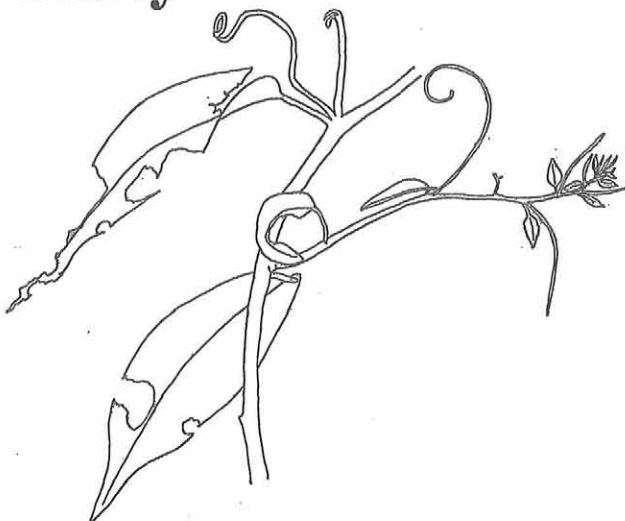


Botanical Society of Otago Newsletter

Number 45
July 2005



BSO Meetings and Field Trips

20 July, Wed. 5:20 pm. **Geoff Rogers**, DOC *Otago in the time of the moa*. A look at how we might paint a picture of Otago's prehistoric landscapes using all the investigative tools used by landscape ecologists and archaeologists. See meeting details on page 3 for venue. Queries to Allison Knight, 487 8265

23 July, Saturday 9:00 am **Tunnel Beach** Half-day field trip to the dramatic coastal sandstone cliffs, caves, tunnels and arches just south of Dunedin. It's a short 20 min walk down to the mouth of the tunnel, where a stunning natural arch is still covered in a mat of coastal turf plants, despite continued grazing and trampling. Look out for tiny selliera (*Selliera radicans*), sea primrose (*Samolus repens*) and tiny button daisy (*Leptinella dioica*) and their low-growing companions. A hand lens and a kneeling pad would be handy. Fairy terns nest near by. Dress for the weather and wear shoes or boots with a good grip - the drop-offs are sheer! Queries to **Allison Knight**, 487 8265. Meet at the Botany Car Park 9 am sharp for car pooling, or at the Tunnel Beach car park ~ 9.20 am.

7 August, SUNDAY 9:15 am. The Yellow-eyed Penguin Trust (YEPT) and Save The Otago Peninsula (STOP) have invited BSO to join them on a Conservation Week walk. **Okia Reserve** has a particularly high level of endemism and botanist **Peter Johnson** will be there to point out some of the rare plants hiding in the dune hollows and in the crevices of the basalt rock pyramids. It's a flat 20 min walk out to the Pyramids and there's a well-marked track on out through the dunes to Victory Beach. Meet at the Botany Dept Car Park at 9.15 to car pool, or go straight to the car park at the end of Dick Rd by 10 am. Contact: Yellow-eyed Penguin Trust Office 479 0011; email yept@clear.net.nz or **Lala Frazer** 478 0339 evenings.

- 31 August, Wed. 5:20 pm *Weeds & I; a weed-led tour of SE Australia, NW Queensland, and Southern New Zealand!*** A pictorial tour from **Ian Radford**. During the course of his research career Ian has studied several weeds in depth, including *Hieracium* spp., and collected many botanical slides from far-flung places. These include the N Coast of NSW, the Northern Tablelands, Hunter Valley NW slopes, Kosciusko National Park, Victoria and Tasmania Alps, Townsville region and far W Queensland, and the high country of Southern New Zealand.
- 10 September, Sat 9 am. Expedition to The Crater**, a bold ring of basalt in a schist landscape on the side of the Taieri Ridge. It's a steepish walk up through pasture to this 20 million year old volcanic remnant, to look for botanical relics in the ephemerally wet basin and on the craggy rim. Bring hand lens, lunch, plenty of water and all-weather gear. (Rain date Saturday 24 Sept).
Contact: **Robyn Bridges** 472 7330.21
- 21 September Wed. 5:20 pm *Leaving the white line: A journey in conserving the rainforests of the Adelbert Mountains, Papua New Guinea.*** Talk by **Matt Scott**. The Adelbert Range in northern Papua New Guinea, boasts a remarkable biodiversity, hosting up to 57 mammalian species and some 336 avian species. Many of these species, like the Fire-Manned Bower bird, are found nowhere else in the world. However, there has been significant pressure from the government to log these virtually pristine forests as part of a large forestry concession. The Nature Conservancy (TNC) is using innovative solutions to help protect the landscape and biodiversity of this region. I will discuss the project, the people and my personal experience working in the Adelbert Range.
- 26 October, 4th Annual Baylis Lecture 5.10 pm Speaker Assoc. Prof Kevin Gould.**
Plus: Audrey Eagle Botanical Drawing Competition – Display and Prize Giving
NOTE SPECIAL VENUE: Castle 1 Lecture Theatre, Otago University.
Keep this date free. More details next newsletter. Check website in October.
- 5 - 6 November, Saturday 8:30 AM Weekend trip to Catlins area.** Building on last year's popular formula, this trip will explore several exciting botanical locations over two days. Saturday will be spent at Purakaunui Bay and its sandy beach flanked by enormous sandstone cliffs, followed by a look at the rare alluvial forest of Purakaiti Stream with its giant specimens of *Pittosporum obcordatum*, *Meliclytus flexuosus* and *Olearia lineata*. Sunday will be based around Nugget Point with an opportunity to check out forest restoration and *Olearia hectorii* recovery at Otanomomo Scientific Reserve on the way home. 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 **John Barkla** ph. 476 3686 (evenings) by Wednesday 2 November. Leave from Botany car park at 8.30 am Saturday.

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 NEW 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.*

NEW 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 trips over 100 km. (see Treasurer's report). **Please contact the trip leader before Friday for trips with special transport, and by Wednesday for 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, outdoor gear and personal medication to cope with changeable weather conditions. See trip guidelines on the BSO web site:
<http://www.botany.otago.ac.nz/bs/>

Cover Pictures

Front cover. *Passiflora tetrandra*, Native Passionfruit. Original drawing by Eleanor Burton, entrant in 2004 inaugural Audrey Eagle Botanical drawing competition.
See also pp. 7, 12, 13

p26. Details of *Pimelia lyalli*, drawn by Audrey Eagle, 1982

Back cover. *Aseoe rubra*, the starfish stinkhorn fungus, glistening with fecal-smelling gleba, Knight's Bush, 30 April 2005.
Photo - *Scott Tebbutt*

Fig. Invasive veldt grass!

Peter Johnson (ODT 15.4 05), draws our attention to veldt grass, *Ehrharta erecta* (right). Originally from South Africa, and already a problem in Wellington, it has recently arrived in Dunedin. Prompt **action** is needed to stop it becoming a problem in Otago.





Contents



Activities & Administration

Meeting & Field Trip details.	<i>Committee</i>	1
Cover pictures and Invasive veldt grass!		3
Committee notes	<i>Committee</i>	5
New student member travel discounts	<i>Lyn Bentley</i>	6

Notes & Articles

Tauranga beans running late, too!	<i>Graeme Jane</i>	7
Introduced ferns in Southland	<i>Lloyd Esler</i>	8
A New Zealand Biodiversity Recording Network	<i>Colin Meurk</i>	10

Original Art Feature

<i>Native Passionfruit</i>	<i>Eleanor Burton</i>	12
----------------------------	-----------------------	----

Meeting & Trip Reports

Old Man Range field day	<i>Monica Peters & Norman Mason</i>	14
Conservation of the world's Temperate Grasslands	<i>Allison Knight</i>	17
Fungal Foray to Knight's Bush	<i>Chuck & Carol Landis</i>	17
Fungi of eastern North America	<i>Allison Knight</i>	19
Eco-sourcing local plant material for restoration	<i>Moiria Parker</i>	19
Sutton Salt Lake	<i>Toni Atkinson</i>	20

Book Review

Johnson, P.; Gerbeaux, P. 2004. <i>Wetland types in New Zealand</i>		21
---	--	----

Websites

	<i>Editor</i>	
New Zealand Plant and Fungi Databases		22
NZ fungi (and plant pathogenic bacteria) database		22
Botanical Society of Otago Website		23

News

	<i>Editor</i>	
Audrey Eagle Botanical Drawing Competition Last call for entries. -		23
Botanists' merry-go-round		24
Generous book donations		24

Botanical diary

	<i>Editor</i>	
National Event		24
Local Events		25
BSO Contact Details		25
BSO Membership form		26
Entry form, BSO Audrey Eagle botanical drawing competition		26

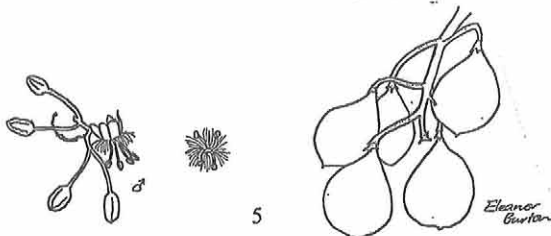
Hello BSO members. Despite being in the throes of winter, we've planned two trips to the beach over the next month. Coming up very soon is a trip to Tunnel Beach (July 23), followed by a Sunday visit to Okia Reserve on August 7. I hope you can brave the elements and attend one or both of those trips. Talks coming up include Geoff Rogers, on Otago in the time of the moa, and Ian Radford talking about weeds he has known. We're sorry about the short notice of some of these events, and hope that you were able to get advance warning by checking the BSO web site, which has generally had these events listed well before the Newsletter comes out. Further down the track, Robyn Bridges is leading a trip to The Crater and Matt Scott will talk about his adventures in Papua New Guinea. I hope you can attend some of these events.

I mentioned at the last meeting that we are going to give student members a 50% discount on travel to BSO field trips of over 100 km. Drivers will still get paid the full amount, but the students will only pay half, the remainder being paid by the BSO. We've limited it to 5 student subsidies per trip, so that it doesn't break the bank, and we can re-visit the scheme in the future if it needs refining in any way. Details are in the Treasurer's report. I hope you'll agree it is great to encourage more student involvement in the BSO. We thank Peter and Jennifer Bannister for their donation of books, many of which were sold to raise funds that will support the student subsidy.

We have been lucky this year to secure Assoc. Prof. Kevin Gould as this year's Geoff Baylis Lecturer. Until recently, Kevin was employed by the University of Auckland, but luckily for us he will take up an academic position in the Department of Botany at Otago on August 1, replacing Prof. Peter Bannister, who retired recently. Kevin will be contributing to teaching at all levels in the Department, and does research on plant pigments. We are all very excited about Kevin's imminent arrival, because he has a reputation as a superb teacher and we all know he will be a great addition to our staff. In fact, Kevin has won teaching excellence awards more than once at Auckland! The BSO committee thought it would be good to introduce Kevin to BSO members and the public by asking him to present the Geoff Baylis lecture this year. Keep an eye on the web site for details of his talk on October 26.

The winner of the Botanical Society of Otago Audrey Eagle Botanical Drawing competition will be presented with \$100 at the Geoff Baylis Lecture. If you are intending to enter this competition, then get your entries in by the end of August. There is a form and guidelines on the BSO web site.

Finally I thank Ian Radford for doing such an excellent job as trip co-ordinator for the BSO. Ian is about to move overseas to a new job, and we wish him all the best.



Trial of Special Student Travel Subsidy!

All Drivers and Student BSO members please note.

STUDENTS. If you're a student **and** a financial member of BSO (ie subscription is current for 2005) there is now a 50% discount available on travel for BSO trips over 100 km, that is, a reduction from 10c/km to 5c/km, to be paid to the driver.

This is available for up to 5 students per trip on a 'first in, first served' basis. All you need to do is be a current paid-up member – (only \$5, membership forms on rack outside Botany Office), pick up a travel claim form before the trip, make sure your driver measures the total km travelled, pay the driver half the standard cost (only if the trip is over 100 km long) fill in the form and give it to the driver to complete.

Student Members Travel Subsidy Claim Forms will be available from a box on the table, under the stairs in the Botany Department (check location with the Office if unsure) in the week prior to each trip. These forms will need to be completed by both the student and the driver, then forwarded to the Treasurer by the driver for payment of the outstanding 50% to that driver.

DRIVERS: Send your claim to Treasurer BSO, PO Box 6214, Dunedin North, or by internal mail c/ Botany Dept, Otago University. Sorry about the extra paperwork, but it seems the fairest way of helping the students, who do contribute a lot to our society. Any queries or suggestions, please contact the Treasurer, Lyn – stevelf@ihug.co.nz

Editor's notes

Allison Knight

How fascinating it is to delve into the backgrounds of some of the contributions to this newsletter, checking dates, meanings and current botanical names, and looking for appropriate illustrations - a Google search even brought up lots of images of veldt grass, an unwelcome newcomer. The Landcare databases are a great help for current names, and I recommend them to anyone publishing articles or species lists. Our reporters have reached such an exceptionally high standard that I have waived the length guidelines this once! It's so wonderful to have students contributing their lively points of view, too. But Newsletter 45 is not just a passive read....

Several items urge ACTION! Firstly, veldt grass need not become a problem if we all look out for it, weed it out and properly dispose of it. Secondly, look out for the exciting new Biodiversity Recording Network that Colin Meurk describes, and start putting together all the old species lists you can find. A good use for all those observations at last! It might be worthwhile looking out for the introduced ferns that Lloyd Esler describes from Southland. And if you're more into reading than weeding we need you too. We would value more excellent book reviews such as John Steel's appraisal of *Wetland Types in NZ* by Peter Johnson and Philippe Gerbeaux, in this issue. Fine photographers and budding artists always add an original finishing flourish. I do enjoy publishing them, so please do keep the contributions flowing to me and don't forget the 2nd Audrey Eagle Botanical Drawing competition.

There – something for everyone to read and to do – enjoy!

Editor's guidelines Contributions are always welcome, but newsletter space is a little limited. Please note these few gentle guidelines. Please try and aim for a 0.5 - 1 page of 14 pt Times New Roman 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.

Please submit copy for next newsletter by 10 September 2005

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.*

Notes and Articles

Tauranga Beans running late, too!

(Sequel to **Runner Beans Running Late**, BSO News 44)

Letter from Graeme Jane to Audrey Eagle, April, 2005

Hi Audrey

Just to let you know you are not the only one to have slow flowering scarlet runners! Here in Tauranga the plants didn't get away till nearly Christmas and when we arrived back on 19 January there were only a few flowers. Our first picking was not till early March!

Same seemed to be the case with many alpine plants. Snow was still 2 m deep on one area of the Old Man Range that had been clear in earlier years in January and even on my second trip in mid February there was still half a metre of snow! The last snowfall of the "winter" was as late as mid January!

Trust you are well and not enjoying an early winter too! (Night temperatures here are still high)

Cheers
Graeme



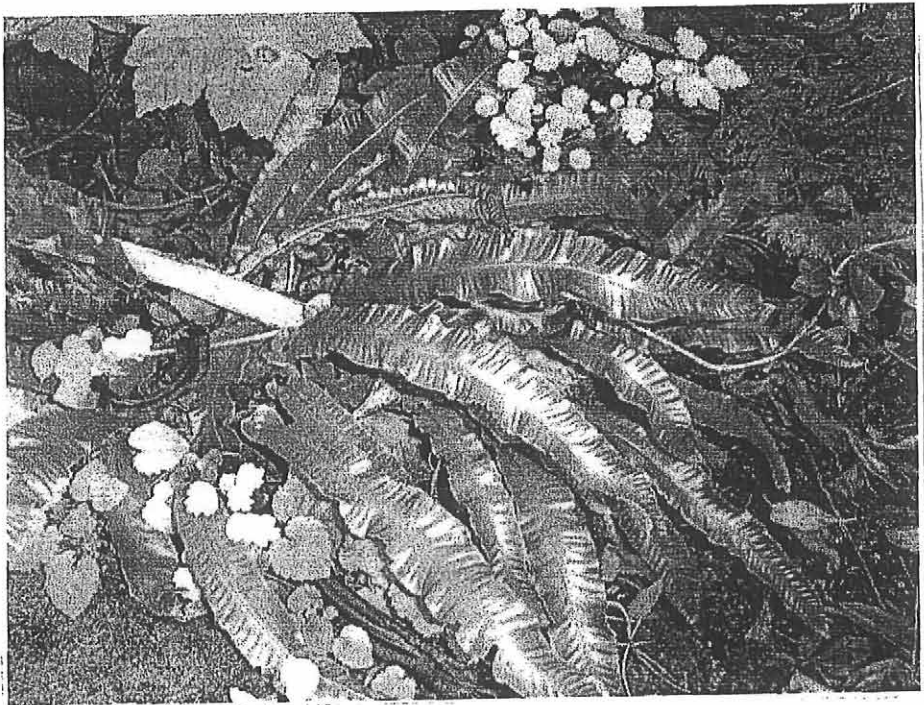
Introduced ferns in Southland.

Lloyd Esler

Southland has got only a few introduced pteridophytes. The best place to find them is in the rock garden by the duckpond in Queens Park Invercargill. **Hart's tongue** *Phyllitis scolopendrium* is common there, possibly originating from an early planting. It thrives on the limestone boulders in the garden but I haven't found it elsewhere in Southland. *Pteris cretica* is rare, far south of its expected limit and almost certainly planted although it is a weed in the nearby hothouses. A few plants survive in the shelter of other vegetation on a wet rock wall. *Cystopteris fragilis* is common along the waterways in the rock garden, obviously needing a very moist environment.

Male fern *Dryopteris filix-mas* is widespread and sometimes abundant in the vicinity of Invercargill. It is a minor garden weed but seems to thrive best in pine plantations, particularly in the Sandy Point Domain. I'm not sure how it is distributed outside Invercargill but I recently found a specimen growing near the Big Totara in the Motu Bush on the west side of the Waiiau River. The last species is *Selaginella kraussiana* (spike moss) a common glasshouse weed and locally common on Stewart Island. A small patch in my garden has not survived my eradication campaign but it took two doses of Roundup.

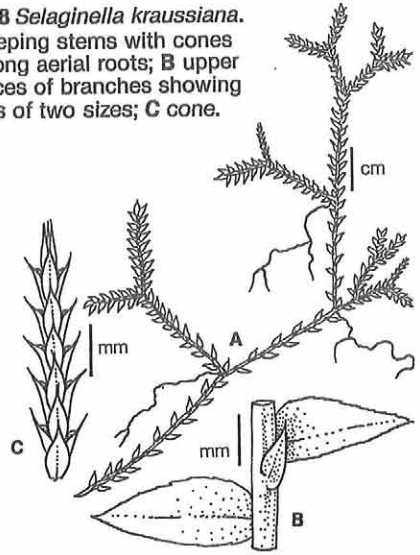
Introduced ferns and fern allies,: **Hart's tongue**, *Phyllitis scolopendrium*;



Clockwise from top: *Pteris cretica*; **Brittle bladder fern, Spike moss, *Selaginella kraussiana*, *Cystopteris fragilis***; Photos, - Lloyd Esler 2005, Drawing - T Galloway, in: *NZ Ferns and Allied Plants*, Brownsey & Smith-Dodsworth, 1989.



Fig. 28 *Selaginella kraussiana*.
A creeping stems with cones and long aerial roots; B upper surfaces of branches showing leaves of two sizes; C cone.



A New Zealand Biodiversity Recording Network

Colin Meurk

Landcare Research, 30th June, 2005

A number of biologists have identified gaps in the current national recording systems for natural history information in terms of type of data and involvement of the community. There are extremely valuable data that have been accumulated over the life times of professional field workers and amateur natural historians that in the modern world are in danger of being lost to posterity. To address this, an interactive, web-based data storage and retrieval system to accommodate natural history observations by professionals and lay people alike is to be funded by TFBIS. This will provide a means of safe storage of data on plants, fungi, invertebrates and birds and generate distribution maps that are continuously updated. It will also play an important role in engaging the wider community in natural history observation and enhancing understanding of the wider context of those observations.

NZ lags well behind other, older established, cultures in developing a foundation of natural history recording. This is exacerbated by the extremely critical state of our biodiversity. Much historical distributional data could be lost completely if it is not captured in the next decade or so. Europe, for example, has historical biological data going back centuries and this is now collated in the form of information rich species' distribution maps (Fitter 1978: *An Atlas of the Wild Flowers of Britain and Northern Europe*). 10 million natural history records are available though the UK's National Biodiversity Network, itself built on decades of activity by the UK National Federation of Biological Recorders and its member organizations. These data form the basis for much management and planning for biodiversity, including conservation policy/legislation and establishing national/local Biodiversity Action Plans. NZ does not have this tradition and hence much of our planning is *ad hoc* and ill informed. Knowledge of historical and potential species' distributions will be vital to restoring habitats across our now highly fragmented cultural landscape. There is also a need to Document the spread of weeds and pests in order to better prioritise and manage them.

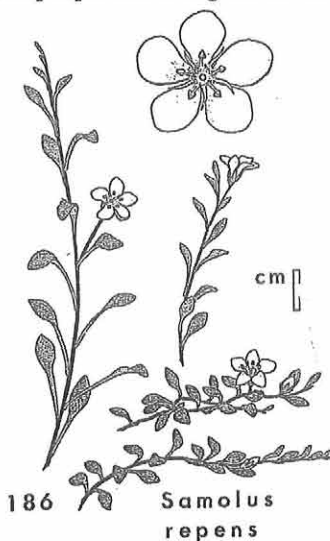
Such a facility is not duplicated by other current or planned systems. Data associated with vouchered specimens in securely maintained collections are the ultimate in authenticity, but they will not be able to cope with the density of information needed to establish detailed spatial depictions. To this extent these data will complement and fill in the gaps. The National Vegetation Survey (NVS) and associated systems (with its existing >60 000 formal plots) are resource-intensive and plot-based and again cannot be replicated at a high density across the entire country. The NZ Plant Conservation Network is specifically focussed on conserving the indigenous flora and focuses on voucher-based rare and endangered species.

Several Botanical Societies have databases of plant records from their field trips. We have already negotiated use of these records and hope that the extensive electronic records of Graeme Jane will be uploaded onto the BRN. John Sawyer (pers.comm.) estimates there are some 3000 such lists in the country. An effort would be made to capture this data to establish quick 'runs on the board'.

Summary

- We identify the need for a publicly accessible biological observation recording system – that is not being fulfilled by existing institutional facilities.
- We have demonstrated that there is a demand, a desire and willingness to participate in similar web-based networks (both overseas and in NZ), and a low risk of failure.
- We have devised a system that avoids any hint of partisan ‘ownership’ but which has the long-term security of being backed by key institutional players. The BRN would be set up with a GBIF portal. An independent board of stakeholders would operate the network (akin to the British Federation of Biological Recorders). All data would be available for use by participating institutions (e.g. BIOWEB) as well as by members of the public (except for sensitive or designated private records). We would ensure there was a termination clause that provides clear succession in the event the primary host can no longer operate. Danger of this will be far smaller when a public institution is hosting it.
- The beauty of this proposal is that it does not involve reinvention of the wheel, but rather utilises and adapts, for NZ conditions, a public domain product already tried and tested in Sweden (Artportalen) and which in the space of about 5 years has accumulated in the order of 9 million records. It is having phenomenal success and provides most of what we would want for NZ.
- We believe that the proposed NZBRN will fulfil an important role in the suite of biological recording systems in NZ – by providing a framework for storing historic *ad hoc* data collections and future observations by an (increasingly) educated and participatory public.
- Finally, there is a relatively low level of knowledge about our natural history in NZ, but a high level of interest in knowing more (based on surveys in Auckland and Christchurch and experience from pilot web-based recording systems in Christchurch and Waikato), and being involved in the process of collecting this knowledge. This unfulfilled demand exists partly because of the lack of easily accessible information (outside of birds and conspicuous plants) and a means of people becoming involved.
- Being able to record even the simplest observation, knowing that it is contributing to a bigger picture, and being able to see change in records as they participate, will be a very motivating, self-reinforcing and synergistic experience. This is needed to address the threat that our biodiversity faces and the indifference of many of our decision-makers. An informed, motivated and empowered public will be better placed to apply greater pressure on decision-makers to prioritise nature conservation and biosecurity control and thereby improve our biodiversity outcomes.

Fig. *Samolus repens*, common on coastal turf and rocky places in reach of salt spray. Hugh D Wilson, *Stewart Island Plants*, 1982



Botanical Art Feature

Passiflora tetrandra,

Eleanor Burton, 2004 Art competition.

Passiflora tetrandra

Kohia, New Zealand Passionfruit

Kohia is the only endemic species in this genus, which includes passionfruit. This plant is a vigorous climber, climbing easily into the tops of canopy trees. The plant can live to a considerable age, possibly up to 200 yrs, with vines reaching a diameter of up to 14 cm. It is found from Northland to Canterbury in lowland and montane forest. It has small white scented flowers, followed by large orange fruits in autumn. These are a food source for birds. Male and female flowers are found on separate plants.

The pulp of the fruit was eaten by the Maori, who also extracted a fragrant oil from the seeds. They used this as a body oil.

This plant is grown in cultivation. It likes shade for its roots, and needs lots of room to climb! Two plants are necessary for fruit.

My drawing shows a young shoot with female flowers and developing fruit; male flowers; fruit; and an older shoot (top left) with more typical (if somewhat chewed) foliage.

For other entries in the inaugural Audrey Eagle Botanical Drawing competition 2005, and entry forms for this year's 2005 competition, see: <http://www.botany.otago.ac.nz/bsc>
Entry forms and BSO membership forms are also available on the rack outside the Botany secretaries' office, and on p 26.



Meeting & Trip Reports

Trip report, 9 April 2004

Monica Peters & Norman Mason

Obelisk Station field symposium discussing the impact of pastoral management on indigenous tussock grasslands.

A convoy of 4WD vehicles left Dunedin early on Saturday 9 for a planned meeting on the Old Range. The turn out was impressive, with around 100 people brought together from across Otago, Southland and even Canterbury. How did this meeting between farmers, scientists from a range of institutions, Forest and Bird representatives, Botanical Society and Federated Farmers members, DOC, the odd geologist, MP, journalist (apologies to any group or individual omitted) come about? A challenge was issued via the ODT to Prof Mark to prove that burning and grazing had any deleterious effects on native grass species, particularly snow tussock (*Chionochloa*) species.

Prof Mark responded by calling for a meeting of the various interested parties and “stakeholder” groups in high country farming systems, to be hosted at Obelisk Station on the Old Man Range (Roxburgh). One of the main themes of the meeting was how best to manage high country land and predictably, an extensive range of opinions were expressed over the course of the day. The meeting was an opportunity for questions – and challenges - to be directly addressed.

What makes this location for such a meeting of diverse perspectives unique, is its history both as a high country sheep station and as a long-term research site. The exclosure plots were established by Prof. Mark in the early 1960’s to examine the growth and flowering of snow tussocks collected from different altitudes along the altitudinal gradient provided on Obelisk Station. Since then a range of studies by Prof. Mark and various students have examined, amongst other things, the effect of burning on growth and the distribution of nutrients in different parts of the tussocks. During the meeting, Prof. Mark explained that burning resulted in a flush of growth, with this growth being high in nutrients and very palatable to grazing animals. Fire also initiated abundant flowering in tussocks for the growing season following burning. However, after this initial burst of flowering, tussocks were incapable of any considerable flower production for up to fifteen years. Prof. Mark further explained that, in the absence of grazing, the nutrient concentrations and carbohydrate reserves of tussocks recovered within one or two growing seasons of burning. However, he cautioned that when burning is closely followed by grazing, the loss of the nutrient rich post-burn growth seriously depleted the tussocks’ reserves.

One of the points raised during the meeting was that research should be more closely aligned to meeting farmers’ information needs. While studies such as those outlined above elucidate ecological processes, some comments made suggested research of this nature may not be “applied” enough in the farming sense. While research may show statistically significant results, what does a change in the species composition of say, invertebrate communities, actually mean to the farmer? Prof. Mark reminded the meeting that farmers were welcome to make a submission to the Miss E.L. Hellaby Indigenous Grasslands Research Trust, for funding of research they saw as important. Apparently, none had to date.

This may be in part due to a lack of familiarity with the scientific process on the part of non-scientists, which then leads to questioning the meaningfulness of experiments. Some of the farmers expressed that their observational and practical experience on the land has enabled them to select the best methods for managing their land. The grave management-related errors of the past are widely acknowledged by farmers – and appear to have been duly learned from. Terms to describe current management practices included “sustainable” and “holistic”. As one farmer commented, “Scientists and farmers basically have the same goals...”. It is true that farmers in the high country have learned some hard lessons over the 150 years of *pastoral management*. According to one part-time consultant who advises farmers on tenure-review issues, many farmers recognise the current plague of mouse-eared hawkweed (*Hieracium pilosella*) that is currently gripping many areas in Central Otago, as a sign of a highly degraded ecosystem and not the result of invasion by a super weed.

A consensus is growing amongst farmers that management practices must be carefully considered if the high country is to remain productive in the future. This has seen a large reduction in the frequency of burning and the extent of areas burned, and modification of how burning and grazing are combined (pers. comm. C. Scott). It seems, then, that there is a broader level agreement between different high-country stakeholders, though there is always the concern that the meanings ascribed to such widely used terms such as sustainability, are elastic and shift according to context and the interest of the individual. One wonders how sustainable an agricultural system is, if it is dependent on non-renewable phosphate reserves. This is surely a problem that faces all farming in New Zealand, not just the high country.

ACT MP and high country farmer Gerry Eckhoff asked why DOC was so interested in pastoral leasehold land if lessees had treated it so poorly. Dr. Janice Lord of the Botany Department, University of Otago, pointed out that there were no undisturbed areas of snow tussock left, and degraded as they are relative to their likely natural condition, examples of snow tussock grassland such as those found on Obelisk Station represent the best of what we have left. Said MP also claimed that DOC was trying to lock away the entire high country from agricultural management. Several attendees of the meeting pointed out that the aim was to reserve a representative portion of our native high country vegetation types, and not bring the entire high country under conservation management.

A further issue was that retiring high country land from farming would lead to a greater intensification of lower lying lands – adding to the problems outlined in the recent PCE “Growing for Good” report*. The high country also adds flexibility to management, providing additional grazing in dry years, as lower-lying areas tend to be harder hit by events such as drought. The view generally held by farmers is that *Hieracium lepidulum* is controlled through grazing in the summer (to remove flower heads) and the addition of fertilizer. Wilding pines are similarly controlled, with additional manual effort (sawing, grubbing and pulling) often required. Observations were made by several farmers that some areas under DOC’s control are poorly managed

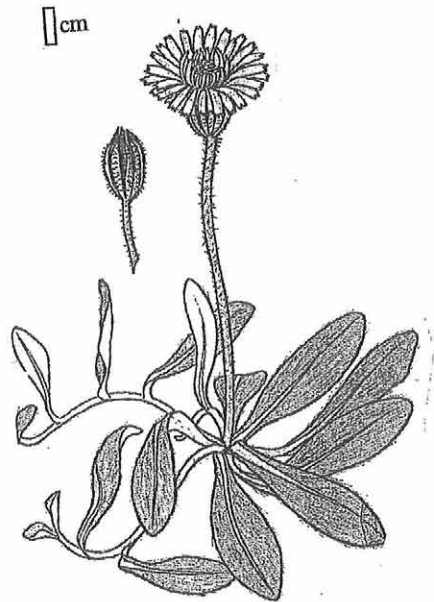
* The report “Growing for good: Intensive farming, sustainability and New Zealand’s environment” (2004) is available from www.pce.govt.nz

and infested with weeds such as wilding pines and Douglas firs (most farmers of course also include the native shrub matagouri – *Discaria toumatou* – in their list of weed species), and *Hieracium lepidulum*, which then spread onto neighbouring farmland. Prof. Mark cited areas on the Criffel range and Mt. Pisa as instances where pastoral management seems to have resulted in an explosion of *H. lepidulum*. It's a shame that Ian Radford as the resident *H. lepidulum* expert wasn't present to share his knowledge on the subject. Conversing with some 5th generation farmers from the Ida Valley, criticism was raised about the lack of information provided to the farmers by DOC in relation to the High Country Tenure Review. Though DOC representatives were present at the meeting, their capacity was as observers. It is common knowledge that many farmers feel DOC takes a dictatorial position in the tenure-review process. Whether or not this is the case, I think I speak for many when I say that DOC would do itself a big favour by considering public relations in dealing with such contentious issues.

The question that rounded up the day was "Shall we have another meeting like this?" That's one point that *all* parties unanimously agreed on. Formal as well as informal discussions are the key to keeping this complex debate in a fluid form. Strong opinions on both ends of the spectrum are important and can be seen to function as "anchor points" in the debate, with most people probably occupying a range in between though leaning to either "anchor". As one pragmatic farmer put it, "...both sides have to make compromises" and this can only be achieved through keeping quality information moving between all parties. Having a meeting on site where questions raised can be directly answered as well as experiments physically shown helps to break down barriers as well as cement the experience in people's minds. Answering questions directly also prevents the information from being distorted through its translation into other media for dissemination [see the *ODT* article (11/4/05) reporting on the meeting for an example of such distortion].

How best to manage the South Island's high country? With so much history embedded in high country farming, it is likely to remain a feature of these areas. Questions centring on high country farm practice and management are vital and will continue to engender lively debate. I choose the word "lively" because I want to highlight the largely positive nature of the day, and like others present, look forward to the next meeting.

Hieracium pilosella
 Mouse-ear hawkweed
 Hugh D Wilson
 Wild Plants of Mt Cook
 National Park, 1996



The World's most beleaguered biome: Temperate grasslands and their conservation status. 21.4.05.

Talk report, Allison Knight

After the Annual General Meeting this year Emeritus Professor Alan Mark rolled out a magic carpet of grasslands around the globe. Unfortunately our reporter has disappeared and my memory can scarcely do justice to all those magnificent images and knowledgeable descriptions of the worlds rolling plains, prairies, steppes, savannah, tundra, veldt and many more evocative places. The grand finale was, of course, our own beautiful but still beleaguered tussock grasslands.

Fungal Foray to Knight's Bush

Chuck and Carol Landis

On Saturday May 7, a Botanical Society party visited the Tuapeka West property of John and Allison Knight to investigate the autumn fungi. We began in pine forest at 300m overlooking the Clutha Valley and gradually worked our way down into the river gorge entering a large stand of native bush. Fungi were very abundant throughout, with each habitat having a distinctive mycoflora.

This was my first foray into fungi and we found the diversity of colours, textures and species quite amazing. It was great having David Orlovich and other mycologically-inclined members sharing their knowledge and enthusiasm. Lloyd Esler's forest floor nibbles kept us "on our toes" and his welcome new (and quirky) phytogeomorphic term "mushrump" caught on quickly. (A mushrump is the mound created where a fungus is about to break the surface.)

The mature *Pinus radiata* plantation was dominated by the beautiful but ominous fly agaric *Amanita muscaria*, and several boletes, particularly *Suillus luteus*, the slippery jack mushroom, and *Chalciporus piperatus*, the peppery bolete. These are exotic fungi (i.e. in appearance and origin), the fly agaric known for attracting and killing flies, if sprinkled with sugar, the slippery jack is especially common in the jack pine forests of eastern United States, which may explain part of its common name. Also Common were the milk caps, *Lactarius* (milky sap mushroom), *Tricholoma* and *Laccaria* species. It is likely that many of these too are exotic to New Zealand.

The upper edge of the native forest is dominated by mature second-growth kanuka. This passes downhill into older and more varied forest dominated by beech and podocarps. *Russula*, along with *Mycena* (delicate fluted lampshades) were common, especially in areas of kanuka. Also in the kanuka forest we found the bird nest fungus, *Cyathus novaezelandiae*, on fallen twigs. In the older beech-podocarp forest the saprobic species living on old and dead beech wood were fascinating - in particular a beautiful icicle fungus, *Hericium coralloides (clathroides)*, on a standing dead trunk was a real eyecatcher, while the mycelium of the "Verdigris Stud Fungus", *Chlorociboria aeruginosa (Chlorosplenium aeruginosum)*, had created the appearance of rotten tanalized wood. *Hypholoma brunneum*, and some excellent examples of woody bracket fungi were also evident.

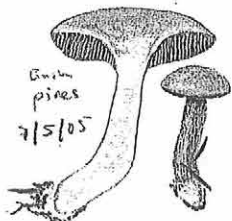
Other notables include the delicate young honey mushroom, *Armillariella*, with its granular but slimy caps; *Daldinia childiae (concentrica)*, the charcoal fungus also

known as King Alfred's cakes, is a truffle relative; and the starfish stinkhorn, *Aseroe rubra*. *Tricholoma*, *Cortinarius*, and *Laccaria* species were common and the distinctive red pouch fungus, *Weraroe erythrocephala* was also present. The greatest diversity appeared to occur in a portion of the forest rich in podocarp trees--kahikatea, totara, matai.

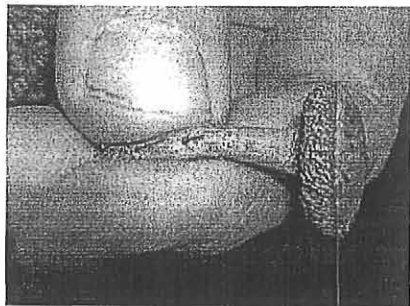
Looking through Miller's "Mushrooms of North America" and other books, I've been struck by how much the NZ fungal flora resembles the northern hemisphere flora (in profound contrast with the NZ flowering plants). In part, this must reflect the ease with which spores are dispersed as aerosols, but it also reminds us how easily fungi may be introduced (e.g. on roots, boots, camping equipment, etc). Given the absence of a good fossil record for fungi, and the difficulties that early NZ botanists must have had with identification and preservation of fungal specimens, it is rather sobering to realize that we may never have a full understanding of New Zealand's pre-human endemic fungal flora.

As the trip finished, a gentle rain began to fall. This made the access track very slick, particularly in some precipitous areas. We considered waiting until the surface dried off, but the thought of 11 people spending the night in a tiny (tho' very appealing) hut with only mushrooms and muesli bars for food spurred us to get out the ropes, shovel, and chains. Many thanks to the Knights for hosting us and to Allison for assistance in obtaining references and checking my notes.

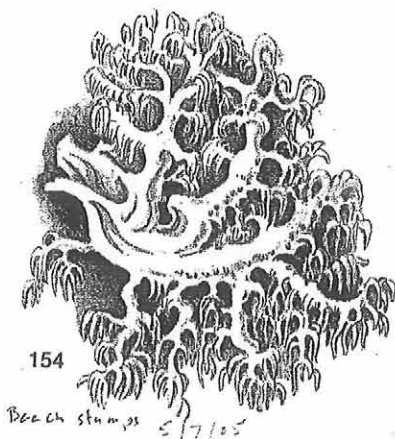
Participants: Bill & Diana Wilson, Gerry and Richard Martin, Toni & Pamela Atkinson, Jean Bretherton, David Orlovich, Lloyd Esler (Invercargill), Allison & John Knight, Carol & Chuck Landis.



R. Hericium coralloides, Icicle fungus (edible).from M Taylor, *Mushrooms & Toadstools*. Reed, 1981.



L. Peppery bolete, *Chalciporus piperatus* under *Pinus radiata*. Photo D Orlovich



More images of fungi from the foray (and even the tiny hut) are on the BSO website

Dr Steve Stephenson, from University of Arkansas delighted us yet again with another colourful and informative presentation. Many of the superb slides he showed us were bequeathed to his university by Emily Johnson, an amateur photographer whose incredible photography is also featured on the cover and in the book Steve co-authored with New Zealand mycologists: *Edible and poisonous mushrooms of the world*, Ian R. Hall, Steven L. Stephenson, Peter K. Buchanan, Wang Yun, Anthony L. J. Cole (Editor). It was fascinating to see how some of the species that we have here, such as the ubiquitous *Amanita muscaria*, look similar, but not identical, in North American forests. The ecological roles were interesting to consider, too. The attachment of mycorrhizal fungi to the roots of trees can aid forest growth, while wood rotting fungi are important for recycling forest nutrients but can be devastating for the logging industry.

Eco-sourcing local plant material for use in restoration projects. 8th June 2005

Talk by **Philip Dunn** of Ribbonwood Native Plant Nursery

Moira Parker

Philip Dunn began his talk with excellent photos of some of the revegetation projects for which Ribbonwood nursery has supplied native plants. These projects include the revegetation at Leith Stream, Frasers Gully, the Green Island landfill, Silverstream, Kaikorai estuary, Kaikorai stream, Southern Reservoir, a Middlemarch wetland and the Owhiro stream.

At Leith Stream, an Otago Regional Council funded project, growth of plants has been particularly rapid. It was impressive to see photos of a 3 year old lemonwood that is now 3 m, and a 7 year old miro that has reached 2 m. The sheltered Leith Stream site has damp, alluvial soils that favour rapid plant growth, but Philip stressed that thorough releasing of young plants has also contributed to the success of this project. He also advocates the planting of young podocarps early in the life of a revegetation project, as often these species do not seed naturally.

Though some of the native plants at Ribbonwood nursery are grown from cuttings, to maintain genetic diversity the majority are grown from seed. Philip commented on the variation in leaf colour and shape that may be seen in a tray of *Pittosporum tenuifolium* seedlings.

On the topic of eco-sourcing, Philip regards provenance as significant for frost tolerance. However, he suggested that the dispersal of large seeds by kereru and the wind dispersal of pollen may both cause genetic material to be more widely distributed than is sometimes thought to be the case. As an example he quoted a Southland study in which transmitters were used to track kereru. The tracking data showed that these birds crossed Foveaux Strait four times and visited the Hokonuis twice during the period of the study.

Sutton Salt Lake, Fieldtrip, 18 June, 2005 Toni Atkinson

It was the sunniest of days and we a scattered group of humans, overheating, thermally-dressed, surrounded by long grass, giant schist tors, blue sky. Perhaps here Tolkein turned some tardy trolls to stone. I learnt at university that NZ has only two (semi-) deciduous plants, however, here the matagouri and Muehlenbeckia had lost nearly all their leaves; a result of or a ploy to withstand the harsh winter.

*Norm spent time fossicking for the private parts of grasses, and we learnt to apply certain boat terms, "keel", and "bow", to their leaves. I thought "mast" and "sail" were equally descriptive, (particularly after I got too close and a seed head went in my mouth), but these earned me only a frown. Norm found three grasses not on the species-list for the reserve: *Dichelachne crinita* (native), *Cynosurus cristatus* (crested dog's tail) and *Bromus "brevis"* (both introduced). John Barkla, our leader, added the narrow-leaved woody shrub *Olearia lineata* to the list.*

The lichen-covered tors fringing the "ephemeral" Sutton Salt Lake were our lunch spot. On the rocks close to the water's edge is an orange saline-tolerant lichen, which appears similar to that found on the coast, and, like many of the lichens observed on the trip, was a mass of fruit-bodies. At this time of year the lake appears to be about 10 cm deep over a muddy bottom, and was largely covered in clear ice; despite being half as salty as sea-water which should depress the freezing temperature. The mirror-like thawed patches grew photogenically as the warm day wore on, but there was enough ice for the children to endlessly amuse themselves - walk on it, crunch through it, throw shattering pieces across the surface, and slide each other around. Certain issues arose between John's daughters which were not resolved and the party was assured will point to court action at a later date.

*It is an easy place to revisit, alone, or with friends. The pleasant, well-mown track is a loop around the lake (recommended for push-chairs), and on the furthest side we were delighted to see a NZ falcon rapidly flapping its way across the sky, and calling ke-ke-ke-ke - a high note repeated in quick succession. This may be an alarm call, or a non-directional call intended to flush out and confuse prey. I was certainly confused, and for some time could not find the falcon. There were no sightings of the aquatic Dipteran larvae *Ephydrella novaezelandica*, a mud-dweller endemic to the lake. But then, we didn't look ...*



Fig. *Dichelachne crinita*, plume grass. HD Wilson, 1996

Book review

John Steel

Johnson, P.; Gerbeaux, P. 2004. *Wetland types in New Zealand*. 184 pp. Paperback. Department of Conservation, Wellington. \$34.95. (Available through the University Bookshop.)

We all know what wetlands are, or do we? According to Dugan (1990), there are more than fifty definitions and that figure is doubtless far from all-inclusive. They can vary from ‘the kidneys of the earth’ to ‘mosquito-infested mud-holes’ depending on the outlook of the observer at the time. As I recall, most, if not all, writers on the subject begin with their definition followed by a justification based on comparison with those of other writers. *Wetlands are notoriously difficult to nail down and the RAMSAR International Convention on wetlands in 1971 laid down their definition as the starting point for all others.* Since this includes everything from coastal marine waters less than six metres deep to ephemeral puddles forming in the desert after a rain shower once in a blue moon, it serves mainly to highlight the difficulties of finding the starting point for any classification system.

Johnson and Gerbeaux have produced an excellent small book that allows the reader to grasp all the complexities of sorting through the many different types of wetlands in New Zealand. It is concisely written and accessible to the lay reader as well as providing a valuable summary to those of a more scientific bent. As others before them and no doubt those yet to come, they start off with an attempt at a definition of wetlands. For them, “Wetlands are precisely that: wet lands”. Not precisely enough, it would appear, as the rest of the introduction comprises mainly a discussion of the problems surrounding the attendant difficulties of such a task!

The bulk of the book (ninety pages) sets out a classification system for New Zealand wetlands. It starts with a breakdown into nine hydrosystems – wetlands based on the landform and water regimes. This is followed by consideration of the variety of wetland classes based on their different functions – how they work; wetland forms – the features they create; structural classes – vegetation; and aquatic habits – plant adaptation. Each section has a very handy key and there are two convenient summary tables for wetland classes. As with the other chapters, close on half is taken up with excellent photographs to illustrate the key points in the text.

The remaining three chapters concern the various patterns formed by different wetland types; the driving forces underlying their formation, structure and function; and a summary of how to explore a wetland site. I found the explanatory diagrams, especially those in chapter three, very helpful in interpreting the accompanying photographs. A list of references and glossary of terms (but excluding wetlands) concludes the book.

The authors have produced a very useful guide for the different wetland types in New Zealand and for those who regard those wet bits as an irritating barrier

necessitating a frustrating detour, this book will give every reason to slow down and work through the classification provided. You might not make the hut on time, but you will have a greater appreciation of these often ignored and sadly neglected features of our landscape. And when stuck in the hut with the rain pouring down outside you might just have a go yourself at coming up with a precise definition of wetland – good luck.

Ref: Dugan, P.J. (1990) *Wetland conservation: a review of current issues and required action*. International Union for the Conservation of Nature, Gland.

Special Book deals and details



Manaaki
Whenua
P R E S S

Manaaki Whenua Press offers a wide range of quality New Zealand natural history and science titles. Some, like the *Flora of New Zealand* series, are published by Manaaki Whenua Press, while many others are sourced from other publishers in order to expand and enhance our range. Manaaki Whenua Press also acts as exclusive distributor for CSIRO publishing, the New Zealand Plant Protection Society, and the Entomological Society of New Zealand. For more information, visit the website at www.mwpress.co.nz Botanical Society of Otago members enjoy a 20% discount

off the RRP of all titles (excluding already reduced special offers) - please advise us of your membership status when placing your order.

www.mwpress.co.nz

Websites

NZ Plant and Fungi Databases



Allison Knight

<http://nzflora.LandcareResearch.co.nz/> This increasingly useful database now covers seed plants, lichens, mosses, liverworts, freshwater algae and ferns found in the wild in New Zealand. You can search for 'preferred' current botanical names, Maori name, common name and some synonyms. For some species there are also distribution maps, recent literature lists (4 papers for *Hieracium*) and even images of some herbarium specimens (eg of toetoe but not of cabbage tree).

The database for NZ fungi (and plant pathogenic bacteria) is accessed separately: <http://nzfungi.landcareresearch.co.nz/html/> This website claims to be "...one of the most extensive electronic compilations on the national fungal biota of any country." It covers much the same taxonomic ground for fungi as the plant database does for lichens, plus sometimes field images, which can be very helpful.

Both websites are ideal for checking current names on species lists before you publish them, but you need to have a relatively fast internet connection or it could take 15 minutes or more per name!

Botanical Society of Otago Website: <http://www.botany.otago.ac.nz/bs/>

Our web site contains trip details, membership forms, contact details and links to other websites of Botanical interest. Check it out to see updates on trips and activities. New additions include colour images of entries in the inaugural Audrey Eagle Botanical Drawing competition, plus judging criteria and entry forms for this year's competition. There's also a growing gallery of images from BSO trips and meetings, including a mushrooming collection of fungi.

BSO 2nd Audrey Eagle Botanical Drawing Competition, 2005

Conditions of entry – last call for entries!

1. A prize of \$100 will be given to the best botanical drawing submitted to the Botanical Society of Otago, PO Box 6214, Dunedin North, by **31 August 2005**.
2. The drawing must be your original work, with the understanding that BSO can use copies of it, with due acknowledgement, to illustrate the Newsletter, website or other BSO material.
- 3 It will also be displayed at the 4th annual Geoff Baylis Lecture, 26 October 2005, where the winner will be announced and the prize awarded.
4. The size should be similar to A4 and no bigger than A3.
5. Your entry should include a title, notes of interest and contact details as requested on the entry form, and described in the judging criteria.
6. There is no entry fee, so please include an addressed, pre-paid envelope or tube if you would like your entry returned.
7. Entries are open to all current Botanical Society of Otago members.
8. The judges will be kept unaware of your identity until their final decision is made.
9. No prize will be given if there are no entries of sufficient quality.

Membership forms and entry forms for the Audrey Eagle Botanical Drawing Competition are available on p 27, the BSO website, above, which also has images of 2004 entries, and on the display outside the Botany secretaries' office.

Judging criteria

1. **Botanical accuracy.**
2. Detailed drawings, especially of identification features.
3. Clarity of lines.
4. Good proportional representation and scale.
5. Layout
6. Suitability for publication.
7. Preference will be given to plants that are rarely, or have not been, illustrated in a readily available form. For example an illustration of an uncommon wetland plant would be of more scientific value than a picture of a lancewood.
8. Caption to go with illustration e.g. name of plant, where it came from and the date it was collected and/or drawn.
9. Botanical notes, or comments of interest about the plant or both. These could include a key to botanical details, notes on history, distribution, uses etc.
10. **Artistic merit.**

News

Botanists' roundabout

Best wishes to our Patron and champion proof reader, Prof Peter Bannister, who retired in April this year, so he can enjoy the botany unencumbered! Belated congratulations to BSO past chairman, Bastow Wilson, who is now a full professor. Watch out for Bastow's Inaugural Professorial Lecture on 13 October. Welcome to Associate Professor, Kevin Gould, who comes from Auckland to join the Department of Botany and will be our dynamic guest speaker at the 4th Annual Geoff Baylis Lecture.

Also a big thank you to all the student members who have enlivened our meetings, outings and newsletters with their diverse points of view and senses of humour.

Special congratulations to Norman Mason, Adrienne Markey and Jane Marshall, who have just submitted their PhD theses, and to Barbara Anderson, whose thesis has been accepted, but who has not yet graduated.

Also to the following Botany and Ecology graduates from the past 12 months:

PhD: Abi Loughnan, Denise Hunter, Lisa Russell, Ralf Ohlemueller, Deane Harder.

MSc: Chris Stowe, Alison Stringer, Craig Wilson

BSc (Ecol) Dean Clarke, Kate Ladley, Dean O'Connell, Abe Gray

PGDip Sci: Monica Peters

We wish these and all our student members well as they move on to better (or fishier) things, even though it's always sad to see them go. Please keep in touch!

Generous Book donations

Many thanks to Jennifer and Peter Bannister, who have both recently donated a large number of beautiful botanical books to our society. Many members were delighted to be given the opportunity to acquire some of these books for a suitable donation. You'll be pleased to know that the money raised has been ear marked for subsidising student travel to more distant field trips, and so the generosity will live on.

Botanical Diary

National Event

21st John Child Bryophyte Workshop 8 – 13 December 2005

One of the aims of a John Child Bryophyte Workshop is to gain and share knowledge of, and encourage an interest in, the mosses, liverworts and hornworts of New Zealand. They are open to all who are interested in bryophytes, from novice amateurs to professional botanists.

The 21st workshop will be in the North Island and based in the Pohangina Valley, which is 38 km from Palmerston North. Initial indications are that the workshop will be limited to 40 participants. For more information email Lynette Fischer at lynettofischer@paradise.net.nz

BOTANICAL SOCIETY
OF OTAGO

BOTANICAL SOCIETY
OF OTAGO

Local Events

Botany Department Seminars:

July - August 2005

Time: Wednesdays 12.00 - 12.50 p.m.

Place: Union Street Lecture Theatre (upstairs), Cnr Union St West & Great King St

27 July **Functional diversity and ecosystem-level processes in a short-tussock grassland**

Norman Mason, Botany Department, University of Otago

24 Aug ***Hieracium lepidulum*: Are we any closer to the answer?**

Dr Ian Radford, Botany Department, University of Otago

Stop Press: Inaugural Professorial Lecture, **Bastow Wilson**, Department of Botany
"What does a plant community look like when it isn't there?"

Thursday **October 13**, 5:30 Castle 1 lecture theatre, University of Otago (just behind the University Union) Wine and nibbles afterwards

Botanical Society of Otago: Patron: *Professor Peter Bannister*

Committee 2005 - April 2006

Chairman, **David Orlovich**, david.orlovich@botany.otago.ac.nz

Secretary, **Robyn Bridges**, robyn.bridges@stonebow.otago.ac.nz, ph 479 8244

Treasurer, **Lyn Bentley**, stevelf@ihug.co.nz

Events Manager, **Moira Parker**, moiraparker@clear.net.nz

Program Manager, **-can anyone help fill this gap?**

Committee; **Bastow Wilson**, bastow@otago.ac.nz, **Abe Gray**, graab419@student.otago.ac.nz, **John Barkla**, jbarkla@DOC.govt.nz, **Norm Mason**, norman.mason@botany.otago.ac.nz. There's another spare space on our convivial committee - please contact a committee member if you'd like to be co-opted!

Newsletter editor, **Allison Knight**, bsa@botany.otago.ac.nz, ph 487 8265

Please submit copy for next newsletter by 10 September
2005

This Newsletter was published on 19 July 2005. ISSN 0113-0854

For information on activities contact the trip leader, or see our notice board in the Botany Dept corridor, or website: <http://www.botany.otago.ac.nz/bsa/>

BOTANY DEPARTMENT
UNIVERSITY OF OTAGO

Permit Post 
NEW ZEALAND
PERMIT No. 1007

**BOTANICAL SOCIETY
OF OTAGO**

Botanical Society of Otago, PO Box 6214, North Dunedin, NEW ZEALAND

