Botanical Society of Otago Newsletter. Number 18, May 2000.

Botanical Society of Otago Meetings

Thursday May 18th **Slide show and supper with Kelvin Lloyd.** *Plants and landscapes of the Pacific Northwest, USA*. **Meet:** Zoology Dept. Annexe Seminar room, Great King Street, **7.00 pm.** Note the doors will only be open from 6.45 pm till 7.00 pm for security.

Sunday May 21st **FUNGI workshop.** With David Orlovich a short collection foray (location to be decided) followed by morning tea. David will show us (for anyone who missed the last workshop) how to go about identifying and preserving specimens for the herbarium (OTA). Finish *c.* 1pm.
Meet: Botany Dept. carpark, 464 Great King, **8.00am.**

Sunday June 18th **Fern workshop**. With John Steel and Bastow Wilson. **To Be Confirmed.**

Sunday July 16th **Peggy's Hill field trip**. With Helen Clarke, regional representative of QEII National Trust. It's an afternoon session to be a bit warmer as it's a pretty exposed spot. Access to the area is by foot, not far, but reasonably steep, (about 10-15 minutes) over paddocks. **Bring**: stout walking shoes and be prepared for all types of weather. **Meet**: Botany Dept. car park, 464 Great King Street, **1.00pm**.

Sunday August 27th **Algae Workshop.** With Catriona Hurd and students a short collection foray (St Kilda, Lawyer's Head) followed by morning tea. Then Catriona and students will show us how to identify and preserve algae specimens for the herbarium (OTA). **Meet:** Botany Department carpark, 464 Great King Street, **7.00am.**

Cancellations will be broadcast on Radio 4ZB and 4XO cancellation service! For further details on any of these activities contact Barbara (see back page.). Share transport at 5 cents/km (work it out!).

Note from Head Office

Well I hope everyone had a good Easter and there was much botanising done between the bouts of bad weather. Congratulations to all those hardy botanists who braved the Antarctic winds for the Old Man Range trip.

Thank you again to all those of you who have sent in subscriptions and donations. As we go to press we have 43 fully paid members and many more on the posting list. We don't want to be stroppy and just stop sending newsletters to interested people so we have decided to send out gentle reminders in the form of red dots on the membership form. So please let us know if you want to keep receiving this newsletter.

Remember anyone is welcome (and encouraged) to offer contributions to the Newsletter (preferably by email or on disk but paper copy will be accepted especially if it's really short). Contributions can be observations, trip reports, articles, pictures, book reviews and botanical notes - basically anything interesting to botanists (amateur and professional) will be considered. Suggestions and offers for trips, workshops, talks, projects, *etc.*, may be sent to either Bastow or Barbara.

Bastow and Barbara

Correspondence

Wellington Botanical Society Newsletter.
Nelson Botanical Society Newsletter.
Manawatu Botanical Society Newsletter.

Cover picture: *Lavatera arborea* L.

This picture of the common tree mallow was drawn by Ralf Ohlemüller. (See plant of the month).

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Volunteers Wanted

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Botany research students need help! Field assistants are required to help with postgraduate research projects. If you wish to help out with all sorts of weird and wonderful botanical and/or ecological field work please let us know, register your interest at the Botany Department (464 Great King Street).

Come into the Botany Department to leave your name and contact details at the reception or: contact Adrienne Markey c/o Botany Department P.O. Box 56 Dunedin
email: adrienne@planta.otago.ac.nz

Okia Reserve trip report: 19th February, 2000. By trip leader: Adrienne Markey.

With clear skies heralding an unusually summery day, members of the Otago Botanical Society filled several cars and made their way to the very end of the Otago Peninsula, near Victory Beach. The day's agenda was to visit two sites, starting with Okia Reserve and ending up at Taiaroa Bush. Retired from grazing in 1991, the Dunedin City Council has acquired this land as a scenic reserve with high conservation values. Yellow-eyed penguins come ashore and nest in the dunes here, sharing the beachfront with a breeding colony of New Zealand fur seals, juvenile male Hooker sea lions and one breeding female sea lion.

After a pleasant 15 minute walk from the carpark to the Okia reserve gate, we entered a region of dune slacks recovering from grazing and still with considerable cover of pasture weeds (*Agrostis capillaris*, *Anthoxanthum odoratum* and *Dactylis glomerata*). Recent planting of *Desmoschoenus spiralis* (pingao), provide a bit of golden colour to this entry point. *Pteridium*

esculentum (bracken) dominates this area, with emergent clumps of *Phormium tenax* (flax) and *Cortaderia richardii* (toetoe). Seasonally inundated regions are wetlands dominated with *Juncus gregiflorus, Juncus pallidus*, *Isolepis nodosus* and *Leptocarpus similis*. Small herbs such as the native *Geranium microphyllum, Ranunculus* spp, and *Nertera scapanioides* (which I didn't manage to spot) grow among the sedges. In areas subject to transient stream-flow, a dense cover of *Carex forsteri* tends to form a thick sedgeland.

Massive basalt columns form the spectacular Pyramids that Okia reserve is famous for, and Allison Knight found sheer delight in peering around these for elusive lichens (with elusive names!). Shrublands dominated by *Coprosma crassifolia*, *Olearia avicenniifolia* and *Coprosma propinqua* cover these drier outcrops.

With fine weather holding, we made our way to the beach for a very pleasant lunch, but not before passing through the recovering sequence of dune slacks. It is amazing how, after a century of grazing, small surprises have reappeared. Alongside the track, fruiting and flowering *Celmisia gracilenta*, *Helichrysum glomeratum, Gaultheria macrostigma* and *Leucopogon* aff. *fraseri* provide a bit of colour. However, the beachfront lacks native cover, having succumbed to the fate that all Otago beaches now suffer. *Ammophila arenaria* (marram grass), *Lupinus arboreus* (tree lupin) and *Senecio minimus* form an impenetrable cover in which penguins love to nest, but also occludes the pingao and *Coprosma acerosa* that would have once dominated these foredunes.

After lunch, we set off to the adjacent Taiaroa Bush. This is an exceptional remnant of lowland broadleaf/podocarp forest which is the most extensive patch left on the peninsula. Sadly, early logging has seen the removal of all of the old *Podocarpus totara* (totara), and the odd roaming sheep, cow and a ravenous herd of feral goats continue to damage the vegetation.

Taiaroa Bush is a lowland forest dominated by *Melicytis ramiflorus* (mahoe), *Fuchsia excorticata* (tree fuchsia), *Griselinia littoralis* (broadleaf), *Lophomyrtus obcordata* (myrtle), *Hoheria angustifolia* (lacebark), *Myoporum laetum* (ngaio), *Pittosporum tenuifolium* and a lower shrub stratum of *Coprosma areolata*, *C. rubra*, *C. virescens*, *C. propinqua*, and *C. crassifolia*. These shrubs become divaricate on the bush margins and fill with berries in late autumn. These berries don't last long on bushes but are removed quickly by the hordes of bellbirds, riflemen and silvereyes that reside in this bird haven.

On the higher fringes of this remnant there is *Sophora microphylla* (kowhai) and *Kunzea ericoides* (kanuka). Both *Rubus cissoides* and *Urtica ferox* provide an interesting dimension to forest forays. Most impressively, this area of bush is bounded by high, igneous cliffs. These are still covered in an apparently intact cover of vegetation, including *Hebe elliptica* and *Poa astonii*. This site holds a lot to interest cliff-vegetation buffs, but abseiling skills are required.

I wish to thank Steve Owens, on behalf of local Maori landowners, for granting the Botanical Society access to Taiaroa Bush. Thanks are also due to Bastow Wilson, Barbara Anderson and David Burnett for accompanying this trek and being our botanical guides.

Grass Flora 20% off the price for Bot Soc members

Edgar, E. and H. E. Connor. 2000. "*Flora of New Zealand Vol. V. Grasses*". Maanaki Whenua Press, Lincoln. 650pp. can be purchased from the University Book Store for $54.95, or from Landcare Research for $55 (minus 20% if you've paid your Bot. Soc. subs) for Vol. 5 alone or $100 (no discount because it's too cheap already) for the entire set of five volumes of the Flora of New Zealand. Email: mwpress@landcare.cri.nz

Fungi Workshop / Sullivans Dam trip.
By Allison Knight

Welcome to all the new members who turned up for this interesting trip. A good turnout decided to go to Sullivans Dam and spent a very pleasant morning peering round tree trunks and under rotting branches - or sitting by the dam in the sun.

Collectively we found quite an assortment of different fungi. The brightly coloured *Amanita muscari* (fly agaric), found under *Pinus radiata*, in all their stages of veil formation, were particularly striking.

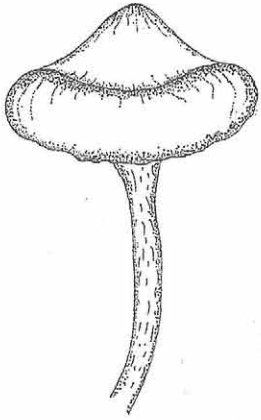
Some wished they had found fewer species, (and more specimens of the same species), by the time we got back to the lab after lunch and found out just what was involved in the identification process. First step was to start making a spore print, then to sketch the fruiting body whole and in transverse section while it was still fresh. Some very professional looking sketches emerged, to be put in the herbarium along with the dried specimens and the spore prints.

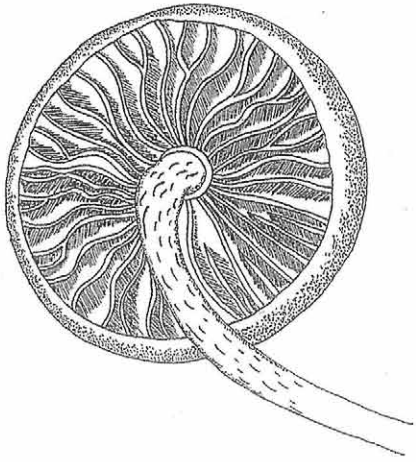
Further identification required searching through the wide selection of reference books and papers that were made available. The birdsnest fungus, *Nidula candida,* on *Leptospermum* twigs in the regenerating forest, stood out with its little nest filled with 'eggs' of spore masses.

Identification of other specimens required the cutting of thin sections, then looking under the microscope at such features as gill formation and how the spores attached to the basidia. Some of these were quite spectacular, magnified on the big TV screen.

Many thanks to David Orlovich for sharing his interest with us, and to Peter Bannister for making the Botany laboratory available. Such a successful day deserves repeating.

'Autumne, the barber of the yeare, that shaves bushes, hedges, and trees: the ragged prodigall that consumes al and leaves himself nothing; the arrantest begger amongst al the foure quarters. This bald-pated Autumnus wil be seen walking up and down groves, meadows, fields, woods, beating leaves from their trees, when common highways shall be strewed with boughs in mockery of summer and in triumph of her death. Then say that Autumne raignes, then is the true falle of the leafe, because the world and the yeare turne over a new leafe.'
Thomas Dekker *Raven's Almanack* 1609,
taken from the *The Gardener's Perpetual Almanack*; under November 7.





Field Notes
Mushroom Cap = Light orange
w a darker orange rim + peaks
Gills = orange / brown
Stalk = orange w white flecks
Location = growing on rotted bark
under trees
-Sullivans Dam, Dh.

What makes rare plants rare?
By Kelvin Lloyd, Bill Lee and Bastow Wilson.

Although many rare plant species are intensively studied, one aspect that is not generally studied is the comparative ecology of rare and common species. Often there are both rare and common species within the same genus and it would be helpful for conservation managers to know why the rare species are rare. Do rare species form a distinct group, with traits that differ consistently from those of common species, or must causes and consequences of rarity be assessed on a case-by-case basis? We have tried to answer this question by growing both rare and common species under the same conditions and measuring their growth and reproduction. We used two New Zealand genera, *Acaena* (Rosaceae) and *Chionochloa* (Poaceae), both with several rare and common species.

The experiments used ten species of *Acaena* and nine of *Chionochloa.* We examined aspects of the species competitive ability, vegetative and reproductive growth, and their responses to a range of stress factors such as, nutrient limitation, drought stress, waterlogging and frost.

Acaena (bidibid) species are generally renowned for their tendency to attach hooked seeds to socks and clothing, however, it is less well known that the New Zealand species fall into three different taxonomic sections, and only one of these sections (sect. Ancistrum) contains species with hooked seeds. Some *Acaena* species are extremely common throughout New Zealand (*e.g. A. anserinifolia*) while others are common on one island only (*e.g. A. caesiiglauca* in the South Island) and others very local endemics (*e.g. A. rorida* in the central North Island). *Chionochloa* species, popularly known as snow tussocks, frequently form extensive grasslands over large geographical areas (*e.g. C. crassiuscula, C. rigida* and *C. rubra*), particularly in the montane and alpine zones, but some species are far more local

(*e.g. C. ovata* and *C. spiralis*, two Fiordland endemics with patchy distributions).

We defined rarity and commonness according to the geographic range sizes of the species, measured as the number of 10 km grid squares occupied by each species in New Zealand. Distribution information was gleaned from herbarium specimen labels at the AKL, CHR, OTA and WELT herbaria, the National Vegetation Survey database administered by Landcare Research, lists compiled by the late A.P. Druce, the scientific literature and personal observations.

We looked for differences between rare and common species using correlations between a species' geographic range size (the rarity scale) and its traits (competitive ability, growth and reproductive ability) and responses to stress. The association of species traits with different types of rarity was also examined, although small sample size hampered interpretation.

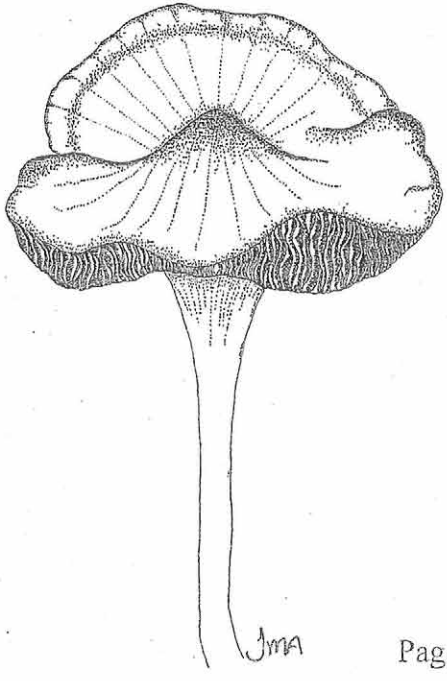
In *Acaena*, very few significant differences were found between rare and common species. However the power of these tests was reduced because the *Acaena* species comprised two groups of closely related species, and these groups had to be considered separately to avoid confounding differences between groups with differences in phylogenetic relatedness. Regardless, some of the *Acaena* species appeared to be rare on account of recent speciation or colonisation, and there need not be any expectation that the biological attributes of such species should be related to their rarity.

In *Chionochloa*, common species differed significantly from rare species in several respects. Common species possessed attributes promoting wider dispersal, had faster growth rates and showed higher competitive ability. Additionally, there was a tendency for the common species to tolerate a greater range of abiotic stresses. Thus common *Chionochloa* species appear to achieve their large range sizes through the ability to disperse widely, grow fast and

be competitive in a range of habitats. The rare *Chionochloa* species appeared to be specialised to habitats that are themselves relatively rare (*e.g. C. defracta* on ultramafic areas in the Nelson region, and *C. spiralis* on calcareous outcrops in Fiordland).

Across both genera, there were few strong associations between species' attributes and types of rarity, apart from significantly higher relative growth rate (RGR) in common species (species with a large geographical range).

Rarity appears to be a complex phenomenon. This study showed that in some groups, there may be consistent differences between rare and common species, but in others, explanations for a species rarity may have to be sought on a case-by-case basis. More studies comparing the ecology of rare and common species in other groups are needed, to assess whether the patterns revealed in *Chionochloa* prevail, or whether rarity is an idiosyncratic phenomenon as appeared to be the case for *Acaena*.



Field Notes

Mushroom Cap = Mid brown
Gills = Lighter brown almost copper colour
Stem = Lighter brown again almost grey in parallel stripes
Location = growing on soil / leaves / bank under trees
-Sullivans Dam, Dn.

Plant of the month: *Lavatera arborea* L.

Class: Dicotyledonae
Subclass: Dilleniidae
Order: Malvales
Family: Malvaceae

Common Name: tree mallow
Flowering time (N.Z.): August - May
Flowers: lilac or deep purple with purple or red lines and base
Fruit: *6-8 (9)* mericarps per fruit
Status: Naturalized
Origin: West and South Europe and North Africa

Lavatera arborea L. the tree mallow is one of five species of *Lavatera* naturalized in New Zealand. In both its native range and here in New Zealand it is generally a coastal plant. Around Dunedin it can be easily found at St. Clair and Ocean Grove beaches. According to the Flora, volume IV 'This robust species is most easily distinguished by the fused, enlarged, spreading, fruiting calyx.'

The genus contains *c.* 45 spp. Though my Mabberley notes that the 'curious disjunct distribution may reflect weak taxonomy' with members of the genus (*c.* 25 in Mabberley) originating in Macaronesia, Mediterranean to NW Himalayas, Central Asia, Australia and California. The genus is closely related to the marsh mallow genus (*Althaea*) which contains both the edible marsh mallow (*Althaea officinalis)* and the common garden flower, hollyhock (*Althaea rosea).*

Sources:
Webb et al. 1980. *Flora of New Zealand* Vol. IV, Government Printer, Wellington.
Mabberley, D.J. 1997. *The Plant-book – A portable dictionary of the vascular plants.* 2nd Edition. Cambridge University Press, Cambridge.
Blamey, M and Grey-Wilson, C. 1993. *Mediterranean wild flowers.* Harper Collins, Jersey.

Book review : Kantvilas, G.; Jarman, S.J. 1999

Lichens of rainforest in Tasmania and south-eastern Australia. 212 pp. p/back. ABRS Publications, Canberra. $A39.95.

A difficulty of providing for the specialist and ardent enthusiast is a common problem for writers of authoritative works in any field. Kantvilas and Jarman have overcome this admirably in their recent book on the macrolichens of Tasmania and South Australia. Descriptions of over 120 species accompanied by 240 excellent colour photographs by B.A. Fuhrer, provide ready assistance to those less familiar with lichen identification.

The Southern Hemisphere has a rich diversity in its lichen flora, with many species shared among the rainforests of Tasmania, New Zealand and South America. This book gives a broad introduction to their distribution, structure, classification and identity and the photographs are often used to highlight the terminology which can be quite daunting for some. A key, glossary and bibliography are also there for those wishing to take their study further. For me, the strength of the book lies in the superb photography, already enabling me to make sense of many of those strange and beautiful plants, the identity of which I have had to ignore through lack of time or (more usually!) expertise. A thoroughly delightful, browsable and usable book!

The Nature guide to New Zealand Native Orchids

Final comment on this wonderful book. Ian St George tells us that a new edition is already on its way so we have decided to wait for it to come to press before ordering. Contact Allison Knight 487 8265, or **alli_knight@hotmail.com**

Closer ties with other Botanical Societies.

The BSO would like to welcome closer ties with the Canterbury, Nelson and Manawatu Botanical Societies and thank them for their support.

Diary of upcoming events:

13th May, Saturday: Friends of the Botanic Gardens Annual Plant sale. Lovelock Avenue 9.30am

16th May, Tuesday: Forest and Bird Talk. Hutton Theatre 7:45pm Sue Maturin: *Escaping aliens in your garden*

17th May, Wednesday: Botany Department seminar. Botany School Annexe 12 noon. Professor Peter Bannister, Botany Department: *No gain without strain. Are high rates of transpiration in mistletoes essential for the extraction of mineral nutrients from their hosts?*

18th May, Thursday: Friends of the Botanic Gardens talk. Education centre, Lovelock Avenue, 7:30pm. Steve Newall (commercial seed grower): *Our Man at large in the North.*

18th May, Thursday: **BSO Slide show and supper**. Zoology Department Annexe Seminar room, Great King Street, 7.00 pm. Note the doors will only be open **from 6.45 pm till 7.00** pm for security. Kelvin Lloyd. *Plants and landscapes of the Pacific Northwest, USA.*

19th May, Friday: Zoology Department Seminar. Annexe Seminar Room, Dept. of Zoology 3.30pm. Dr Wolfgang Blenau *(Dept. of Zoology): Molecular cloning and functional characterization of biogenic amine receptors from Apis mellifera*

21st May, Sunday: **BSO FUNGI workshop**. With David Orlovich (see front cover for details).

21st May, Sunday: QEII National Trust field day. Meet at the end of Scurr Road 1pm. Weed and pest control issues in native bush. (Contact Helen Clarke)

24th May, Wednesday: Botany Department seminar. Botany School Annexe 12 noon. Kelvin Lloyd (PhD student): *The comparative ecology of rare and common Acaena and Chionochloa species*

26th May, Friday: Zoology Department Seminar. Annexe Seminar Room, Dept. of Zoology 3.30pm. Dr Suzanne Levine (School of Natural Resources, University of Vermont): *Zooplankton impacts on phytoplankton productivity and community structure: lessons from Lake Champlain (USA-Canada) and Waihola*

26th May, Friday: Entomological Society of NZ Otago Branch talk. Hutton Theatre, 7.30pm. Dr Alison Stuart, (Dept. of Zoology, UoO): *Caddisflies (Trichoptera): the masters of underwater building.*

31st May, Wednesday: Botany Department seminar. Botany School Annexe 12 noon. Wendy Stubbs (PhD student): *Evidence of niche limitation in plant communities*

2nd June, Friday: Zoology Department Seminar. Annexe Seminar Room, Dept. of Zoology 3.30pm. Dr Marion Preest (Joint Science Department, The Claremont Colleges, California): *Mechanisms of extreme acid-tolerance in fish*

10th June, Saturday: **Canterbury Botanical Society** AGM followed by a talk, sequel to "*Probing the peaty paradise of the Subantartic Islands*" presented by Janet Wilmshurst, and lunch.

13th June, Tuesday: Forest and Bird Talk. Hutton Theatre 7:45pm
Bill Gillbertson: *The West Coast forests*

13th June, Tuesday: Forest and Bird A. G. M. Hutton Theatre 7:45pm

18th June, Sunday: **BSO Fern workshop.** With John Steel and Bastow Wilson. **To Be Confirmed.**

21st June, Wednesday: Friends of the Botanic Gardens A.G.M. 84 Albany Street 6.30pm. Potluck plus auction of special plants

22nd June, Thursday: Entomological Society of NZ Otago Branch talk. Hutton Theatre, 7.30pm. Dr Gerry Closs (Dept. of Zoology, UoO): *Fish, bugs and muddy billabongs.*

2nd July, Sunday: Entomological Society of NZ Otago Branch. Otago Museum (details to be announced). *Creepy Creature ID Parade* - Part of the International Science Festival.

16th July, Sunday: **BSO Peggy's Hill field trip.** With Helen Clarke, regional representative of Q E II National Trust. (see front cover for details).

18th July, Tuesday: Forest and Bird Talk. Hutton Theatre 7:45pm
Steve Broni: Title to be announced.

24th August, Thursday: Entomological Society of NZ Otago Branch talk. Hutton Theatre, 7.30pm Dr Frank Wilhelm (Dept. of Zoology, UoO): *Life on top of the peaks - a look at amphipod adaptations along an elevation gradient in the Canadian Rocky Mountains.*

27th August, Sunday: **BSO Algae Workshop.** With Catriona Hurd and students, (see front cover for details).

28th September, Thursday Entomological Society of NZ Otago Branch talk. Hutton Theatre, 7.30pm. Dr Ian Jamieson (Dept. of Zoology, UoO); *Rock 'n Rolling with the Alpine Tree Weta: Does size really matter?*

Entomological Society of NZ Otago Branch contact:
Brent Sinclair email: brent.sinclair@stonebow.otago.ac.nz ph. 479 5618
or Brian Patrick email brian.patrick@otagomuseum.govt.nz

QEII National Trust contact:
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Friends of the Botanic Gardens contact:
Jane Wright email: jane.wright@DCC.govt.nz ph. 474 1505

Diary contributions contact:
Barbara Anderson email: barbjade@es.co.nz ph 479 5981

Membership form:

Title: _____

Name: _____

Address: _____

_____

E-mail: _____

Phone: ( ) _____

Family (2 adults + children) / **Waged** (salary)
/ **Student** (unwaged)

Please **e-mail / mail** my newsletter to me.

Donations are welcome (donations equivalent to the subscription rate will be treated as such after the General Meeting in February). Subscriptions are:
$15 Family (2 adults + children) / $10 waged (salary)
/ $5 Student (unwaged).
Cheques to "Botanical Society of Otago".

Botanical Society of Otago: whom to contact

Information for the Newsletter to:
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New members, subscriptions or donations to:
Paul Dean,
22 Nicholson Street,
Forbury Corner, Dunedin.
e-mail: pauld@hotpop.com

Ideas for activities to:
Bastow Wilson,
c/o Botany Dept., University of Otago,
P. O. Box. 56. Dunedin
e-mail bastow@otago.ac.nz

For information on activities:
The trip leader
or Barbara Anderson (contact above),
or see our webpage: http://www.botany.otago.ac.nz/bso

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