



BOTANICAL SOCIETY

OF OTAGO

Newsletter Number 51 June 2007

BSO Meetings and Field Trips

- 18 July**, Wednesday 5:20 pm. **Out of the Ashes.** A talk by Robert Scott, Grounds Officer, University of Otago. *Out of the Ashes* covers the rediscovery of a *Lachenalia* species in the Cape Province of South Africa some 35 years after its original discovery as a new species quite by chance by a kiwi horticulturalist during a working holiday in the Republic. The vastness and the brilliance of the South African flora, as well as some other historic discoveries, will be included in the talk. See Meeting Details, p. 3 for venue.
- 21 July**, Saturday 1:10 pm. **Trip to Colinswood Bush.** A field trip to Colinswood Bush near Macandrew Bay, a small native bush remnant at an important stage of restoration. Many weeds still exist, but the larger exotic trees (sycamore and hawthorn) have finally been removed and the existing and planted indigenous species are beginning to dominate and form a protective canopy. Help with updating the native plant list and with removing some of the weeds will be much appreciated. In July the kowhai will be in full flower with plenty of tuis to entertain you. Our pride and joy is a large matai estimated to be 450 years old, which this season has produced its first recorded pollinated seed and small crop of seedlings. The mystery is there is no resident male. Any theories? Meet at the Botany Dept car park at 1.10 pm, or 1.30 pm at Howard St. (first street off Portobello Rd. after Glenfalloch), in front of the farm gate between numbers 22 and 24. There is parking on the grass. If on the day there is any doubt about weather conditions please telephone Nigel, 476 1109. Rain date Sun 22, 1.10 pm as above. Leader **Nigel McPherson** ph. (03) 476 1109.
- 4 August**, Saturday 8:30 am. **Field trip to Sandymount.** Sandymount is quite a botanically diverse and unusual site. Plants of interest include *Olearia fragrantissima*, *Carmichaelia virgata*, *Helichrysum intermedium*, *Corybas* orchids, *Myosotis pygmaea* var. *pygmaea* and *Melicytus alpinus*. Wear sturdy walking boots, be prepared for all weather, and bring lunch/snacks. Leave

Botany Dept car park 8.30 am or meet at the trip leader at the Sandymount car park at 9:00 am. Leader **David Lyttle** ph (03) 454 5470 (h).

15 August, Wednesday 5:20 pm. **Debating New Zealand's Grasslands' Revolution.** A talk by Tom Brooking, Department of History, University of Otago. More details about this talk will be posted on the BSO website when available. See Meeting Details, p. 3 for venue.

15 September, Saturday 9 am. **Weekend field trip to the Catlins.** This trip will explore several coastal botanical locations over two days. Saturday will be spent around Papatowai with opportunities for a walk through the Tahakopa dune forest with its mixed podocarp and beech swamp forest, wet shrubland and pingao areas, or a shorter walk to the Picnic Point coastal cliffs. This will be followed by a look at Cannibal Bay and the rare dune slack vegetation near False Islet. Sunday will be based around Nugget Point/Roaring Bay with its huge botanical and wildlife diversity. Accommodation on Saturday night will be at Nugget Point Lighthouse Keepers house (numbers limited). Day-trippers are welcome to join us on either day. To reserve accommodation or find out more contact the trip leader **John Barkla** ph. 476 3686 (evenings) by Wednesday 12 September. Leave from Botany car park at 9.00 am Saturday.

26 September, Wednesday 5:20 pm. **The private life of NZ alpine plants.** A talk by Mascha Bischoff. Mascha is a PhD student working on pollination of alpine plants. She splits time between New Zealand and Germany, and we're guaranteed of a beautifully presented exposé of alpine flora. More details to come about this talk, so keep an eye on the BSO web site. See Meeting Details, p. 3 for venue.

6 October, Saturday 8:30 am. **Field trip to Swampy Spur.** Prof. Bastow Wilson will lead a trip to Swampy Spur. We'll start at Leith Saddle, walk up through bush to timberline and through subalpine scrub/grassland to the Swampy Spur raised/valley bog (see *New Zealand Journal of Ecology* **25**, 39-52 – a PDF is available on the BSO website) and some fabulous lichens! Wear warm, windproof clothes and waterproof footwear. Trip leaves 8:30 am from Botany Carpark, returning mid afternoon. Rain date 13 October 2007. Leader **Bastow Wilson** ph. (03) 479 7572.

10 October, Wednesday **5:10 pm**. 6th Annual Geoff Baylis Lecture: **The Hellaby Indigenous Grasslands Trust: Its contribution to the understanding of, and changing attitudes towards, our indigenous grasslands.** Talk by Emeritus Professor Alan Mark, Department of Botany, University of Otago. Geoff Baylis was a Board member since the inception of the Hellaby Trust in 1959 and was Chairman for many years. Professor Mark has also been involved in many different ways since the Trust's inception. The Trust has supported approximately 360 projects over the years. **NOTE SPECIAL VENUE:**

Auditorium, University of Otago, College of Education, Union Street East.
Contact Kevin Gould, phone: (03) 479 9061.

14 November, Wednesday 5:20 pm. **Chatham Islands Plants**. A talk by Peter Johnson. The Chatham Islands have many endemic, unusual, and colourful plants. If you have always wanted a closer look at them, you could join one of Peter Johnson's botanical tours, or else come to this armchair Powerpoint version! Peter has been visiting the Chathams regularly as a member of the Chatham Islands Conservation Board. Currently he is working on a handbook on Chatham Islands wetlands. So, several wetland stories included, along with pretty pictures of tarahinau, rautini, hokotaka, keketerehe, kopi, and hoho. Plus a visit to the easternmost fragment of New Zealand: the Forty Fours! See Meeting Details below for venue.

17 November, Saturday 8:30 am. **Trip to Pulpit Rock and the Painted Forest**. A botanical day tramp for the medium to fit: a 6-7 hour return trip. Following a ridge track to the site of the old Green Hut and then upwards to Pulpit Rock, we will descend to the Painted Forest, a 75 ha pure stand of silver beech reaching an altitude of 700 m, west of the tallest peak. It is thought beech was widespread in the Silver Peaks, but has been reduced by early fires. The origin of the name of this stunningly beautiful primeval patch of beech is a mystery. This is exposed country where conditions can change quickly, so bring appropriate clothing, footwear and food. Meet 8.30 am Botany Department car park. Leader **Robyn Bridges**, ph. (03) 479 8372.

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, Rm. 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 (10c/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/>

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Chairman's Notes

John Barkla

I think we can safely say winter has arrived. Isn't it great to see the back of that balmy May weather and rejoice in the crunch of snow and ice underfoot! Yeah right. The committee has been working hard to pull together an exciting trip and talk programme to take the Society through to spring. There's a great mix of day and weekend trips to both regular and new locations. And we haven't forgotten about your intellectual stimulation either with a speaker line-up to die for. We've had some large turn-outs to both trips and talks recently so let's keep the momentum going.

I was out of town for the AGM but was thrilled to discover our hardworking office-holders and committee have agreed to another term. I missed the inaugural photo competition too but heard that it was a huge success. Thanks to all those who submitted entries – next year I hope more of you will be tempted.

This newsletter is the first for our new editor David Orlovich. In my view he's got off to an impressive start. Keep warm and enjoy your read.

Treasurer's Notes

Lyn Bentley

Most people have now paid their 2007 subscriptions – so thank you very much!! If yours is still outstanding, you can use the form at the back of this newsletter, or download one from the BSO website. Students please note - half the cost of your transport on field trips is covered by a 50% refund to the driver. Forms for the subsidy are also available on our website: <http://www.botany.otago.ac.nz/bsol/>

Editor's Notes

David Orlovich

After a long gestation and numerous false labours, I've finally given birth to my first *Newsletter*. Really it's not mine at all, but belongs to everyone who took the time to write articles, submit photographs and organise trips and meetings – so thank you very much! I've tried to live up to Allison's high standards for the *Newsletter*, and I hope you enjoy the contents. John Steel's article recounts his struggle to come to terms with a fern we all thought we knew so well, Mike Thorsen has been very busy collecting rare plants and reading papers and he's summarised a whole lot of recent literature for us. If you're in need of retail therapy, check out Mike's list of "must-have" botany books! Several Botany postgraduate students were enticed into writing articles for us, and they appear in this issue too. Trip and talk reports have been arriving thick and fast, and I've tried to put them all in this issue along with a small selection of the wonderful photographs that members have taken. Please let me know if there is anything you'd like to see (or not see!) in the *Newsletter*.

Please submit copy for next newsletter by 2 October 2007

Editor's guidelines: Contributions are always welcome, but newsletter space is a little limited. Please note these guidelines. Please try and aim for a 0.5 – 1 page of 14

pt Times for trip and meeting reports and book reviews, and 1 – 2 pages, including illustrations, for botanical notes. Original articles, if they are exceptionally relevant, could stretch to 4 or 5 pages of 14 pt, including illustrations.

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, nor do they necessarily reflect the views of the Department of Botany, University of Otago, which is supportive of, but separate from, our society. Publishing of advertisements does not necessarily imply endorsement by this Society.

Correspondence

Botany of the Maniototo

Fancy a trip to the bidibid heaven? Kelvin Lloyd (Senior Ecologist with Wildland Consultants Ltd) is keen to lead a weekend field trip for BSO members to the Maniototo sometime during February-March 2008 – so if you're interested, keep that time in mind and check the BSO website for information later in the year. Accommodation could be arranged at Poolburn, Naseby or Ranfurly, and the Ida Valley would be on the list to visit. One of Kelvin's interests is in the oft-maligned native genus *Acaena* (the bidibids). Kelvin says that if you think Otago is the bidibid province of NZ, then the Maniototo is the bidibid capital! Get ready to share Kelvin's passion, enthusiasm and incredible knowledge of the botany of Central Otago. For more information, contact Kelvin at kelvin@wildlands.co.nz.

Electronic copies of other Newsletters

The Botanical Society of Otago sends complimentary copies of this *Newsletter* to many other societies in NZ and overseas. We often receive their newsletters in return, and these are frequently displayed at our monthly meetings. We receive electronic copies of the Waikato and Nelson Bot. Soc. newsletters. If BSO members would like to receive these by email, send an email to our secretary Kevin Gould (bso@botany.otago.ac.nz), who will compile an email list and arrange for these to be forwarded to you when they arrive.

Contributions to the *Newsletter* and talks program

Have you been on a particularly botanical trip lately? Done some research on an interesting plant? Heard about something in the media of interest to BSO members? Are you hosting a visitor to Otago with something to say about botany? If so, we'd love you to write a short article for this *Newsletter*, or give a talk at one of our monthly meetings. We're more or less booked up for the rest of the year, but the BSO committee are always on the lookout for potential speakers and contributors to the *Newsletter*. Submissions/suggestions for the *Newsletter* can go to the Editor (david.orlovich@botany.otago.ac.nz) or for talks to the Secretary (bso@botany.otago.ac.nz).

Gardeners and the BSO

Since many BSO members are also keen gardeners, some of the committee thought we would pass this advertisement from Brian Wilson on to members.

I have a large supply of pea straw that was baled this season. I was wondering if any of your members would be interested in purchasing some of this excellent mulching material. I offer standard bales at \$9.00 per bale delivered in the Dunedin Mosgiel area with a minimum of 5 bales per delivery. Your members if interested can either email at briwil@clear.net.nz, or phone me at 0274 905609.

Call for Important Plant Areas of Otago nominations

The New Zealand Plant Conservation Network is currently calling for nominations of sites for consideration as Important Plant Areas (IPA). The Botanical Society of Otago has decided that it will endeavour to collate a list of suitable candidate areas for consideration for IPA status and to provide information supporting the submissions.

The following information is from the New Zealand Plant Conservation Network www.nzpcn.org.nz

Important Plant Areas

An IPA is a natural or semi-natural site exhibiting exceptional botanical richness and/or supporting an outstanding assemblage of rare, threatened and/or endemic plant species and/or vegetation of high botanical value.

The purpose of an IPA programme is to identify a network of sites within each biogeographic zone that are critical for the long-term viability of naturally occurring wild plant populations. These sites are defined such that they can be managed as contiguous areas. They are not intended to cover large tracts of a region or country. IPAs are not legal site designations, but are a framework for identifying and highlighting the very best sites for plants and fungi (Note: this also includes lichens and algae!), which can be used to support conservation actions and initiatives. The identification of IPAs in New Zealand and throughout Oceania is valuable so that conservation efforts for wild plant species and their habitats may be appropriately targeted to these sites. Target 5 of the Global Strategy for Plant Conservation is that "protection of 50% of the world's most important areas for plant diversity assured by 2010". So that New Zealand can achieve Target 5 of this strategy the Network is working to identify IPAs.

For more information about the Global Important Plant Area Programme see <http://www.plantlife.org.uk/international/plantlife-ipas.html>

Criteria

Five criteria have been developed by the New Zealand Plant Conservation Network for the identification of Important Plant Areas in New Zealand. Some sites may meet more than one criterion. All sites must be discrete management units and not large expanses or entire regions of the country.

- A. The site holds significant populations of one or more species that are of global or Oceanic conservation concern. This includes populations of New Zealand's acutely threatened plant species (Critical, Endangered and Vulnerable) and 'At Risk' species (Range Restricted and Sparse) - based on de Lange *et al.* 2004. Species of global conservation concern are those threatened species that are New Zealand endemics or whose distribution is largely (over 75%) within New Zealand. In terms of significance IPAs should be selected only for populations which are viable or for which ameliorative measures can be taken to ensure a return to viability. Consideration should be given to the geographical spread of the species, so that both core and edge of range populations are included in the New Zealand IPA network.
- B. The site has an exceptionally rich flora in an Oceanic context in relation to its biogeographical zone. The co-occurrence of a large number of species and the existence of a high diversity of habitats are both expressions of floristic richness. Assessments of floristic richness should be based on comparative data that can be related to the national resource, rather than on subjective judgements or local opinion. Areas that support more than a given percentage (e.g., 25%) of the plant species native to a country may be considered to be exceptionally rich.
- C. The site is an outstanding example of a habitat or plant community type of global or Oceanic conservation and botanical importance. This will itself have to be measured by criteria to evaluate the size, quality and distinctiveness of the plant community. It will include New Zealand's naturally rare and nationally threatened plant communities (see following link for rare ecosystem classification http://www.landcareresearch.co.nz/research/research_details.asp?Research_Content_ID=10.)
- D. The site supports species or vegetation that is regarded of national cultural importance. An example might be the sites where kopi trees (*Corynocarpus laevigatus*) support dendroglyphs on the Chatham Islands.
- E. The site holds significant populations of one or more species or habitats or plant communities of regional conservation concern within New Zealand. These plant species or communities may be common nationally but within a region maybe extremely scarce.

At the moment the Botanical Society of Otago is preparing a draft list of sites in Otago that are likely candidates for IPA status. These will be listed on the website www.botany.otago.ac.nz/bso. We ask that members forward any areas they consider candidates to mike.esr@xtra.co.nz. Supporting information is not required at this stage, but if you do have supporting information please indicate this. We will be asking members for information (species list, plant community information, published studies, etc) they have on candidate areas and will also be approaching the Department of Conservation to incorporate the information they hold on the candidate areas.

If you have any questions, or want further details, please contact Mike Thorsen (03) 474 6969, email mike.esr@xtra.co.nz.



Above: *Gentiana patula* photographed on the Maungatua trip by David Lyttle.

Articles

Looks like our hen and chickens have flown the coop – or have they?

John Steel

One of the first species I learned in New Zealand was the hen and chickens fern, *Asplenium bulbiferum*. I suspect this was so for many students and still appears in the species lists accompanying theses and assignments today. It now appears that this is not so and that *A. bulbiferum*, according to Dr Leon Perrie of Te Papa, may not even be present, or is at best uncommon, on the eastern side of the South Island.

Fairly early on, I encountered a reference to *A. gracillimum* to be found at Table Hill Reserve in the Catlins. At that time I was demonstrating for the old BIOL 114 field trips which spent a memorable Saturday morning each year in this very reserve so, every chance I had, I tried to find this fern among the *A. bulbiferum* which abounds there, but to no avail - or so I thought!

A. bulbiferum is a beautiful fern and increases its appeal by bearing baby ferns on the upper surface of its pinnae, making it easily recognisable – or so I thought! There are other bulbiferous ferns out there, but none quite so pretty – so pretty, in fact, that it is a common component of garden-centre stocks; or is it? More later.

A. gracillimum has long been recognised as distinct, but has been recorded as a subspecies of *A. bulbiferum* and appears as such in *New Zealand ferns and allied plants* (Brownsey and Smith-Dodsworth, 2000). Dr Perrie has been working on the Aspleniaceae for some time and regards them as separate species (Perrie *et al.*, 2005). Just to make it a little more easy, both species hybridise with each other, not to mention other members of the Aspleniaceae, and both species and their hybrids may occur together, their characters a mix of their parents. So how does one sort out in the field, which is which? Dr Perrie says it is tricky, so tricky that, even after a lot of practice, he only gives himself a reasonable chance of success. I have not been able to satisfy myself so I asked him for some samples to help me out and he has very kindly prepared herbarium specimens for OTA to help confirm what is found here.

Differences are:-

<i>A. bulbiferum</i>	<i>A. gracillimum</i>
Invariable morphology.	Variable morphology
On fresh fronds, pinnae densely packed.	On fresh fronds, pinnae much more spaced.
Fronds with parallel sides.	Fronds more diamond-shaped.
Plenty of bulbils.	Bulbils fewer, sometimes none.
Scales tend to be broad all the way along.	Scales tend to narrow quickly ending with a slender tip.

Armed with this information on the West Coast, I recently found something quite easily fitting *A. bulbiferum* and am now feeling a little more confident at what I may be looking for. Into the herbarium I go. OTA's collection has been helpfully segregated for the New Zealand Mapping Project so, how hard can it be? There is a small selection and mostly the *A. bulbiferum* does come from further afield, but there are examples from Leith Valley, Ross Creek, Town Belt, Bethune's Gully and Signal Hill. Only the specimen from Bethune's Gully bears the tell-tale bulbils. As far as shape is concerned, a couple of the smaller examples do have the parallel sides, but the others, though certainly incomplete, do not. As for the *A. gracillimum*, what examples there are, do tend to be local and fit the description above. However, if both species are here, then it is possible they co-occur and hybridise to produce a variety of intermediate forms and I am back to square one. The scales do seem more consistent, but I will need much more practice to feel confident on that alone. What is needed, is an increase in the number of specimens in the collection and it might be a good idea to bear this in mind when sampling in the field. There is an unfortunate trend not to collect common species and a tendency to assume the obvious when sampling, which, as can be seen in this case, may be well wide of the mark – fieldworkers beware!

And now back to the garden centres. I have never been happy with the *A. bulbiferum* to be found there, but put it down to the fact they were responding to the often sad conditions they are kept in. It appears that this, less attractive, specimen is most likely to be *A. x lucrosum*, a cultivated hybrid of *A. bulbiferum* with the Norfolk Island endemic, *A. dimorphum*, and has been used in New Zealand for revegetation projects from where it has spread (Perrie *et al.*, 2005). In fact, according to Dr Perrie, true *A. bulbiferum* is rarely sold in garden centres in New Zealand.

So what to do? There cannot be any substitute for time in the field, but these days other demands tend to prevail and time in the field is regrettably reduced to brief family excursions, or more likely, to be for another purpose. Therefore, for those of you who have time to do so, the additions of more specimens for the herbarium could prove useful and if, or when, Dr Perrie can next be enticed to spend some time in Dunedin, his expertise could be put to good use and our enlightenment assured.

I thank Dr Leon Perrie for his continued patience and help with my conundrum and for the herbarium samples he supplied for OTA.

References

- Brownsey, P.J.; Smith-Dodsworth, J.C. (2000). New Zealand ferns and allied plants, 2nd. edition. David Bateman, Auckland.
- Perrie, L.R.; Shepherd, L.D.; Brownsey, P.J. (2005). *Asplenium x lucrosum* nothosp. nov.: a sterile hybrid widely and erroneously cultivated as "*Asplenium bulbiferum*". Plant Systematics and Evolution, 250:243-257.

An unexpected discovery – the first record of the endangered grass *Amphibromus fluitans* Kirk in Otago

Mike Thorsen

During recent field work I was investigating some ephemeral wetlands near Sutton, Middlemarch area. One of these wetlands was dominated by the exotic grass *Alopecurus geniculatus* (knead foxtail) and another scruffy grass that I originally thought was *Agrostis stolonifera* (creeping bent) due to its size and offset tufts of leaves. But there was a nagging doubt, especially because the immature flower spike seemed very thick, so I got down on hands and knees (a common posture in ephemeral wetlands!) and had a closer look. Hmmm, this plant has a very long, ragged ligule (the papery projection of the leaf at the junction of the leaf and stem) which was easily visible to the naked eye – not a feature of *Agrostis*. A closer look at the flower spike, which was enclosed within the leaf sheath at this stage of development, showed a long awn projecting from the lemma (the major part of a grass flower). Definitely not an *Agrostis* then. A trawl of the memory banks left only one species I could think of – *Amphibromus fluitans*, which I thought was highly unlikely as it is not known from Otago, and so I considered it was probably a weird exotic grass I hadn't seen before. I recorded *A. fluitans?* in my notebook and collected some specimens to try and identify back at work. On close examination under the binocular microscope (an invaluable tool in grass identification), and close consultation with the grass Flora, I decided it was indeed *Amphibromus*. Still not 100% sure I gave a specimen to Peter Johnson, who confirmed my identification (thank you Peter).

This grass is ranked as Nationally Endangered, and was only known from three sites in the South Island – Maher's Swamp near Punakaiki, Lake Tekapo, and a recent discovery in the Ashburton Lakes (it is also known from a similar number of sites in the North Island). Because of its inconspicuous nature (like most grasses!) it is probably under-recorded. Key features that distinguish it from other grass species are its seasonally dry wetland habitat, the long ligule which is easily seen by the naked eye, the long straight awn projecting from the flower spike which is itself frequently covered for much of its length by the leaf sheath. Interestingly, there seemed to be two forms at this site: one with flat leaves c. 5-6 mm wide and the other with folded leaves c. 3 mm wide. There were at least 50 plants at the site. This species is



interesting in that the flowers have two types of pollination mechanism – the normal wind pollinated flowers (chasmogamic) at the top of the spike and self-pollinated flowers (cleistogamic) at the base of the spike. This is probably an adaptation to its seasonally extreme habitat where the plant can be killed by the wetland drying out before full flowering occurs. Plants are now happily growing beside my pond at home. Some pictures of this species can be found at the excellent New Zealand Plant Conservation website: http://www.nzpcn.org.nz/vascular_plants/detail.asp?PlantID=50. **Photo:** Colin Ogle (NZPCN).

BSO gives prizes for the Botany Dept Student Colloquium 2007

Ed.

On June 7 2007, students and staff of the Department of Botany got together for a great day of talks. The purpose of the day was not only to learn about the exciting research currently being undertaken at the Department, but also to share their own research with everyone else. The Botanical Society of Otago donated two prizes for the best two student talks of the day. First prize of \$60 went to Mascha Bischoff, and second prize of \$40 went to Ruth Arkless. The judges found it very difficult to decide on the winners, as there were so many excellent talks! Winners were asked to provide a short summary of their talk for publication in the *BSO Newsletter*, and they are the following two articles.

Beggars can't be choosers? New Zealand alpine plants and their insect visitors

Mascha Bischoff

First of all I would like to thank the BSO for sponsoring this award and I am surprised and honoured that I won. I felt that the Botany Department Student Colloquium was a great event and an excellent opportunity to catch up with other people's work. Needless to say there were many, many fantastic talks about various interesting topics very different from my own area of study. I am a pollination ecologist and I am doing my PhD on the pollination ecology of the New Zealand alpine flora. For my research I am based in the mountains for half the year so I particularly enjoy a get-together of Botany people as I do not get that much of chance to socialize during the field season. My last field season was a bit of a bumpy ride because of the challenging weather in the mountains but after all me and my field assistants Lisa Dobbie and Martha Jackson managed to collect the data that my colloquium talk was about.

Insect visitation in the New Zealand alpine zone has not been well documented. It has historically been assumed that pollinator services in alpine New Zealand are too imprecise for plants to rely on and therefore self-pollination was thought to be the rule. However there is little data to support these assumptions. Therefore we monitored 20 plant species in the Remarkables Conservation Area from January to March 2007 at altitudes around 1700 m a.s.l. Observation was carried out in blocks of 30 min of continuous monitoring without interference on at least 8 occasions. Visitation rates varied considerably among plant species. Some plant species seemed

much more popular than others. Our preliminary results suggest that plant-pollinator relationships in alpine New Zealand cannot be described as entirely generalised but that the subset of visitors depends on the plant species. Thus insect visitation and pollination may play a more important role than previously thought. I am looking forward to next field season when I hope to be able to gain further insight into this ecosystem that in my opinion is one of the most fascinating and beautiful in the world.



Above: A tarn on Maungatua. Photograph by Robyn Bridges.

Wakame sucks it up: *Undaria pinnatifida* nutrient uptake outstrips native rockpool algae

Ruth Arkless

Undaria pinnatifida, an invasive laminarian kelp, has been found in Otago harbour since 1990. The spread of *Undaria pinnatifida* is exceeding predictions of containment in sheltered waters, since it has propagated along the exposed Otago coastline. As *Undaria pinnatifida* spreads along the rocky shore it is invading the intertidal rockpools. These rockpools, small microcosms of population dynamics, are faced with an invasive species unlike any of the native laminarian kelps.

The Otago rockpools rarely support mature laminarian kelp as the nutrient demand of kelps restricts growth to the subtidal environment. Only large and generally low intertidal rockpools, on wave exposed sites, support the growth of native kelps, such

as *Macrocystis*, *Lessonia* and *Ecklonia*. Those few laminarian kelps that do survive in rockpools are immature or have stunted growth. On the Otago coastline in winter however, large numbers of *Undaria pinnatifida* reach full sporophyte maturity in rockpools. The high growth rate and numbers of *Undaria pinnatifida* have the potential to deplete all nutrients in the contained environment of a rockpool.

In order to determine whether native algae can survive the *Undaria pinnatifida* incursion into rockpools the nitrate and ammonium uptake rates are being compared. A study of the nitrate and ammonium uptake rates of the six most common native rock pool algae show that *Undaria pinnatifida* is not the only nitrogen hungry algae in rock pools. However *Undaria pinnatifida* has the greatest affinity and the highest uptake rate for both ammonium and nitrate of all the algae tested. A complex picture of the dynamics of nitrogen availability in a semi-contained environment is beginning to form.



Above: A paddle crab, *Nectocarcinus antarcticus*, with three *Undaria* large juvenile sporophylls attached (10-20 cm). It is just a single observation but a very interesting one. It came up in a dredge on Thursday 10 May 2007 at about 11:20 am. Dredging was on east side of shipping channel in Otago Harbour just to the south west of Quarantine Island.

Recent botanical literature

Mike Thorsen

The following are some recent botanical publications that have some relevance to Otago or are of general interest.

Natural variation and conservation of *Lepidium sisymbrioides* Hook.f. and *L. solandri* Kirk (Brassicaceae) in South Island, New Zealand, based on morphological and DNA sequence data. Heenan, P.B; Mitchell, A.D; McLenachan, P.A; Lockhart, P.J; de Lange, P.J. 2007. *New Zealand Journal of Botany* 45: 237-264.

This paper is the latest in a long history of resolving the taxonomic status of the "inland *Lepidium*" group that occur in Central Otago and inland Canterbury (see Kirk [1899], Cheeseman [1906, 1925], Thellung [1906], Allan [1961], Garnock-Jones in Webb *et al.* [1988], citations in above). This group of plants have, with the exception of *L. kirkii* Petrie, little clear morphological distinction. The *L. sisymbrioides* Hook.f. group is unusual in being the only dioecious species in the family Brassicaceae. Heenan *et al.* use DNA and morphological characters to reinstate *L. solandri* Kirk (with *L. sisymbrioides* ssp. *matau* Petrie as a synonym) as a species separated from *L. sisymbrioides* (with *L. sisymbrioides* ssp. *kawarau* (Petrie) Thell. as a synonym). Key features for discrimination between the two species are the shorter lamina with wider and fewer secondary pinnae, hairier sepals and ovary with longer filaments of *L. solandri*. Interestingly, they make a convincing case for introgressive hybridisation with other native *Lepidium* species, some of which are only known from coastal situations. Is this because these species prehistorically inhabited the shoreline of the mid-Miocene Lake Manuherikia? Both species are considered to be Nationally Endangered, and, given the genetic (and morphological) variation between populations, each population is genetically important. Whether this current treatment resolves the taxonomic uncertainty associated with the inland *Lepidium* will remain to be seen, but considerable thought and information has been included in this work.

A new combination in *Carmichaelia* (Fabaceae). Heenan, P.B; Barkla, J.W. 2007. *New Zealand Journal of Botany* 45: 265-268.

In his revision of New Zealand *Carmichaelia*, Heenan (1998, citation in above) gave no new combination for *Corallospartium racemosum* (Kirk) Cockayne et Allan because of insufficient herbarium material. Recent work by the authors has resulted in the combination *Carmichaelia crassicaulis* ssp. *racemosa* (Kirk) Heenan being made for these plants. This taxon is disjunct and found in western Otago and (rarely) mid Canterbury and is considered as threatened with a provisional ranking of Serious Decline.

What limits a rare alpine species? Comparative demography of three endemic species of *Myosotis* (Boraginaceae). Dickinson, K.J.M; Kelly, D; Mark, A.F; Wells, G; Clayton, R. 2007. *Austral Ecology* 32: 155-168.

This paper gives the results of a long-running study into the population dynamics of three alpine species of *Myosotis* (*M. oreophila* Petrie, *M. cheesemanii* Petrie, and *M. pulvinaris* Hook.f.) in the northern Dunstan Range and attempts to explain why two of these species are of very restricted distribution. The authors found that the two restricted distribution species had a slower population turn-over due to greater longevity/survivorship and a higher site inertia. Demography of *M. oreophila* changes with distance from edge of population. No abiotic factors investigated could explain why the two species were of restricted distribution and they concluded that the restricted distribution may be because of historical and/or biotic (competition, seed limitation, dispersal capacity) factors. The value in long-term studies using marked individuals is emphasised.

New home for tiny aquatics. Friis, E.M; Crane, P. 2007. *Nature* 446: 269-270, and

Hydatellaceae identified as a new branch near the base of the angiosperm phylogenetic tree. Saarela, J.M; Rai, H.S; Doyle, J.A; Endress, P.K; Mathews, S; Marchant, A.D; Briggs, B.G; Graham. S.W. 2007. *Nature* 446: 312-315.

These two papers report the finding that the Hydatellaceae are best placed near base of a phylogenetic tree scheme along with the Nymphaeales and with only the genus *Amborella* as more basal. The Hydatellaceae was previously included in the monocotyledons, but this new research now places them with the angiosperms. *Hydatella inconspicua* is the sole representative of the Hydatellaceae in New Zealand.

A molecular phylogeny for the New Zealand Blechnaceae ferns from analysis of chloroplast *trnL-trnF* DNA sequences. Shepherd, L.D; Perrie, L; Parris, B.S; Brownsey, P.J. *New Zealand Journal of Botany* 45: 67-80.

The Blechnaceae in New Zealand is represented by the genera *Blechnum* and *Doodia*. In this paper the taxonomic relationship of the New Zealand species is compared with some extra-New Zealand species, and *Blechnum* is found to be paraphyletic (as reported by other authors), but the phylogenetic relationships at deeper levels were not well resolved. *Doodia* sits as one of the clades within *Blechnum*. Several groupings of species are suggested by their data, including a clade of *B. colensoi*, *B. chambersii*, *B. membranaceum*, *B. norfolkianum*, *B. blechnoides*, *B. durum*, and *B. penna-marina*. Interestingly, *B. fluviatile* does not group with this clade, but with *B. vulcanicum*. Some sampled individuals within species have differing DNA composition, indicating the presence of cryptic taxa, and, conversely, others (such as *B. norfolkianum* and *B. chambersii*) had near identical genetic sequences. Many of the New Zealand species are closely related to overseas species, probably as a result of long-distance dispersal of wind-blown spores.

Field guide to rushes, sedges and allied plants. Graeme Jane. Privately published.
Price c. \$15

Graeme is a very active botanist in New Zealand. One of his latest projects has been to develop an easy to use field guide for all the rushes, sedges and allied plants (*Oreobolus*, *Isolepis*, *Schoenus*, etc) in New Zealand. He has travelled widely collecting photos of all the species with assistance from a variety of people, some from the Botanical Society of Otago, and has now completed his guide. The guide is a very impressive piece of work – simple, clear, and informative. It has photos of the seed head and flowering stems (culms) of nearly all the native and exotic species in mainland New Zealand (sorry we couldn't get to the *Uncinia elegans* site Graeme), mostly from fresh specimens. These are reproduced in grey scale with usually good detail. A brief description of the key features for each species and the distribution is given next to the photos. An excellent part is a quick key using the major identification features (e.g. flower head arrangement and stigma number in *Carex*) allowing quick rationalisation down to 1-6 species that should be considered. The only thing possibly lacking is an illustration of the key features of this group (e.g. the utricle, glume, tepal, bract, etc). Overall, a very invaluable piece of work for a remarkably low price.

Anyone wishing to know more, or to get a copy should email Graeme (gtjane@clear.net.nz) to find out how to obtain a copy.

Recommended botanical texts for the budding botanist

Mike Thorsen

I'm sometimes asked what books are good starting points to start learning how to identify the species of plants in New Zealand. The ones I have found most useful are:

General

Stewart Island Plants by Hugh Wilson, 1982 and revised in 1994, Manuka Press. Though this book covers the plants of Stewart Island, many of these are found elsewhere in New Zealand. Plants are grouped according to growth form and accompanied by excellent charcoal sketches and a brief description. Very easy to use, and, if the plant you are trying to identify is not included, you are likely to get an idea of what genus it is in. His *Wild Plants of Mount Cook* is also useful and Hugh is currently working on a book of Banks Peninsula plants.

Wetland Plants of New Zealand by Peter Johnson, 1998, Manaaki Whenua Press. An excellent guide for the plants found in wetlands and damp habitats. Species are grouped taxonomically and illustrated by charcoal sketches with a brief description of the plant, its distribution and habitat. A rough key is part of the text and can be useful for distinguishing between similar species. Not too technical.

New Zealand Alpine Plants by Alan Mark and Nancy Adams, 1995, Godwit. A great guide to the majority of alpine plants in New Zealand. Illustrated with full colour watercolours of many of the species and brief descriptions and notes on habitat and distribution. A must have for anyone working in the alpine zone.

More focussed

New Zealand Ferns and Allied Plants by Patrick Brownsey and John Smith-Dodsworth, 2000 (but the 1989 version is almost complete apart from minor changes and the use of a few old species names), David Bateman. An excellent guide to ferns and related plants (clubmosses, etc), with clear photos, great illustrations and excellent information. Can be a bit technical, but even just using the photos and diagrams should allow people to identify nearly any fern in New Zealand.

The Nature Guide to New Zealand Orchids by Ian St George, 1999, Godwit and the ***Field Guide to the New Zealand Orchids*** by Ian St George, Bruce Irwin, and Dan Hatch, 2005, New Zealand Native Orchid Group. Both are excellent publications on New Zealand orchids. *The Nature Guide* is based around photographs, which give a good feel for what the plant looks like and the *Field Guide* is based on charcoal sketches, which illustrate the more technical aspects of flowers clearly, and has more technical descriptions of the species. Both suffer to some degree by the representation of the wide variety of undescribed taxa in use by some orchid-minded botanists.

The Trees and Shrubs of New Zealand by A.L. Poole and Nancy Adams, 1994, Manaaki Whenua Press. A good basic guide to many of the trees and shrubs of New Zealand with good ink drawings. For a more comprehensive, and containing stunning photos, book, then Salmon's ***Native Trees of New Zealand*** is more expensive, but worthwhile. It is starting to get a bit dated. Of course the premier book for New Zealand's Trees and Shrubs is Audrey Eagle's ***Complete Trees and Shrubs of New Zealand*** which has amazing watercolour illustrations of all the species and good descriptions of these and well worth the \$200 price tag, especially if the Botanical Society's *Supplement* (\$18 for Botanical Society members from Dunedin University Book Shop) is also obtained. Hugh Wilson and Tim Galloway's ***Small-leaved Shrubs of New Zealand*** is an excellent guide to this difficult group of plants – however, don't expect just using this book to be able to sort out all the difficult species, just the majority of them!

An Illustrated Guide to Common Weeds of New Zealand, Bruce Roy et al., 2004, New Zealand Plant Protection Society. Once you have forgiven them for including native plants as weeds, this is a great book for a large number of the common(er) species of weeds in New Zealand. It has generally good photographs and a fairly full description of the plants and their range.

There are lots of other guides out there. Have a look and see which one(s) suits you the most. Of particular note are Andrew Crowe's books for younger botanists – I

have even known someone of 10 years old to identify the right plant using the key in one of his books.

Of course, as experience develops then getting the *Flora of New Zealand* series is a necessity, and introduces you to the wonderful world of precise botanical terms (many abbreviated), the use of dichotomous keys, and a plethora of information. It would just be great if Volume I could be revised now that it is 46 years out of date!

Meeting and Trip Reports

Radical environmental change on Whangapoua Estuary, Great Barrier Island in 3500 years

Allison Knight

Dr Yanbin Deng got the BSO year off to a provocative start with her talk on 'Radical Environmental Change on Whangapoua Estuary, Great Barrier Island in 3,500 years'. She vividly reconstructed the vegetation changes over thousands of years through analysis of pollen, charcoal and sedimentation rates in deep cores from 11 sites ranging from mangrove through salt meadow to freshwater swamp. These cores were compared with pollen rain from present vegetation communities and with mid-Holocene investigations. Almost all pollen records showed a linear sequence of vegetation communities beginning with mangroves and followed by estuarine marsh communities composed of *Juncus kraussii*, *Leptocarpus similis* and *Baumea juncea*. Further transition, to *Leptospermum* shrubland or *Cordyline/Dacrycarpus* swamp forest depended on rates of natural accumulation of peat and of sediment from run-off. Disturbances, natural and human, interacting with autogenic factors (peat-forming plants) have been the driving factors of vegetation succession from estuarine to freshwater wetland on Great Barrier Island ever since sea levels stabilized c. 6500 yr BP. Yanbin's pollen and charcoal records clearly showed the dramatic impact human settlement has had. Clearing forest for agricultural purposes began not with the European settlers, but with the first Polynesian settlers, who burnt off large areas of scrub and forest. This hugely increased the sedimentation rate and so greatly accelerated estuarine wetland plant succession.

Y Deng, J Ogden, M Horrocks, SH Anderson, SL Nichol, 2004. The vegetation sequence at Whangapoua Estuary, Great Barrier Island, New Zealand. *New Zealand Journal of Botany* **42**, 565-588.

PS. Yanbin is moving up to Hamilton to work for the Regional Council. I'm sure that all those who enjoyed her talk, her photos and her company on trips will miss her and wish her all the best in her new job. See the note from Yanbin on page 29.

Field trip to Maungatua Scenic Reserve, Saturday 10th March

David Lyttle and Robyn Bridges

The Maungatua Range is the easternmost and lowest of the Otago mountain ranges. It rises from the Taieri Plain to a height of 895 m at the summit. The rolling summit plateau is a mosaic of tussock grassland dominated by the narrow-leaved snow tussock *Chionochloa rigida*, shrubland and peat bogs. The trip offered a chance to visit this high hill that dominates the southern approach to Dunedin, and we reached the summit in the perfect conditions. Clear skies, no wind, and we drove to the edge of the reserve as well!

Emeritus Professor Alan Mark who led the trip described his long running studies of the vegetation and outlined the historical events that resulted in the area gaining reserve status particularly the role of the Reid family in donating the land that forms the nucleus of the reserve. Alan's persistence and advocacy to get such a significant area of tussock grassland reserved was evident to all of us. Alan's long association with Maungatua dates from 1953 and has, amongst other projects, involved monitoring the distribution of seven plant cover types in 8 m x 8 m plots at ten yearly intervals. This has given a wonderful insight into the dynamics of the vegetation on this range.



Above: *Celmisia argentea*. Photograph by David Lyttle.

Maungatua was thought to have supported more forest cover similar to Silver Peaks today. Deforestation around the 13 – 14th century was probably due to fires lit by early moa hunters. Evidence of these large ratites remains, and Alan pointed out gastroliths, or moa gizzard stones. The combination of fires, and change to a colder, drier climate meant an altered microclimate where the forest was not able to re-establish itself on Maungatua. It has been replaced by grassland with snow tussock (*Chionochloa rigida*) and short tussock (*Festuca novae-zelandiae*) being the principal species, and sub-alpine scrub dominated by *Dracophyllum longifolium*. Coniferous – broadleaved forest is confined to two sheltered sites beside the Taieri Plain. There is some silver beech below 550 m and on the eastern slopes.

Our first stop was at the large schist tor that forms a prominent landmark on the ridge leading to the summit. This tor is visible from the Otago Peninsula. *Gentiana patula* was flowering profusely in both the grassland and in the bogs. The small cushion celmisia, *Celmisia argentea*, was still flowering. The type locality of this species was described by the botanist W.D. Petrie as “swampy ground on the summit of Maungatua” so it was gratifying to see that it is still thriving there. Maungatua is also the type locality of *Dracophyllum politum* which was also present and hybridising freely with *Dracophyllum prostratum*, the former being distinguished by “its short erect branches that may be so numerous as to form a dense mat or raised cushion”. Some plants were seen that conformed to this description but these were in the minority. The large mountain daisy *Celmisia semicordata* ssp. *aurigans* was present but was not flowering. The characteristic form of this magnificent plant has the upper surface of the leaves clothed in golden tomentum but a minority of the plants have tomentum of a steel–grey colour. It seems to be targeted by wild pigs as in many places plants were dug up and destroyed. The small epacrid *Cyathodes pumila* was conspicuous in fruit growing amongst *Donatia novae-zelandiae* cushions in the boggy areas. *Pentachondra pumila*, which is superficially very similar, was also present.

We continued to a permanent plot where the growth of *Donatia novae-zelandiae* cushions had been monitored over many years by Alan and his collaborators. Our lunch stop was at an area of eroding peat where subfossil wood from a former forest of bog pine (*Halocarpus bidwilli*) and pink pine (*Halocarpus biformis*) is exposed. From here we continued to the summit and then returned, skirting a series of small summit tarns. Here the lichen *Thamnolia vermicularis* was very much in evidence. The small green orchid *Lyperanthus antarcticus* was also present here growing amongst boggy turf and under snow tussocks.

Notwithstanding the extensive botanical attention that Maungatua has received we added two new records, both ferns, to the species list: *Hymenophyllum multifidum* and *Asplenium richardii*

The long term reserve status of Maungatua has successfully protected the vegetation of this outstanding area and compared to similar subalpine sites in Otago very few

weeds have managed to establish themselves. A small colony of *Hieracium lepidulum* was found but the major part of the reserve seemed to free of this devastating weed. On the return journey some wildling pines were found by the road and summarily dealt to.

Botany and wildlife of Macauley Island, Southern Kermadecs

Bill Wilson

A talk by John Barkla, Department of Conservation, May 16, 2007.

John reported on the work of a group that went to Macauley Island in June and July 2006. The purpose of the expedition was to do a count of the parakeets on the island preparatory to a poison drop to remove predators and John was also to do a botanical survey.

They went from Warkworth to the Kermadecs by ship and at Curtis Island met the helicopter, which transferred them to Macauley. Macauley is a flat-topped island of some 282 ha. surrounded by cliffs composed largely of tephra on a basalt base as the island is part of the rim of a large, mainly undersea, caldera. The island is uninhabitable with no water, so the group had to take all theirs with them. The vegetation was largely cutty grass (*Cyperus insularis*) on the outer part and fern at the centre. The vegetation is changing, however. Early explorers talk about scrub-like ngaio, which has disappeared largely because of goats and pigs that were introduced in the late 1800s as food for possible castaways. By 1970, when the last of the goats were removed, most of the island was grassland. As well as the *Cyperus* and fern there are increasing populations of plants like the vine *Sicyos australis* and *Solanum americanum*, which is replacing the fern in places. In the gullies that cut into the plateau and give access to the shore there was greater biodiversity.

The bird count was well in excess of the 3,000 required by the Friends of the Earth and the poison drop to eradicate kiore went ahead. This should also benefit the other birds like the red-tailed tropicbird, which use the island to breed on. John felt that a more active intervention was needed to restore the original vegetation to the island; otherwise the interests of bird-lovers would predominate.

Fungal Foray to Knight's Bush, 19 May 2007

Allison Knight

John and I were delighted to be able to show a van-full of fungi enthusiasts around our forest at Tuapeka West. We were lucky to have the expert guidance of David Orlovich along with the world slime-mould expert, Steve Stephenson from the USA. The weather was extraordinarily fine and mild and the upper slopes of *Pinus radiata* too dry to yield as many species as the previous foray, though Lyn did spot a spectacular violet potato fungus, *Gallacea* (syn. *Hysterangium*) *sclerodermum* at the start of the beech forest. After replenishing at the hut my group carried on down to the river flat, past many species of brightly coloured fungi. Clear yellow *Leucoporus fragilissimus* stood out in the moss, alongside bright orange wax gills, *Hygrocybe* spp. and the stunning green *Hygrophorus viridis*. Under the kanuka,

Kunzea ericoides we spied bright yellow, white and salmon-pink coral fungi, while a white, branched coral, *Clavulina* sp. almost glowed against the dark litter under the river-flat beech, *Nothofagus menziesii*. Tiny red *Mycena miniata* was just one of the many species of the delicate, fluted *Mycena* spp that we marvelled at, and had difficulty identifying fully. Likewise only 4 of the 9 or more of the brown-spored curtain fungi, *Cortinarius* spp., could be identified with any degree of certainty. The forest puffball, *Lycoperdon* sp., puffed obligingly, and the woolly birdnest, *Nidula candida*, came complete with egg-shaped packets of spores (peridioles) just waiting for a raindrop to splash them out. So many fungi kept popping up for us to note and photograph that we had trouble tearing ourselves away and progress was slow. Finally hunger won and we relaxed in the warm sunshine on the bank of the milky blue-green Clutha River enjoying the view of Birch Island, the kakariki chatter and the lively birdsong along with our late lunch. Meanwhile John guided the rest of the group on a round tour, heading past the stately old totara and matai upstream from the hut.



Above: *Hygrophorus viridis*. Photograph by Allison Knight.

A clump of bright red *Weraroa erythrocephala*, stalked red pouch fungi, caught the eye of the photographers. Steve collected several slime moulds, which he will identify later and David was pleased to find some good specimens of *Russula* spp. to photograph for a forthcoming paper. Like us, they all had trouble tearing themselves away from the many fungi, and arrived back at the van just as the sun was setting. Between us we recorded over 40 species of fungi, and saw many more, so I hope a good day was had by all.

Participants were: Lyn Bentley, Audrey Eagle, John and Alli Knight, David Lyttle, David Orlovich, Moira Parker, Matthew Smart, Alison Stearn, Steve and Barbara Stephenson.

PS Photos please! I'm inspired to start a collection of images of fungi from our bush to illustrate the names on the species list, so if any of you have any photos I'd love to see them soon - before I get hooked on lichens again!

Fungus List, Knight's Bush Foray, 19 May 2007

<i>Agaricus</i> sp.		stream track
<i>Aleuria aurantiaca</i>	orange peel fungus	river flat
<i>Amanita muscaria</i>	fly agaric	pine
<i>Amanita pekioides</i>	poisonous	beech, river flat
<i>Calocera</i> sp.	yellow coral	kanuka
<i>Clavaria</i> sp.	salmon-pink coral	kanuka - mixed forest, river flat
<i>Clavulina cristata</i>	white branched coral	beech
<i>Clavulina</i> sp.	white, few branches	
<i>Collybia</i> sp.	flat white cap	beech, river flat
<i>Cortinarius canarius</i>	yellow ochre	beech, river flat
<i>Cortinarius cycneus</i>	white curtain fungus	beech, river flat
<i>Cortinarius rotundisporus</i>	slimy green-orange	kanuka & stream track
<i>Cortinarius rubrocataneus</i>	rich red-brown	stream track
<i>Cortinarius</i> sp. 1	pale brown curtain fungus	beech
<i>Cortinarius</i> sp. 2	dark brown	beech
<i>Cortinarius</i> sp. 3	off-cream	stream track
<i>Cortinarius</i> sp. 4	pale flesh	beech
<i>Cortinarius</i> sp. 5	curtain fungus	stream track
<i>Thelephora</i> sp.	thin, striped fan	stream track
<i>Gallacea sclerodermum</i>	violet potato fungus	beech slope, stream track
<i>Ganoderma australe</i>	large perennial bracket	beech
<i>Hygrocybe procera</i>	yellow-orange wax-gill	kanuka - mixed forest, river flat
<i>Hygrocybe</i> sp.	bright orange wax-gill	kanuka - mixed forest, river flat
<i>Hygrophorus viridis</i>	stunning green wax-gill	kanuka - mixed forest, river flat
<i>Hypholoma</i> sp.	green gills	stream track
<i>Laccaria?</i>	pale brown	beech, river flat
<i>Leucoprinus fragilissimus</i>	bright yellow	kanuka - mixed forest, river flat

<i>Lycoperdon</i> sp.	forest puffball	beech
<i>Mycena miniata</i>	tiny, fluted red	moss under beech, river flat
<i>Mycena</i> sp. 1	fawn fluted	twigs and rotting logs
<i>Mycena</i> sp. 2	tiny white	rotting logs
<i>Mycena</i> sp. 3	pale pink	moss
<i>Nidula candida</i>	woolly birdsnest	kanuka - mixed forest, river flat
<i>Peziza</i> sp.	black cup fungus	beech
<i>Psathyrella</i> sp?		stream track
<i>Russula</i> cf <i>acromellata</i>	brown cap, chalky stalk	kanuka - mixed forest
<i>Russula</i> sp. 1	chalky stalk, coloured cap	stream track
<i>Russula</i> sp. 2	chalky stalk, coloured cap	stream track
<i>Russula</i> sp. 3	chalky stalk, coloured cap	stream track
<i>Sphaerobolus stellatus</i>	cannon fungus	stream track
<i>Stereum fasciatum</i>	thin, striped bracket fungus	
<i>Suillus luteus</i>	slippery jack bolete	pine
<i>Tremella</i> sp.	orange jelly fungus	beech, river flat
<i>Weraroa erythrocephala</i>	stalked red pouch fungus	stream track
	tree-rotting fungi, several sp.	mainly on beech
<i>Arcyria incarnata</i>	slime mold (myxomcete)	stream track
<i>Badhamia</i> cf. <i>capsulifera</i>	slime mold (myxomcete)	stream track
<i>Physarum cinereum</i>	slime mold (myxomcete)	stream track
<i>Trichia varia</i> (common)	slime mold (myxomcete)	stream track



Above: L-R: Barbara Stephenson, Matthew Smart, Alison Stearn, Lyn Bentley, Audrey Eagle, Moira Parker, David Orlovich, Alli Knight, John Knight, David Lyttle. Photograph by Steve Stephenson.

Chrystalls Beach, Sunday June 17 2007*Robyn Bridges*

It was, as Bradley reminded us as he sat with his back against the rock base of Cook's Head Rock in the late afternoon sun, a restorative day. His and his fellow botsoccers' equilibrium had been restored and a little botanical restoration had taken place in the nearby coastal cushionfield.

It was a stunning winter's day, and though not related to the name of the beach (I understand the beach is named after a local family), the glistening of the quartz pebbles in the early morning sunshine, together with some of the plants we later found, brought the word gem to mind.

The protruding large Cook's Head rock dominates the view. This solitary sentinel of phonolite basalt rock looks somewhat incongruent on the expansive sandy beach, which stretches into the distance on either side. From the top we had a commanding view of the three-layered sand dune system of Chrystalls Beach. A front dune, a dune hollow and a rear dune and it was within the grassland dominated dune hollow that the area of our interest was located, the distinctive and unique coastal cushionfield of Chrystalls Beach.



Above: Climbing Cook's Head Rock. Photograph by Robyn Bridges.

To protect the area, DoC has fenced off the cushionfield to prevent damage from vehicles. The cushionfield not only contains plants seldom found on the coast, but a number of nationally threatened species too and is unique in this part of the world. Though there are dune cushionfields in other parts of New Zealand, the Chrystalls Beach dune cushionfield is the only one in southern New Zealand.

Despite the in built resistance of cushion communities, where it is thought the vegetation has a modifying effect on the environment favouring the continuation of the dominant plants, in this case the cushion plants are threatened by two particularly aggressive taller invasive species, marram and lupin. Despite DoC's efforts in removing adult lupin plants, the seed bank within the soil continues to sprout lupin seedlings, which significantly threaten the cushionfield.

The real gems in this nationally rare vegetation community included the tiny woodrush, *Luzula celata*, the only coastal location of this species is found in this cushion field, the dwarf forget-me-knot *Myosotis pygmaea* var. *pygmaea*, and *Desmoschoenus spiralis* (pingao), all nationally threatened and all species in varying rates of decline. Others found in the cushionfield were *Leucopogon fraseri*, *Colobantheus muelleri*, *Geranium sessiliflorum* ssp. *novaezelandiae* var. *arenarium*, *Raoulia* sp., *Scleranthus uniflorus* and *Gaultheria macrostigma*.

I wouldn't have thought it possible, but there is a certain therapeutic effect in pulling out young lupin seedlings (see the photo below!) and can thoroughly recommend this to those who visit the area. DoC would appreciate this too. Lupin seedlings don't require much strength as they slide out easily from the sandy ground. And I am pleased to report that the lupin seedling population of the Chrystalls Beach cushionfield was significantly reduced on the day of our visit!



Above: Botanical gardening - the lupins didn't stand a chance! Photograph by Robyn Bridges.

News

Accolades for *Eagle's Complete Trees and Shrubs of New Zealand*

Eagle's Complete Trees and Shrubs of New Zealand has been shortlisted (along with two other books) in the Illustrative category of the **Montana New Zealand Book Awards**. It has also been shortlisted for another award entitled **The Booksellers Choice for 2007**. This means it was a favourite of booksellers alongside some others for 2006. Another shortlisting is the **Spectrum Print Design Awards**: shortlisted for both **Best illustrated book** and **Best cover**. The cover was designed by Neil Pardington.

BSO member Dr Yanbin Deng moves north!

Members will recall Yanbin's excellent talk about the environmental change on Whangapoua Estuary, Great Barrier Island in February this year (see Allison's report on page 20). Well, Yanbin is leaving Otago to take up a new job in the North Island. She writes:

I am leaving to take up a new position as a Terrestrial Ecologist in Environment Waikato Regional Council. The main task there is to provide expertise, knowledge and information on issues relating to terrestrial ecology, particularly indigenous terrestrial ecosystems and their management in the Waikato region.

My experience with the Botanical Society of Otago has been extremely rewarding, and I greatly benefited from the help and advice I received from the members. The field trips and meetings have been enjoyable and unforgettable.

Please do contact me if you come to Hamilton. I will give you new contact details to Robyn Bridges after I have settled down there.

We wish her all the very best for the future!

BSO Photography Competition winners announced

Abe Gray

This year's Botanical Society AGM also served as the date for the inaugural Botanical Society of Otago Annual Botanical Photography Competition. We received over 50 entries, and gave five awards. The awards were presented at an awards ceremony during the society's AGM by our illustrious celebrity judges; renowned nature photographer Rod Morris, top New Zealand botanist Dr. Peter Johnson, and well-known botanist and avid tramper and photographer Kelvin Lloyd of Wildland Consultants Ltd. The award ceremony was well attended and a great time was had by all, not only viewing the extravagant entries, but also viewing slides and listening to anecdotes from the celebrity judges. The grand prize of \$100 was awarded to Gretchen Brownstein. Section winners were *Landscape*: Gretchen

Brownstein; *Portrait*: Jesse Bythell; *Ecological Interaction*: Allison Knight; *Human Interaction*: Yanbin Deng. Selected photos will appear in the Society's 2008 promotional calendar (Available for sale from October), so keep your eyes peeled and start photographing interesting botanical situations to enter in the 2nd Botanical Society of Otago Annual Botanical Photography Competition next year!!! (Entries close 31st March 2008).

On the web

David Orlovich

The BSO web site (<http://www.botany.otago.ac.nz/bso/>) often has upcoming trips and talks listed in advance of the *Newsletter* being published, so if you'd like to get advance warning about scheduled events, remember to have a look there. I try to keep it as up-to-date as possible. Some keen observers might also notice that the BSO Photo Gallery has been 'hacked' by someone, who is inserting lists of inappropriate links into the image database! While devising a workaround for this, I've been playing a cat-and-mouse game with the hacker (or their cleverly written computer program), who is inserting new links as fast as I can delete them. Anyway I'll get this fixed as soon as I can.



Above: David Lyttle testing out his new camera and lens on the Knight's Bush foray. Photograph by Steve Stephenson.

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Please submit copy for next newsletter to David Orlovich by 2 October 2007

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