges

It was third time lucky for the field trip to Akatore and as it turned out, well worth waiting for (but I would say that as I had called off the other two trips!). The day, the company and the botanising were excellent and resulted in a much expanded species list for Akatore (see below).

Twelve of us set off from the Botany Department for the scenic drive following the southern coast, noting the now very dilapidated remnant of the Dunedin Centennial Exhibition, the Round House, standing forlornly in a roadside paddock. We met at the car park on the seaward side of the bridge spanning Akatore Creek (do not follow the sign on the right to the Akatore Creek road). Our plan was to botanise the remnant of coastal shrub on the true left of the Akatore, then check out the coastal turfs at the mouth of the creek. The area is tidal, and we were fortunate that the tide was on its way out, as there is no bush edge track and what appears to be the start of one soon peters out. At high tide it would be wettish feet, some boulder hopping and possibly some shallow wading.

Highlights of the day included the shrubs *Melicytus flexuosus*, *Melicytus alpinus*, *Olearia fragrantissima*, *Hoheria angustifolia* and the very rare *Coprosma obconica*. Remnants of larger cover included matai (*Prumnopitys taxifolia*), miro (*Prumnopitys ferruginea*), the mountain totara (*Podocarpus cunninghamii*) and a stately rimu (*Dacrydium cupressinum*) with a young juvenile. After a pleasant lunch in the sun, on a now wider rocky river's edge, we headed to the mouth, which is accessed by climbing up a bank and following a farm fence to the rocky coast.

The coastal turfs have been heavily grazed and subject to much weed invasion. Despite this, we found good healthy specimens of the coastal cress *Lepidium tenuicaule* and on a safe rocky outcrop some very small rosettes of the forget-me-not *Myosotis pygmaea,* a species now in serious decline, and the threatened New Zealand daphne, *Pimelea prostrata*.

Walking back to the cars was less of a foot watching exercise. By now the tide was well out and we passed enticing pools of still clear water formed by the receding tide that looked very tempting in the afternoon sun. It is an area well worth a visit.

Species List—Akatore Creek

Regenerating bush remnant along the true left bank of Akatore Creek from the road to the sea and comprising a mainly exotic area near the road, through native bush culminating in exotic farm pasture and some rock outcrops by the sea. Access *via* Milton Taieri Mouth Road, 45 kms/50 mins from Dunedin

Grid Reference: NZMS 260 I45 170°10′ E 46°07′ S 920517 alt 0–50 m

* = species recorded on the BSO field trip 18.iii.2006 but not seen on the BSO field trip 19.xi.2011

^{e} = exotic

Reference

Livesey H 2006. 18th March 2006, BotSoc foray to Akatore. *Botanical Society of Otago Newsletter*, **48**, 24–25.

LICHENS

Brigantiaea chrysosticta
Buellia albula
Buellia fuscoatrula
Caloplaca cerinelloides
Caloplaca circumlutosa
Caloplaca flavorubescens
Caloplaca homologa
Caloplaca mooreae
Caloplaca litoralis (was *Caloplaca rosei*)
Caloplaca sp.
Caloplaca subpyracea
Chrysothrix candelaris
Cladonia fimbriata
Cladonia humilis
Coenogonium implexum
Haematomma babingtonii
Hyperphyscia plinthiza
Lecanora carpinea
Lecanora flavidomarginata
Lecanora semipallida (was *Lecanora flotoviana*)
Lepraria incana
Megalospora gompholoma
Menegazzia neozelandica
Menegazzia subpertusa
Opegrapha aff atra
Opegrapha diaphoriza
Paremelinopsis afrorevoluta
Parmelia cunninghamii
Parmotrema perlatum
Parmotrema reticulatum
Peltigera hymenina
Pertusaria graphica
Pertusaria knightiana?
Physcia adscendens
Physcia caesia
Physcia erumpens
Physcia jackii

Punctelia borreri
Pyrenula deliquescens?
Ramalina glaucescens
Ramalina inflexa
Rinodina thiomela
Strigula oceanica?
Teloschistes chrysophthalmus
Thelotrema lepadinum
Usnea sp.
Usnea tenerior
Verrucaria maura
Xanthoparmelia spp.
Jackelixia ligulata (was *Xanthoria ligulata*)
Xanthoria parietina [e]

LIVERWORTS
Heteroscyphus biciliatus
Lunularia cruciata [e]

MOSSES
Echinodium hispidum

FERNS
Asplenium appendiculatum
Asplenium flaccidum
Asplenium gracillimum
Asplenium hookerianum
Asplenium hybrids
Asplenium lyallii
Asplenium obtusatum
Asplenium polyodon
Blechnum blechnoides
Blechnum chambersii
Blechnum discolor
Blechnum fluviatile
Blechnum minus
Blechnum procerum
Dicksonia fibrosa
Dryopteris affinis [e]
Microsorum pustulatum
Polystichum neozelandicum subsp. *xerophyllum*
Polystichum vestitum
Pteridium esculentum
Pyrrosia eleagnifolia

GYMNOSPERMS
Dacrydium cupressinum
Podocarpus cunninghamii
Prumnopitys ferruginea
Prumnopitys taxifolia

ANGIOSPERMS

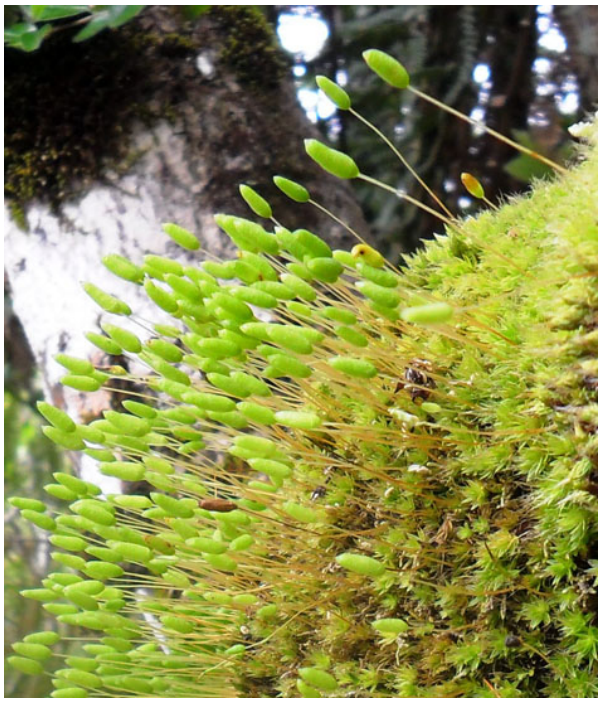
Dicotyledons
Acaena juvenca
Acaena minor
Acaena novae-zelandiae
Acaena pallida
Achillea millefolium [e]
Aphanes inexpectata [e]
Apium prostratum
Bellis perennis [e]
Callitriche stagnalis
Calystegia tuguriorum
Capsella bursa-pastoris [e]
Cardamine hirsuta [e]
Carpodetus serratus
Cerastium fontanum [e]
Cirsium arvense [e]
Cirsium vulgare [e]
Clematis foetida
Colobanthus uniflorus
Conium maculatum [e]
Coprosma hybrids
Coprosma linariifolia
Coprosma lucida
Coprosma obconica
Coprosma propinqua
Coprosma rhamnoides
Coprosma rotundifolia
Coprosma rubra
Cotula coronopifolia [e]
Crassula moschata
Cytisus scoparius [e]
Disphyma australe
Epilobium komarovianum
Fuchsia excorticata
Galium aparine [e]
Griselinia littoralis
Haloragis erecta
Helichrysum filicaule
Helichrysum glomeratum
Hoheria angustifolia
Hydrocotyle heteromeria
Hydrocotyle montana
Hypericum androsaemum [e]
Hypochaeris radicata [e]
Jacobaea vulgaris [e]
Korthalsella clavata [*]
Kunzea ericoides
Lepidium tenuicaule
Leycesteria formosa [e]
Linum catharticum [e]
Linum monogynum
Lotus corniculatus [e]
Lupinus arboreus [e]
Lychnis arvensis [e]
Matricaria matricarioides [e]
Melicope simplex
Melicytus alpinus
Melicytus flexuosus
Melicytus ramiflorus
Metrosideros umbellata
Muehlenbeckia australis
Muehlenbeckia complexa
Mycelis muralis [e]
Myosotis pygmaea
Myrsine divaricata
Myrsine australis
Olearia avicenniaefolia
Olearia fragrantissima
Oxalis exilis
Parsonsia heterophylla
Pennantia corymbosa
Pilosella officinarum [e]
Pimelea prostrata
Pittosporum eugenioides
Pittosporum tenuifolium
Plagianthus divaricatus
Plantago lanceolata [e]
Plantago major [e]
Prunella vulgaris [e]
Plantago raoulii
Pseudognaphalium luteo-album [e]
Pseudopanax crassifolius
Pseudopanax ferox
Pseudowintera colorata
Ranunculus acaulis
Ranunculus acris [e]
Ranunculus repens [e]
Raoulia subsericea [*]
Ribes sanguineum [e]
Ribes uva-crispa [e]
Rosa ?*rubiginosa* [e]
Rubus cissoides
Rubus fruticosus [e]
Rumex acetosella [e]
Rumex crispus [e]
Rumex obtusifolius [e]
Sagina apetala [e]
Sagina procumbens [e]
Samolus repens
Scleranthus uniflorus

Selliera radicans
Senecio biserratus
Senecio minimus
Senecio vulgaris [e]
Solanum dulcamara [e]
Solanum lanceolatum
Solanum tuberosum [e]
Sonchus asper [e]
Sonchus kirkii
Sonchus oleraceus [e]
Sophora microphylla
Spergula arvensis [e]
Stellaria media [e]
Stellaria parviflora
Streblus heterophyllus
Taraxacum officinale [e]
Tetragonia implexicoma
Trifolium dubium [e]
Trifolium repens [e]
Ulex europaeus [e]
Veronica arvensis [e]
Veronica elliptica
Veronica persica [e]
Veronica salicifolia
Veronica verna [e]
Vicia sativa [e]

Monocotyledons
Agrostis capillaris [e]
Agrostis stolonifera [e]
Ammophila arenaria [e]
Anthoxanthum odoratum [e]
Arrhenatherum elatior [e]
Astelia nervosa
Carex appressa
Carex coriacea
Carex litorosa [*]
Carmichaelia ?petriei
Cordyline australis
Dactylis glomerata [e]
Ficinus nodosus
Holcus lanatus [e]
Isolepis aucklandica
Juncus edgariae
Libertia ixioides
Lolium perenne [e]
Luzula rufa
Phormium tenax
Poa astonii
Schoenoplectus pungens
Thelymitra longifolia

It's the little things that matter: The 2011 John Child Bryophyte and Lichen Workshop

Kelly Frogley



Leptostomum inclinans (Pin cushion moss) growing in a clump on a beech tree. (Photo by Kelly Frogley)

We were based in Matawai, a small settlement halfway between Gisborne and Opotoki. With less than six buildings making up the town, I really felt I was in the middle of nowhere! The locals certainly didn't anticipate the arrival of 40 odd bryophyte enthusiasts who soon flooded their demure town.

Every day we set out on field trips to nearby sites including several beautiful spots in the Waioeka gorge. We moved at our own pace through the bush observing and collecting bryophyte and lichen specimens. It was on these field trips that I witnessed the notoriously slow pace of bryologists I had been forewarned of. Many didn't venture further than 20 metres from the start of the track, but that just highlights how rich in diversity the locations were. Nevertheless, during one trip, along with three others, I endeavoured to reach the end of the track where we found ourselves in a stunning oasis

down beside a tributary of the Waioeka River.

After we had finished in the field we all returned to our base in the Matawai community hall where we worked on identifying the specimens we had collected that day. The hall was packed with microscopes, books and keys to help with our identifications, but most beneficial of all were the many local and international bryologists and lichenologists who were only too happy to lend their expertise and enthusiasm to amateurs like me.

Right: Sporophyte of *Leucobryum candidum* under a dissecting microscope. (Photo by Kelly Frogley)

Above: On reaching the end of the Manganuku walking track we found ourselves in this beautiful spot beside a tributary of the Waioeka River. (Photo by Kelly Frogley)

I wasn't the only first timer at the workshop. A few other students from Auckland and Waikato universities had also come along to check it out. On the

third night, we had the opportunity to present some individual student research to the rest of the group. I presented a paper on the influence of bryophytes on the conclusions from an ecological survey of a South Otago bog, a study I began working on during my third year studies of botany at the University of Otago. For this presentation I was awarded the Tom Moss Student Research Award. I have always been passionate about biodiversity and the conservation and restoration of New Zealand environments. Bryophytes make up a huge part of New Zealand flora, yet very little is known of their role in plant communities, and much more work needs to be done.

For the plant lovers who also "ooh" and "ahh" at the cute and cuddly (myself included), we were given our fix on the final day of the workshop when we visited a kiwi chick enclosure near Whinray Scenic Reserve, a 430 ha area of pristine podocarp forest, approximately 15 km from Matawai. A very accommodating DOC ranger guided us through their kiwi chick monitoring programme and involved us in the bi-monthly weighing of their resident chicks (Photo 4).

The atmosphere throughout the entire week was extremely welcoming and relaxed. It can be daunting throwing yourself in the deep end where you don't know many people and it feels like you know very little, but it's amazing how much you pick up when you are totally immersed and having fun.

Kelly petting one of the resident chicks inside the Motu kiwi chick enclosure near Whinray Scenic Reserve (photo by Nathan Camp).

Mackenzie Country: Wairepo Kettle Hole Conservation Area and Ben Dhu Scientific Reserve

Moira Parker

Sat 3rd December 2011, on a glorious summer morning, our group set off from the Omarama Holiday Park – Bradley Curnow, May Gallagher, Alf Webb, Moira Parker, Marcia Dale, Kathy Graham and trip leaders John Barkla and Geoff Rogers.

Herpolirion novae-zelandiae. Photo by Moira Parker.

We turned off the Omarama –Twizel Highway 8 onto the Quailburn Road, which leads to the Ahuriri Conservation Park. Before the road end, a sign on the right indicates a walking track to the Wairepo Kettle hole Conservation Area. However, having the key to the locked gate, we were able go by 4WD vehicles and save some time. This Conservation Area is protected from stock and has not been grazed for 5 years. The kettle holes appeared as large, shallow ponds surrounded by extensive flat turfs. However, the glacial soils of the old moraines provide good drainage and the environment can change from a shallow pond to a dust bowl during a dry summer. Early summer is a prime time to visit these ephemeral wetlands, while there is adequate moisture and many of the turf plants are in flower. However, we would have been lost without Geoff and John's expert help to identify the wealth of tiny plants making up the compact turf. Apparently one fifth of New Zealand's flora occurs in these periodically wet environments.

Hypericum rubicundulum growing with *Epilobium angustum* and *Hydrocotyle hydrophila*. Photo by Moira Parker.

Some of the most memorable plants for me were: Cream coloured flowers of *Herpolirion novae-zelandiae* (grass lily) that were abundant on the higher ground; the orange flowered *Hypericum rubicundulum* scattered among the damper turf; small white flowers of *Galium* aff. *persupillum*; *Pimelea sericeovillosa* subsp *sericeovillosa* – a very hairy cushion pimelea; *Epilobium angustum* with a large white flower and a "walnut" pattern on the leaves; *Carex rubicunda* – a minute bronze coloured *Carex* that is nationally vulnerable, range restricted; *Stackhousia minima* – a plant with fleshy leaves and an intriguing name; a tiny forget-me-not *Myosotis brevis*; the yellow-green sterile fronds of *Ophioglossum coriaceum*; and spread through much of the turf community the glossy, trifoliate leaves of *Hydrocotyle hydrophila*. We took plenty of digital photos to record these unusual species and Marcia compiled a species list for the weekend.

After finding a sheltered hollow out of the wind to have lunch, Geoff handed out the pruning saws and loppers—it was time to do our bit towards getting rid of a few of the wildling pines on the higher ground surrounding the kettle hole. It was not an easy job as the young pines were growing amongst existing pine slash from previous efforts to eradicate the wildlings. From there we drove to the old woolshed at the end of the Quailburn Rd, where there was a wonderful display of the bright red flowers of the mistletoe *Peraxilla tetrapetala* growing high up in tall mountain beech trees (*Nothofagus solandri* var. *cliffortiodes*). We walked a short distance along the Quailburn Track into the beech forest with its more familiar species, not nearly as challenging as the kettlehole plant community. Then it was back to the Omarama hotel for a beer, a meal and a very convivial evening.

An attentive audience at the Wairepo kettlehole. From the left: Bradley Curnow, Alf Webb, Marcia Dale, Geoff Rogers and John Barkla. Photo by Moira Parker.

The following morning we again set out on the Quailburn Rd, this time just as far as the access point to the Ben Dhu Scientific Reserve. From here we walked across paddocks carpeted in yellow *Hieracium* flowers, to the boundary fence of the Bog Pine Scientific Reserve. Geoff gave us a fascinating introduction to this rare ecosystem, one of only eleven similar glacial outwash sites in the Eastern South Island. Bog pine (*Halocarpus bidwillii*), New Zealand's slowest growing shrub, survives in nutrient poor, gravelly, moraine soils and is

able to tolerate frosts as low as –22° C. We could see at first hand the ability of bog pine's lateral branches to take root, thus forming trees with a massive circumference, which can live for 200 years. Sadly, bog pine makes excellent firewood due to its high resin content. Much of it was burned as land was cleared, or it was cut for firewood. However, it is able to resprout after fire, resulting in many multi stemmed trunks. The area was protected 5 years ago and both rabbits and stock are now excluded. Not only have the bog pines benefited, we saw several examples of Coral Broom, *Carmichaelia crassicaulis* subsp. *crassicaulis*, a strange looking leafless broom with clusters of mauve flowers, that looked rather like spindly cactus. Other plants of interest were *Coprosma intertexta* (a relict species that was abundant in the past, but now has a patchy distribution), *Agrostis mucosa* (the smallest grass in the world), *Clematis marata*, *Acaena causiglauca* and *Viola cunninghamii*.

The lateral branches of *Halocarpus bidwillii*, bog pine, take root and create a massive individual tree. Photo by Moira Parker.

A massive *Pinus contorta* provided welcome shade for lunch, after which we set to with our loppers and hand saws to get rid of just a few of the hordes of wildling *Pinus contorta* in the area. It was hot work and gave me an appreciation of the immense task to control wildling conifers. While we were enjoying the botany, a wildling pine team were on the job for the entire weekend.

Bog pine acts as a nurse plant for celery pine (*Phyllocladus trichomanoides*) and after lunch Geoff took us across the reserve to an area where the celery pine are beginning to over top the bog pine. Pollen diagrams indicate that a similar process was taking place in the inter montane basins 12,000 years ago after bog pine had colonized the grasslands. By mid afternoon it was time to retrace out steps back to the vehicles and head home to Dunedin or Wanaka, apart from Kathy who opted to spend another night in her caravan beside the river. It was a fascinating weekend and a superb introduction to two distinctive and uncommon plant communities. Driving along roads lined with exotic lupins, the paddocks yellow with *Hieracium lepidulum* and of course the wildling pine trees, all reinforced the importance of conserving isolated patches of the Mackenzie country's natural ecosystems.

Many thanks to our enthusiastic and knowledgeable leaders John Barkla and Geoff Rogers for a fascinating weekend trip.

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Committee 2011–2012

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