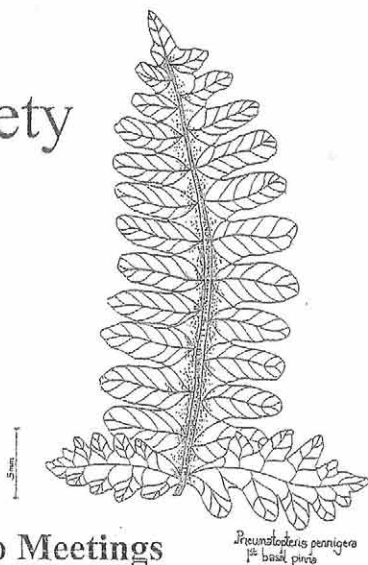


Botanical Society of Otago Newsletter. Number 20, July 2000.



Botanical Society of Otago Meetings

- Wednesday July 12th Slides and video with Kath Dickinson and Alan Mark.
“*Celmisia on sticks, and other botanical impressions from Ecuador.*”
Botany Department Seminar Room (464 Great King Street), 7.00pm.
- Sunday July 16th Peggy’s Hill field trip. With Helen Clarke: regional representative of QE II National Trust. It’s an afternoon session to be a bit warmer as it’s an exposed spot. Access to the area is on 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**, share transport at 5 cents/km (work it out!). Further details contact Barb (see back page).
- 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. **Meet:** Botany Department carpark, 464 Great King, **7.00am**. Further information contact Barbara.
- Sunday September 17th **Garden visit.** With Professor Geoff Baylis. Prof. Baylis’s garden provides a wonderful opportunity to see specimens of many species most of us would otherwise never have the chance to see other than in slides and books. His great love of the Three Kings Islands, a focus of his early botanical work, is obvious in the many rare and wonderful specimens from these islands.

Cancellations will be broadcast on Radio 4ZB and 4XO cancellation service!

Note from Head Office

It has been a very successful month with David Orlovich's Mushroom soup and Arlene's fantastic filo fungi at the slide show and talks. Followed by the fern workshop which despite not having the best of weather had a reasonable turn-out, including some new members. We've had some great publicity from the Channel 9 TV network and a feature in the Otago Daily Times. Already this publicity has resulted in new record in Dunedin of the introduced fern, *Pteris cretica*.

Only one apology, this time to David Galloway: there were 207 not 200 taxa in the Old Man Range lichen species list.

Last but not least thanks to all those who have supplied articles and assisted in the production of this newsletter, and thanks to those who organised the various activities and to everyone who turned up to them!

Barbara and Bastow

Fungi night: short talks, slides and soup: 15th June. Report by Barbara Anderson

Anne-Maree Oliver talked about *Gymnopilus* spp., followed by Alison Stringer on *Trametes versicolor*. Thanks to Arlene's and David's gourmet delights the evening became stomach-satisfying as well as informative. Then came David's slides of the Te Anau fungal foray, although I'm sure that the vote for best slide of the evening goes to the surprise appearance of one of David's chooks!

Cover picture:

Pneumatopteris pennigera, drawn by Inge Andrew. The specimen, growing in Leith Valley, was brought to John's attention by Clifford on the 'Ferns of Dunedin' workshop.

**Plant of the month: *Pneumatopteris pennigera*
(G. Forst.) Holttum.**

By John Steel

Order: Filicales (Ferns)

Family: Thelypteridaceae.

Common names: feather fern, gully fern, paakauroharoha.

The name, *Pneumatopteris*, is derived from Greek with *pneuma*- meaning wind or breath which refers to the aerophores (localised outgrowths) especially on the croziers, associated with ventilation, and *-pteris* meaning wing. The species epithet, *pennigera*, is also Greek with *penna*- meaning feather, and the ending *-ger* meaning bearing.

From a distance, this fern, being yellow-green in colour and having round apices to the pinnules, could be mistaken for the more common *Dryopteris filix-mas*, which has a green rachis and a much less symmetrical growth habit. Though not represented in the herbarium (OTA) from Dunedin, it would appear to have been quite common here in the past. Martin (1924) describes it “as growing only in stream beds in the bush - e.g., on Mount Charles - is now becoming comparatively rare”. Allen (1994) finds it “was once common near streams emerging from the forest but in many former localities may have disappeared. It was recorded from Mount Charles on Otago Peninsula and at Whare Flat; more recent records are from Evansdale Glen, Leith Valley and Otago Peninsula forest remnants”. Brownsey and Smith-Dodsworth (1989) describe it as common throughout the Three Kings, North and South Islands in damp lowland to montane forest though confined to coastal regions in the southern South Island. Its recent sighting in Leith Valley is typical of its recorded habitat.

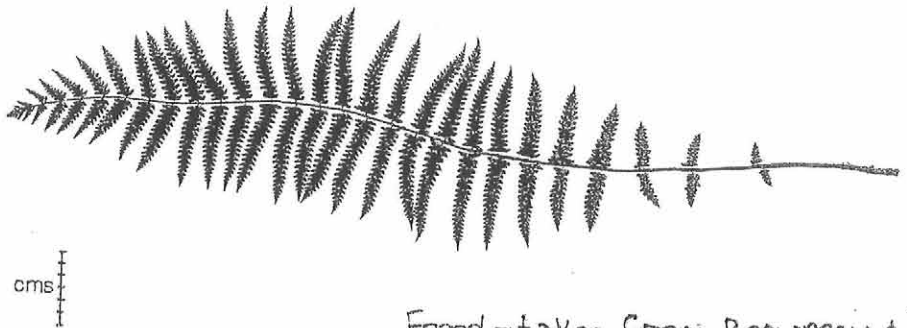
Pneumatopteris is a genus of about 80 species of mainly tropical ferns from Africa through Malesia to Australia (3 spp.) and New Zealand (1 sp.) but absent from the Americas

There are about seven plants at the site in Leith Valley with short, erect rhizomes up to 60 cm tall [60-120 cm]: stipe and rachis golden-brown [pale-brown]; stipe 5-25 cm long, scaly at base glabrous beyond, rachis glabrous. Laminae narrowly elliptic, once-pinnate, 30-150 x 10-40 cm, light-green [dark-green], soft. Pinnae in 15-30 pairs, the longest 6-20 x 1.5-3 cm, the lowest 1-6 cm long, tapering to apices, sessile, divided about halfway to midrib, sparsely hairy and scaly, midribs dark-brown below; pinnules rounded with obvious veins, the lowest veins of adjacent pinnules anastomosing at the sinus (*i.e.* join together where the pinnules meet); sori on veins, away from the pinnule margin in two rows either side of the midrib, round and without indusia.

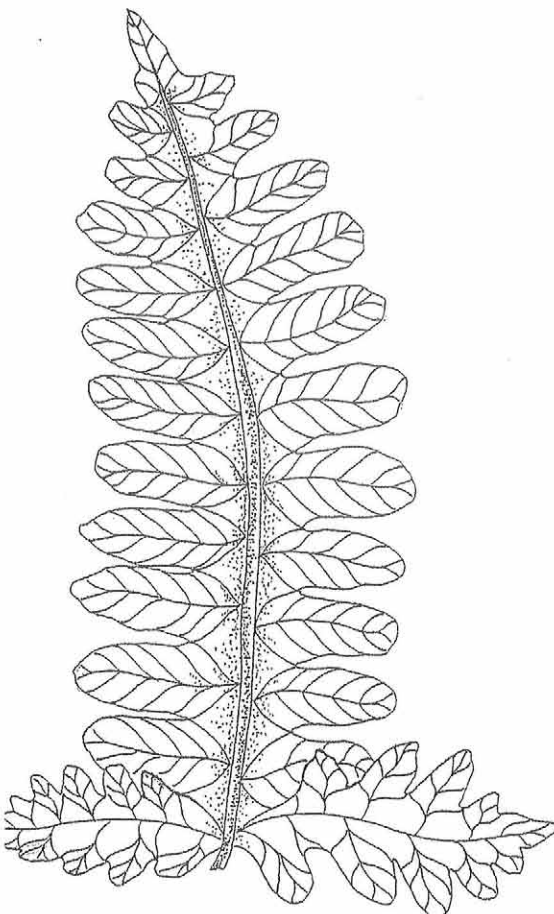
This describes the Leith Valley plants. The description of Brownsey and Smith-Dodsworth (1989) is given in square brackets where it differs from the condition of the Leith Valley plants.

References:

- Allen, R. 1994: *Native plants of Dunedin and its environs*. Otago Heritage Books, Dunedin.
Brownsey, P.J.; Smith-Dodsworth, J.C. 1989: *New Zealand ferns and allied plants*. David Bateman, Auckland.
Martin, W. 1924: *Native plants of Dunedin and surrounding districts*. Otago Daily Times and Witness, Dunedin.



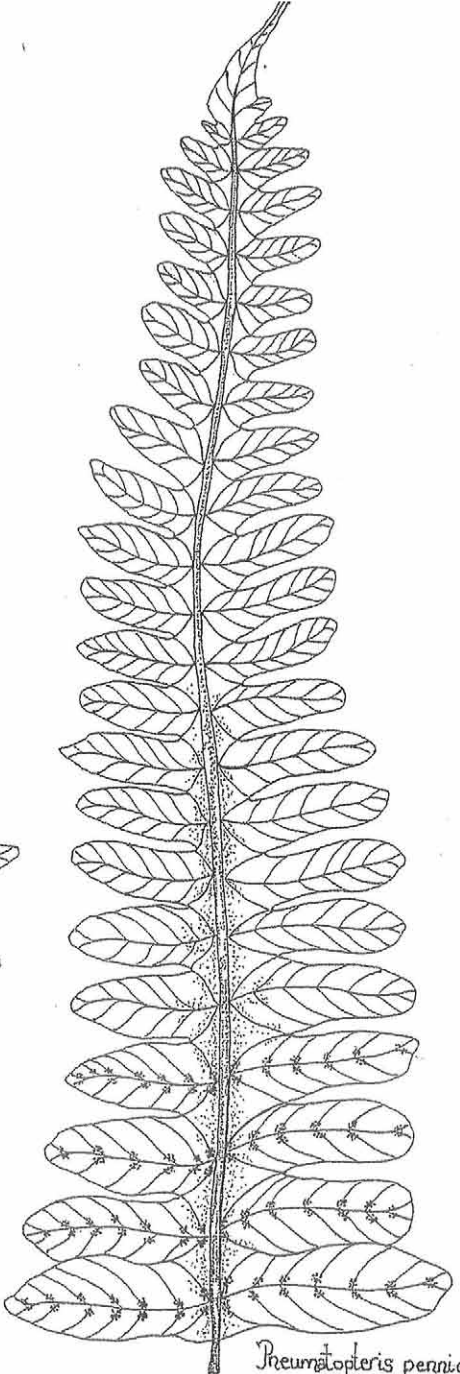
Frond - Taken from Brownsey & Smith-Dodsworth (1989).



5mm

Pneumatopteris pennigera
1st basal pinna

14 mm



Pneumatopteris pennigera
Upper pinna

‘Ferns of Dunedin’ workshop (18th June): Report by Kelvin Lloyd.

A rather rainy Sunday was perhaps appropriate for this workshop, given the liking of most ferns for permanently moist habitats! Attendees were: Bastow, Fredricka, Nola, Tetsuya, Allison, Barbara, Clifford, Darren, Mel, John, Moira, Sam and myself.

An excellent introduction was provided by John Steel, who firstly noted the day’s proximity to St. John’s Eve (24th June). We learned that once upon a time it was believed that ferns produced invisible seeds at midnight on this date. If you managed to get hold of one of these fern seeds you would gain the power of invisibility! This tale was used to explain the paradox of proliferating ferns that never seemed to flower, however I’m sure the myth was dispelled for workshop participants, who were treated to an excellent animated video explaining the fern life cycle in intimate detail. Ferns are not seed plants, of course.

We learned about the characters used to differentiate fern species from one another *e.g.* degrees of frond dividedness, sporangia and sori, lobation and life form. Armed with this knowledge, we ventured out to test John’s new fern key. Some of us visited Morrison’s Creek while the others went to the Leith Saddle area. Luckily we timed the field trips for a non-rainy part of the afternoon, although it remained cold.

I’m afraid the Leith Saddle people recorded far more ferns than us Morrison Creekers, but at least we out-*Blechnum*-ed them! Mind you, Barbara hadn’t informed us it was a competitive event. Rather, we took the opportunity to familiarise ourselves with the workings of the new key. Morrison’s Creek was certainly a *Blechnum* showcase, ranging from a patch of pert *B. pennamarina* fronds springing from the turf at the start of the track to a mass of magnificent *B. colensoi* fronds drooping from damp

banks further along. Tiny fronds of the filmy fern *Hymenophyllum minimum* were successfully identified by the key. The highlight of the afternoon came late, seeing us gather admiringly around a patch of beautiful *Leptolepia novae-zelandiae*, before our return to the Botany Department for a welcome cuppa and biccies. I'm sure I can speak for everyone in saying that we all learned something from this workshop. Thanks to John and Bastow for a great workshop!

Species lists - ferns and fern allies:

Morrison's creek

Asplenium bulbiferum
Asplenium flaccidum
Blechnum chambersii
Blechnum colensoi
Blechnum fluviatile
Blechnum novae-zelandiae
Blechnum penna-marina
Blechnum procerum
Cyathea smithii
Histiopteris incisa
Hymenophyllum minimum
Hymenophyllum sp.
Leptolepia novae-zelandiae
Leptopteris hymenophylloides
Microsorium diversifolium
Polystichum vestitum

Leith Valley streamside

Asplenium bulbiferum
Asplenium flaccidum
Blechnum chambersii
Blechnum discolor
Blechnum fluviatile
Blechnum montanum
Blechnum novae-zelandiae
Crepidomanes villosum
Ctenopteris heterophylla
Cyathea smithii
Dicksonia squarrosa
Grammitis billardierei
Histiopteris incisa
Hymenophyllum bivalve
Hymenophyllum demissum

Hymenophyllum flabellatum
Leptopteris superba
Microsorium diversifolium
Polystichum vestitum
Rumohra adiantiformis
Tmesipteris tannensis

Leith Saddle

Asplenium flaccidum
Asplenium polyodon
Blechnum discolor
Blechnum fluviatile
Blechnum montanum
Ctenopteris heterophylla
Cyathea smithii
Dicksonia squarrosa
Grammitis billardierei
Histiopteris incisa
Huperzia varia (Lycopodium varium)
Hymenophyllum bivalve
Hymenophyllum demissum
Hymenophyllum flabellatum
Hymenophyllum multifidum
Hymenophyllum rarum (?)
Hypolepis millefolium
Hypolepis rufobarbata
Microsorium diversifolium
Paesia scaberula
Polystichum vestitum
Pteridium esculentum
Rumohra adiantiformis
Tmesipteris tannensis

Reconstructing eastern Otago's natural forest communities: by Ralf Ohlemüller & J. Bastow Wilson

When European settlers arrived in Dunedin in 1848, the hills were largely covered in forest. The settlers' logging in the first few decades was so efficient that now only fragments remain, and it is difficult to tell what the 1848 forest cover would have been like. This was not the first impact of humans on the landscape. Large parts of Otago's landscape were modified by the arrival of Polynesian people at about 1000 yr. B.P., and their use of fire.

This means that the present day distribution of these forest communities does not reflect their potential distribution. The top of Maungatua for example, now covered by snow tussock, is climatically perfectly suitable for silver beech, yet at present it is found only in gullies on the southeast-facing slopes of the range. The largest remnant of native forest is in the Silverstream area. Tall broadleaved forest is the dominant forest community type there, but there are also isolated stands of kaikawaka (*Libocedrus bidwillii*) and silver beech (*Nothofagus menziesii*). Quite large areas of pure silver beech or silver beech/broadleaved are on the southern flanks of the Maungatua Range and in the Waipori Falls area. There are some smaller podocarp/broadleaved remnants near Taieri Mouth which include rimu (*Dacrydium cupressinum*) and the occasional silver beech tree.

We are currently working on a project aiming to make a map of the potential distribution of natural forest communities in the greater Dunedin area. The study area comprises a coastal band of about 50 km to the north (Shag Point) and south (Tokomairiro River mouth) and about 20 km inland of Dunedin (across the Maungatua range): a land area of about 187,000 ha. The highest point in the study area is the summit of the Maungatua range at 895 m a.s.l.

We identified areas of indigenous forest vegetation, on a 20m x 20m scale, using satellite images from 1999. Within these areas we are currently sampling randomly-placed plots. The vegetation of each will then be assigned to a particular community type based on presence/absence of vascular plant species.

For each site we are also measuring environmental conditions: slope, aspect, landform, soil type and deriving other site information from maps (*e.g.* distance to sea) and climatic models (temperature, rainfall, solar radiation, evaporation, degree growing days, *etc.*).

Finally we shall use the vegetation/environment relationships in these indigenous forest remnants to predict the potential forest community types on sites that have been cleared. For this, we will be using a spatial model which is based on case-based Artificial Intelligence methods. We shall feed the results into a Geographical Information System, to produce a map of the potential natural forest vegetation of eastern Otago.

We hope that the map will provide a basis for assessing the present forest remnants, and for planning the management of them to keep them in close-to-natural condition. The map will also provide firm guidance for restoration plans, showing what type of forest would have occurred on a site intended for restoration, and what it would be appropriate to plant there. We believe local authorities, the Department of Conservation, and local community restoration groups will find the map a sound basis for their plans.

We are always looking for some volunteer field helpers for this project. This is a great opportunity if you would like to get to know your backyard forests a bit better and participate in sampling some forest plots. If you are interested in helping with this project please contact Ralf (ph: 03-479 5981, e-mail: ralf.ohlemueller@planta.otago.ac.nz)

Solasodine can be transformed into steroids so the Russians, particularly, have been interested in *S. laciniatum* as a crop. A Russian botanist shattered *S. laciniatum* into many parts even including *S. baylisii* but Miss Hellaby's weed flora, *i.e.* Vol. 4 of the Flora of New Zealand which would not have been published without her loan, does not approve, nor would Sir Joseph Banks! I am reminded of Gordon Cunningham who named scores of fungi, none after a person. He hated the thought of a friend being reduced to synonymy.

The Botany garden was used by the Swiss pharmaceutical firm Ciba for a provenance trial of poroporos seeking a race rich in solasodine. This did establish that *S. aviculare* would be the better species but they lost interest when sunshine proved to be a master factor in determining solasodine content.

Bryology Workshop at Blackball

The 16th John Child bryophyte workshop is to be held at Blackball, Westland. It consists of field trips and workshops on bryophyte identification. Early registration is essential as numbers are limited. Thursday October 26th to Tuesday November 1st. Contact David Glenny, Landcare Research, Box 69, Lincoln or GlennyD@landcare.cri.nz, or see Botany Department notice board, or contact John Steel.

David's Fungi (Mushroom) Soup recipe

500g button or flat mushrooms	3 onions
1 cup red/white wine	2 or 3 cloves of garlic
½ cup flour	1 ½ cups liquid vegetable stock
2 L milk	100g Enokitake (<i>Flamulina velutipes</i>)
250 ml cream (optional)	
dried herbs	

Saute mushrooms, onions, garlic, herbs in butter.

Add wine and boil away alcohol

Add flour and cook for a minute or two (add more butter if needed).

Add milk and cream

Stir until it boils and thickens

Stir in chopped enokitake at the end.

Diary of upcoming events:

- 5th July, Wednesday: Botany Department seminar (UoO). Dr David Cameron, (State Dept of Natural Resources and Environment, Victoria, Australia): *Rainforest biodiversity in Victoria compared with New Zealand*. Botany School Annex, 12.00 - 12.50 p.m
- 12th July, Wednesday: Botany School Annex seminar Room (UoO). Dr Marc Schallenberg (Zoology Department): *Analysis of gradients and ecological niches of plankton in a tidal, brackish ecosystem*. Botany School Annexe, 12.00 - 12.50 p.m
- 12th July, Wednesday: **BSO slides and video** with Kath Dickinson and Alan Mark. "*Celmisias on sticks and other botanical impressions from Ecuador*." Botany School Annex Seminar Room, 7.30pm.
- 15th July, Saturday: Wakatipu Botanical Group July activity: Workparty along the Kelvin Peninsula walkway, 10 am till 3 pm.
- 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).
- 16th July, Sunday: Nelson Botanical Society. Trip with John Richards; Two lowland covenants.
- 17th July, Monday: Nelson Botanical Society evening talk. Fanie Venter: *Dracophyllums*.

- 18th July, Tuesday: Forest and Bird talk. Hutton Theatre 7:45pm
- 19th July, Wednesday: Botany Department seminar (UoO). Dr David Holdsworth, (Marketing Department): *The relationship between personal values and wildlife viewing opportunities*. Botany School Annexe, 12.00 - 12.50 p.m
- 22nd July, Saturday. Forest & Bird ecological restoration project. Working bee, planting at D.C.C. Caversham Valley (*Peripatus*) Reserve. Depart Botany car park 9.00am or 9.15 at the reserve. Bring a spade and old newspapers (for mulching). Please advise Alan Mark (ph 479 7573 day or 476 3229 evenings) by the 19th if you plan to come.
- 26th July, Wednesday: Botany Department seminar (UoO). Barbara Anderson, Botany Department): *Searching for evidence of community structure with replication : continental comparison* (PhD Proposal). Botany School Annexe, 12.00 - 12.50 p.m
- 11-13 August, Friday evening -Sunday afternoon. Forest & Bird's ecological restoration project, Jack's Blowhole (Tunnel Rocks) Scenic Reserve, Catlins. Bus departs Botany car park 5.30pm Friday and returns 6.00pm Sunday. Stay Pounaweia Bible Camp, near Owaka. Planting, etc.on Saturday; "Cook's" tour of Catlins ecological highlights on Sunday. F & B covers transport and accommodation costs, and provides tools. You provide only food (organise a small group). Contact Alan Mark (ph 479 7573 by day; 476 3229 evenings) by 1st August if you plan to come.
- 20th August, Sunday: Nelson Botanical Society. Trip with Lisa Seckler to Mt Duppa.
- 21st August, Monday: Nelson Botanical Society evening talk. Shannel Courtney: *Threatened plants of NW Nelson, Nelson and the Sounds*.
- 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).
- 17th September, Sunday: Nelson Botanical Society. Trip with Cathy Jones to Delaware Bay, north along the coast.
- 18th September, Monday: Nelson Botanical Society evening talk. Andrea Brandon: *Native forget-me-nots*.
- 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

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 or Diary to:

Barbara Anderson,

%, Botany Dept., University of Otago, P. O. Box. 56, Dunedin

Phone (03) 479 5981

e-mail barbiade@es.co.nz

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,

%, 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/bsa>

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