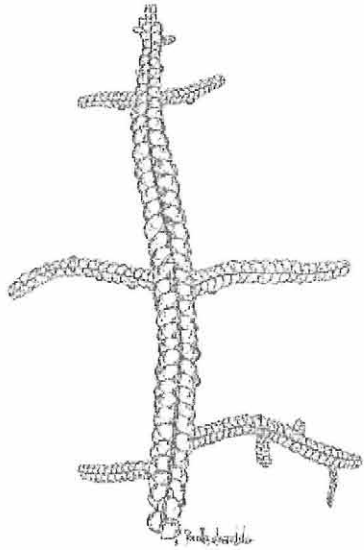
Botanical Society of Otago Newsletter.

Number 26
April-May 2001



BSO Meetings and Field Trips

27th **April**, Fri, **1-2 pm**. Seminar room, Botany House Annexe, opposite Caltex. **General Meeting** to discuss and ratify the draft **BSO constitution.** Last chance to have your say on the written aims of our society. Draft constitution inside.

29th **April**, Sun, Note changed times. Full or half day trip, to look at small-leaved shrubs and native bush remnants on **Otago Peninsula**. Morning leader Kath Dickinson, afternoon leader Moira Parker. Meet 9am, Botany Dept car park, 464 Gt King St. or 1.30 pm at Hoopers Inlet. Car pool costs 7c/km/passenger, to be paid to driver. More details of trips inside.

12th **May**, Sat. David Orlovich will lead a **fungal foray** to beech forest in **Waipori Gorge**, followed by an identification session in the laboratory. Bring a sharp knife, greaseproof paper and collecting basket or container. **Meet 9am**, Botany Dept car park, 464 Gt King St. Car pool costs as above. More details inside.

16th **May**, Wed. 12 noon. Hutton Theatre, Otago Museum. Otago Institute Lecture. Matt McGlone (Cockayne Lecturer/RSNZ). **Reconstructing the future: Past and present influences on the vegetation cover of New Zealand and future trajectories.** Those who heard Prof William Bond put forward his hypothesis that NZ's unique divaricating plants could have evolved in response to toothless avian browsers might be keen to hear Matt's alternative point of view.

19th **May, Sat**. Trip led by Brian Patrick to compare botanical and conservation values of **"Witherow"** and **Birch Islands** in the Clutha River, at the invitation of Gerry Eckhoff MP, ACT spokesman on the environment and Central Otago farmer. Bring lunch and coats. **Meet 8.30 am** Botany Dept car park, 464 Gt King St.

Contact details for any enquiries are inside the back page

Notes from Head Office

The AGM with guest speaker William Bond drew a good crowd to hear a new slant on the controversial origin of divaricating plants in New Zealand. The draft constitution was tabled and the following office-bearers were elected unopposed:

Chairman: Bastow Wilson
Secretary: Ralf Ohlemueller
Treasurer: David Orlovich
Newsletter Editor: Allison Knight

Committee: In addition to Kelvin Lloyd and John Barkla, Gudrun Wells has offered to help with the newsletter, David Burnett to help with publicity and Simon Johnson to be honorary auditor. So we have a good keen team to help further the aims of the society.

Just what those aims are going to be will be decided at the General Meeting on 27 April, when the draft constitution will be ratified. So if you want to have your say, come along. Written submissions, in advance, are also welcome.

Offers of new speakers and trips are always welcome, as are letters, reports and articles for the newsletter. It is a pleasure to be part of a society whose members display so much interest and enthusiasm and contribute such a wide variety of botanical activities and articles.

Bastow and Allison

Red sticker means subscription due!!

If there is a red sticker on your copy of this newsletter it means that your subscription for 2001 is overdue. If you are the secretary of a Botanical or other society with overlapping interests, we would appreciate being put on your mailing list and receiving copies of your newsletter and/or trip lists in exchange for ours. Whichever category, please fill out and return the membership form inside the last page to let us know that you wish to continue receiving our newsletter.

David Orlovich
BSO treasurer.

Cover picture

Porella elegantula, a common liverwort drawn by Inge Andrew and profiled by John Steel in this issue.

Letters to the Editor

Observations Sought on Pest Control and Weed Abundance

Susan Timmins and I at the Science & Research Unit, Department of Conservation are working on an investigation into the interactions between mammalian pest control and changes in weed abundance. We are collecting anecdotal and quantitative information and thought Botanical Society members could be a great source of information.

Would you be able to answer the following questions, given your observations whilst on botanical field trips?

1. Have you seen changes in the presence or abundance of weed species in relation to animal pest control work?

2. Where and what animal pest/s were controlled?

3. What weed species were more or less abundant or did not change?

4. What sort of habitat/vegetation community did any changes occur in?

Please comment on general vegetation composition, e.g. if predominantly native or exotic prior to animal pest control.

Thanks for your time
Kind regards

Julie Geritzlehner
Department of Conservation
P.O. Box 357
Westport Phone 03 788 8016

Divarication Debate

After the AGM we were delighted to receive the following note and accompanying poem.

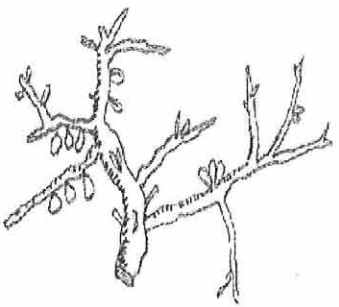
"As our attention has been directed to divarication you may like to include this bit of doggerel in the Newsletter. John Turner, Professor of Botany at Melbourne, was the University of New Zealand, and later the Otago University external examiner for many years and paid several visits."

Geoff Baylis
Emeritus Professor of Botany, University of Otago

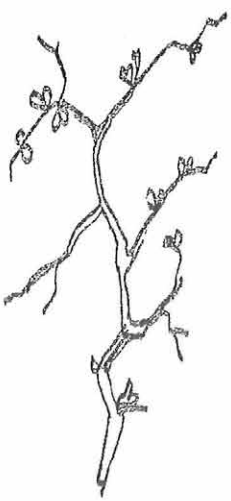
Divaricate or Desiccate

Hypotheses on the evolution of the morphological peculiarities of some species of the antipodean genera – *Coprosma, Melicytus, Muehlenbeckia, Pittosporum, Carmichaelia, Pseudopanax and Plagianthus*

I assure you, I do not prevaricate,
When I say that shrub-species-divaricate
In New Zealand abound; where they cumber the ground
It is not at all easy to navigate.



Some claim that *Moas*, grazing,
Have probably eradicated
Those shrubs (it is amazing)
Whose growth was not divaricated.
But a long time agoa,
Pre-Maoris sailed o'er,
And they slaughtered the *Moa*.



Though the Moa's no more,
There are rabbits galore,
So maybe divaricate habit
Has survived due to grazing by rabbit,
Assisted by *Cervis*, which makes all plants nervous.
Or, it could be, by Bovines,
More likely by Ovines – in the Antipodes
There's less *Bos* than *Oves*.

But thinking it o'er, I discard as a mower
The rabbit, the sheep, the cow and the *Moa*.
The divaricate shrub, where another plant fails,
Just thrives in the stress of the Antarctic gales.
It's blowing, not mowing, that stops the shoots growing.
It's pruning by salt or the sheer desiccation,
And especially so in the coastal location.
So that's why their leaves grow smaller and thinner,
And their right-angled branches grow inner,
and inner.

John S Turner, 1978

Divaricating plants - defence against toothless browsers?

Review of AGM talk.
By Peter Bannister, Professor of Botany, University of Otago.

William Bond's namesake, James, liked his martinis "shaken but not stirred". William, as guest speaker at the Botanical Society of Otago's Annual General Meeting (14 February), both shook and stirred (as well as amused and fascinated) his audience.

Divaricating shrubs are characterised by small leaves, wide branch angles, and interlacing branches that produce a cage with fewer leaves on the outside of the shrub than within. There are two main hypotheses on the evolution of divaricating plants: the first is the moa-browsing hypothesis and the second is climatic. The browsing hypothesis cites the absence of mammalian browsers and their substitution by ratite birds (moa) and the relatively high frequency of divaricate forms (from a variety of plant families) in New Zealand. It further notes that the mature foliage of trees with divaricate juvenile forms is produced above moa height.

The climatic theory explains the divaricate form as a response to a cold and windy environment, with the bush producing a favourable microclimate within the interlacing network of branches. The change to a mature form is explained as a response to the warmer air above a colder inversion layer that is 2- 3 metres deep. Avid supporters of each hypothesis tend to be resolutely unshaken but active in stirring: theories abound, but experiments are relatively few.

We were treated to some experimental findings. Divaricating shrubs were presented to mammalian (goat) and avian (emus) browsers. The examples showed us that goats eat anything and everything: divarication offered no protection at all. Not all of the proffered divaricates were resistant though, some common ones (e.g. *Coprosma propinqua*) could be effectively browsed by emus by a stripping action. The ones that were most resistant were the wiry (fili-ramulose) divaricates with zig-zag stems - when they were grasped in the emu's beak they sprang back as soon as the hold was relaxed. This explains how some divaricate plants may have been resistant to browsing by moa, but what about the rest? Is there still hope for the climate hypothesis?

As physiological ecologist, I am drawn to the climate hypothesis, but William Bond counts me as an ally, as he reckons that my (and my students') work has offered more support to the browsing hypothesis than that of any other proponent of the climate hypothesis. Nutrient-rich cryptic dwarf mistletoes on divaricating shrubs mimic their hosts, so they would tend to be overlooked by the moa, whereas non-cryptic mistletoes on the same shrubs are nutrient-poor and likely to be avoided. Mistletoes on trees above moa height tend to be as nutrient-rich as their hosts are. Divaricate juvenile forms of trees are not consistently more frost resistant, and tend to lose water more readily, than their mature forms.

My remaining hope for the climate theory, apart from the withdrawal of William Bond from this area of study, is that the microclimate within the shrub may enhance photosynthesis by providing a slightly warmer and more humid climate that allows stomatal opening and enhances photosynthesis. Time, and William Bond, will tell.

'Pixie-cup' lichen, *Cladonia pyxidata (fig 53)*

Supernatural beings in forests

J. Bastow Wilson, Associate Professor, Botany Department, University of Otago

The February issue of the Botanical Society of Otago Newsletter contains a reference to 'gremlin forest'. If the report could be confirmed, this type of forest would be new to science.

Elves, goblins and gremlins are all supernatural beings, of a dwarf kind, with the ability to intervene in the world of humans for good or for ill. Elves have been known the longest. They appear in *Beowulf* about 1000 AD, but the Anglo-Saxons knew them in ancient times as 'ælf' (Simpson 1989).

How do elves get into the BSO Newsletter? Towards the upper altitudinal limit of trees, in the montane or subalpine zone where romantic mists swirl, there is often a forest of dwarfed and gnarled trees. This is sometimes called 'krummholz' (German for 'twisted wood'), but another name is 'elfin wood'. Presumably elves feel comfortable with trees that are more their size. We might imagine that the more romantic 'elfin wood' was coined by some English personage in a flopsy moment after lunch. Not so. It first appeared as the "subalpine elfin-wood" of the Alps, in a translation of a German book (Andreas Franz Wilhelm Schimper 1903). This implies that the German equivalent, "Elfenwald", would occur in the German original of Schimper's book (1898), but it does not. Elfin-wood seems to have been invented by the translator, going rather beyond the traditional translator's rôle. However, the translation is billed as 'authorised', so Schimper cannot escape responsibility. Shortly after, another German, Warming (1908), also used 'elfin-wood'.

More recently, due to a misunderstanding of the meaning of 'forest' (which is really a place for the King and nobles to go hunting, and nothing specially to do with trees), 'elfin forest' has been preferred. There have been constant references to elfin forest in the literature. There is a tendency to use 'elfin forest' in the tropics and the synonym 'krummholz' in temperate regions, but only at the whim of ecologists, there is no formal reason for this. The term 'elfin forest' is recognised in the dictionaries of ecology (*e.g.* Lincoln et al. 1982; Allaby 1994).

Goblins are a related species, first recorded in the year of Our Lord 1327 (Simpson & Weiner 1989). They are uglier and more mischievous, and perhaps with fewer magical powers. They live in private houses or hollow trees (Evans 1989), so they are quite likely to be found in forest. However, ecology knows no 'goblin forest'. There are a few localities around the world called 'Goblin Forest': one in Colorado USA, one in Tasmania, and one on Mt Egmont, Taranaki (Cockayne 1928 knows this locality name). These are place names, not forest types.

However, Dr John Dawson (1988) wrote of high-altitude beech forests: "forests of a similar character elsewhere in the world are often referred to as cloud or mossy forest, or more romantically 'goblin forest' or 'elfin woodland'". The latter term is indeed used, but Dawson was wrong about 'goblin forest'. Perhaps he misunderstood, and thought that 'Goblin Forest' in Taranaki referred to a forest type, not the place. However, there is no beech on Mt Egmont, as Dr Dawson should have known, so according to Dr Dawson his 'goblin forest' is not present in New Zealand's only 'Goblin Forest'. Perhaps Dr Dawson thought it was unfair that elves had a forest type named after them, and thought Goblins should too, albeit the same one. Life is not fair like that. Goblins are as common in forest as elves, but the elves got in first. Dr Dawson may not be alone in his hope: there is a computer message board on 'goblin forest', but no one has ever posted to it. This is not surprising: there is no such forest type.

Gremlins are a subspecies of goblin. They were first identified about 1920. The OED gives the first use as 1941 (Simpson & Weiner 1989), but Brewer's (Evans, 1989) says they were discovered by members of the British Royal Air Force during World War I, or just after, and were first described in print in *The Aeroplane* of 10 April 1929. They seem to have originated as an ecotype of goblins, evolved in adaptation to the new habitat of aeroplanes. They caused mysterious aeroplane crashes, or at least they were blamed for them. As aeroplanes became more reliable, and wonky computers appeared, gremlins seem to have migrated *en masse* into computers. We can see this as a 'niche shift' (Pianka 1976). However, no gremlin has ever been reported from a forest. 'Gremlin forest' does not exist, either as a place or as a forest type, at least not outside the alternative universe of computer games.

There remains the problem of how the term 'gremlin forest' weaseled its way into the February issue of the BSO newsletter, in spite of efforts at the border control-points to keep it out. I suspect that gremlins are, like some computer viruses, self-replicating. They reproduce and then infiltrate previously innocent pages, like those of the BSO newsletter.

References

Allaby, M. (1994) *The concise Oxford dictionary of ecology*. Oxford University Press, Oxford, UK.

Cockayne, L. (1928) *The vegetation of New Zealand*, edn 2. Engleman. Leipzig, Germany.

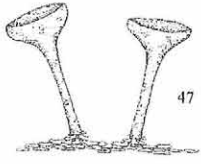
Dawson, J. (1988) *Forest vines to snow tussocks: the story of New Zealand plants*. Victoria University Press, Wellington, NZ.

Evans, I.H. (1989) *Brewer's dictionary of phrase and fable*, edn 14. Cassell, London. UK.

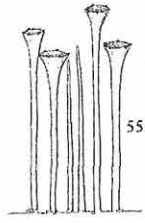
Lincoln, R.J., Boxshall,G.A. & Clark, P.F. (1982) *A dictionary of ecology, evolution and systematics*. Cambridge University Press, Cambridge, UK.
Pianka, E.R. (1976) Competition and niche theory. *Theoretical ecology: principles and applications* (ed. May, R.M.), pp. 114-141. Blackwell, Oxford, UK.
Schimper, A.F.W. (1898) *Pflanzen-Geographie auf physiologischer Grundlage*. Fischer, Jena, Germany.
Schimper, A.F.W. (1903) *Plant-geography upon a physiological basis*. Oxford University Press, Oxford, UK.
Simpson, J.A. & Weiner, E.S.C. (1989) *Oxford English dictionary*, edn 2. Oxford University Press, Oxford, UK.
Warming, E. (1909) *Oecology of plants*. Oxford University Press, Oxford, UK.

Footnote: The Science Library of the University recently 'phoned me to suggest that I no longer needed a document that I had requested from them, because they gathered the author himself had just sent me a copy. I asked which document this was, and was told Schimper (1898). Perhaps they thought that, as it is said King Arthur and Rob Muldoon only sleep and will one day awaken to save their respective countries, so the great ecologist Schimper only sleeps and had woken to save ecology, or at least woken for long enough to catch the post. Still, he wouldn't have known about airmail. Perhaps a copy is on the way yet.

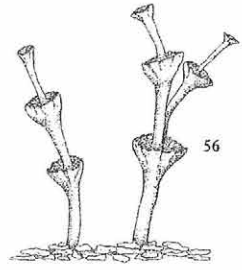
Editors note: Three more 'pixie-cup' lichens that can be found in elfin woods in Great Britain and in goblin forests in New Zealand (if such forests exist!). The lichens are real enough, and can be verified in the OTA Herbarium. *Cladonia* figures from NG Hodgetts, *Cladonia: a field guide*, Joint Nature Conservation Committee, UK.



Cladonia finbriata (fig 47)



Cladonia. gracilis (fig 55)



C. cervicornis ssp *verticillata* (fig 56)

TRIP REPORTS

Kennedy's Bush, 17.2.01 - *Moira Parker*

Helen Clarke, QEII representative for Coastal Otago, was the leader for the day and a very small group comprising Nola, Bastow and myself, set off for Taieri Mouth.

Our first stop was Brighton, to look at a saltmarsh that is likely to be fenced from stock in the near future. Several spoonbills were present. The water level was much higher than on Helen's previous visit in November and many of the flowering *Cotula coronopifolia* and the smaller *Cotula dioica* were submerged. Another submerged plant

was *Mimulus repens*. Other plants we found were the creeping herb *Lilaeopsis novae-zelandiae* with its unusual cylindrical septate leaves, *Lachnagrostis* in drier areas, *Selliera radicans*, small clumps of a salt grass *Puccinellia* (either *P.distans* or *P.stricta*), with fine, bluegreen leaves, and *Juncus pallidus*.

The saltmarsh is only a few minutes drive from Brighton beach, but we were unsure whether or not it is it tidal and there were far too many sheep droppings to want to do a taste test. So we walked to the beach to find that sand deposits had closed off the exit. It seems that periodically, when the water levels in the saltmarsh get too high, the sand bar is cleared and the salt marsh becomes tidal again.

We then drove on to Taieri Mouth and took the Waihola Road to Norman and Dorothy Kennedy's farm. As we approached the house we could see two stands of tall rimu poles across the valley. The Kennedys have a QE II covenant on 50 ha of bush situated in two steep sided gullies. The bush was fenced in 1991 and has not been grazed by farm stock since - though goats have been a problem. Norman joined us on our 3-hour walk and he was able to tell us a lot about the bush and how it is managed. We were impressed with the tracks Norman has made. The steps cut into the steeper slopes made the walking easy going, so we could concentrate on the plants.

Helen provided copies of Ralph Allen's 1985 vegetation survey of the Kennedy property, but the task of a proper update of the species list was beyond the four of us. As soon as we climbed over the stile and entered the bush the regeneration was evident - a variety of *Coprosma* species and ferns, and seedlings of marbleleaf, pokaka (only a few) clematis, mahoe, lemonwood, miro, totara and matai. There were lots of mature rimu and quite a number of tree ferns. White flowering rata vines, *Metrosideros diffusa*, were common in places, and some of the vines growing up the rimu were as thick as my wrist.

While we had lunch under a giant rimu - one of thousands on the property - Helen got out her polystyrene bird squeaker. The bellbirds were quite put out by this "invader" and soon there were four or five bellbirds all calling noisily, then a tui joined in and even a tomtit came to investigate the racket.

We saw *Corybas* and patches of *Pterostylis* orchids in damp spots beside the edge of the track, and at the bottom of the gully Norman showed us what he believes are the remains of a sawmill - two notched iron wheels and a water race leading to a rectangular pit. It was fascinating to walk through one stand of rimu poles, most were about 15 -17m high, very closely spaced and of a similar trunk diameter. Ralph Allen estimates stem densities of 1000-2500 stems/ha. Interesting to speculate on events that might have led to such a large number of rimu trees of the same age.

Goats are a bit of a problem in the bush and we saw goat droppings and browsed crown fern and mahoe. Broadleaf was being browsed by possums, and bait stations had recently been set up by Pest Services as part of the Tb control programme. I was surprised at the absence of weed species - just one small nightshade on the track and an

elder at the creek. There was some gorse along one perimeter fence that provided low shelter and will eventually be taken over by kanuka.

Our afternoon tea stop was by a huge pokaka that had recently blown down. The cut sections of trunk made good seats. Then we climbed up the gully, over the stile and, as I headed across the grassy paddock towards the vehicle, I turned round to see Nola and Bastow on their knees, peering into the grass. To everyone's surprise this exotic grassland supported a dense carpet of turf plants below the pasture grasses.

Native species recorded were:
Acaena novae-zelandiae
Anisotome aromatica
Centella uniflora
Geranium sessiflorum
Gonocarpus micranthus
Gunnera monoica
Helichrysum filicaule
Hydrocotyle novae-zelandiae var. *montana*
Kunzea ericoides
Microtis unifolia
Rytidosperma sp.

Awakiki Bush and Otanomomo, 25 .04 .01 - *Helen Clarke.*

A small group of six traveled South to visit these areas, ably led by Kelvin Lloyd. At Otanomomo we were joined by Noeline and Donald MacLean who own bush on the south edge of the Awakiki Reserve and have it covenanted with Q E II National Trust.

First stop was at Otanomomo Scientific Reserve, which is easily seen and often admired from SH 92 on the way to the Catlins. I was keen to see inside this interesting looking bush. Alas, as Kelvin had warned us, it was an exercise in "spot the most invasive weed" and there were many to chose from! We were alarmed to find, in the north west corner, Chilean Flame Creeper (*Tropaeolum speciosum)* abundant but also Holly, Elderberry, *Solanum dulcamara, Daphne laureola,* and very dense blackberry. Below the towering Matai and Kahikatea in this area we found very little in the way of healthy undergrowth. Talk during the visit was focussed pretty much on the weed invasion.

On the way to Awakiki Bush we made a quick check on another edge of Otanomomo for *Olearia hectori*, but were unable to locate any.

Awakiki Bush is reached via a farm track and just prior to entering the bush the trail passes by a derelict farmhouse and the remains of a garden. A very large Ivy smothers part of the back of the house and Hawthorn trees mark the garden boundaries. From the edge the bush looks degraded and scrappy but, surprisingly, once inside it is significantly more intact and healthy looking than Otanomomo.

The area has been fenced for about nine years now and has a small loop track allowing easy access to a large Totara. The obvious ramification of the recent fencing is an abundance of *Pittosporum eugenioides, Aristotelia serrata, Myrsine australis*, and to a lesser extent *Melicytus ramiflorus, Pittosporum tenuifolium, Cordyline australis* and *Carpodetus serratus* all of which provide a very green effect at one to two metre height. This new understorey was really showing the effects of lack of moisture with droopy flaccid leaves. Always towering above are large Totara, Miro and Matai and the occasional old *Griselinia littoralis.*

Lunch stop was just inside the bush, where Moira and Allison set to to try out the Acaena key. They discovered we were sitting on *Acaena juvenca.* The barbed fruit stuck to our clothes.

The largest *Podocarpus totara* allowed five people to "hug" it arms outstretched. The *Hoheria angustifolia* juvenile was checked out for its filiramulose habit. Mature trees of Miro and Matai were found for comparative identification. We observed the difference between *Neomyrtus pedunculatus* and *Lophomyrtus obcordata* and had many discussions on the small leafed shrubs. Pat Enright ventured in large circles checking out the plant list supplied by Kelvin, while Allison peered through her lens at the lichens, which included 5 different species of *Ramalina.* Kelvin showed us where Chilean flame Creeper has been found.

Once the circular track was completed Kelvin led us to a drier ridge where the tall podocarps did not dominate. Here we discovered how cryptic small seedlings of *Pseudopanax ferox* are, and took, for most of us, our first look at mature plants of this species. Other treats were the tiny dwarf mistletoe, *Korthalsella lindsayii* on *Melicope simplex,* the one specimen of *Oleria fragrantissima* found in the bush and the fern *Pellaea rotundifolia* at its southern limit. On the way out Kelvin pointed out *Coprosma virescens* on the bush edge.

A great day, thanks to Kelvin for sharing his knowledge of a very important remnant of totara dominated forest in lowland Otago. One was left, however, pondering the threat posed by the many invasive weeds within and surrounding the bush.

MORE REPORTS FROM THE OTAGO AND WELLINGTON BOTANICAL SOCIETIES' SUMMER FIELD TRIP.

This 10-day field trip was based at Borland Lodge, on the eastern boundary of Fiordland National Park, between Lakes Manapouri and Monowai. It ran from 29 Dec – 7 Jan. Newsletter 25 covered reports of visits to Pukerau Red Tussock Reserve, Green Lake Landslide, Hope Arm & Back Valley– Lake Manapouri, Clifden Limestone, Eldrig Tops, Otatara Reserve, Bushy Point and Threatened Plant Nursery, and South Borland Burn. Four of the five remaining reports follow.

Kepler and Borland Mires (31 Dec) – *Gael Donaghy*

The botanic day started at the Manapouri airstrip where Prof Alan Mark described the structure and features of the Kepler Mire, part of the South West World heritage area. This mire is raised (6m above surrounding area) is surrounded by a natural drainage channel (or lagg), and is gently sloping. The whole ecosystem is protected.

The lagg, which has relatively fertile soils, had a cover of pasture grasses and sedges, several "hedges" of introduced broom, and a scattering of Coprosmas (*C. propinqua, C.* "tayloriae", *C. intertexta.* One plant of the unusual native grass, *Deschampsia caespitosa*, sparked the interest of the group.

On the mire, wire rush (*Empodisma minus*), manuka (*Leptospermum scoparium*), and *Dracophyllum oliveri* dominated. Other plants here were *Androstoma empetrifolia*, with its pretty red fruit, *Pentachondra pumila*, and two sundews, *Drosera binata* and *D. spathulata.* The common swamp sun orchid, *Thelymitra cyanea* was in flower everywhere, despite the heavily overcast conditions.

On the way out a few people botanised a small manuka covered moraine that stood above the level of the mire, and almost doubled their number of species. Of interest here were two ferns not seen before on the trip - Adder's Tongue (*Ophioglossum coriaceum*) and *Blechnum vulcanicum.*

After stopping off at the Mararoa control structure, where Alan Mark explained the recent history of the area in relation to the Manapouri hydro scheme, we travelled back to the Borland mire. Here Bastow Wilson explained the different structure of this mire. It had many of the same plants as the Kepler. One notable addition was the beautiful blue bladderwort, *Utricularia novae-zelandiae.*

The last area of particular interest was the edge of the mire, where bush was re-establishing among the bog pine (*Halocarpus bidwillii*). Some of the colonisers were mountain three finger (*Pseudopanax colensoi*) lancewood (*P. crassifolius*) and elder (*Sambucus nigra*). On the ground there were several flowering herbs including the little blue lily *Herpolirion novae-zelandiae*, and the white flowered *Oreostylidium subulatum.*

McKercher Stream (2 Jan) – *Graeme Jane*

After a brief introduction to the area from our guides for the day, Brian Rance and Geoff Rogers we headed off across pasture in drizzle towards distant shrubland in the Takitimu foothills. In the first part of the sparse shrubland area stock were still grazed. It was dominated by *Coprosma propinqua* and as a result we were treated to rich turf communities containing many introduced species but also a wide selection of native herbs including *Mazus radicans* (in flower), *Nertera setulosa*, *Hydrocotyle* species and *Centella uniflora.* The denser remnants contained orchids such as *Pterostylis areolata*, still in flower and as the rear of the grazed area was approached the first of the special

plants were encountered. These included *Coprosma virescens, Plagianthus regius* and *Olearia fragrantissima*. Several stops were made to explain the history of the area and theories on the history of the vegetation.

At the main valley stand we were suddenly in dense shrubland dominated by *Olearia fragrantissima*, kowhai, broadleaf and *Coprosma virescens* with emergents of *Plagianthus regius*, matai and huge lemonwood (stems nearly 2 m in diameter). Near the lunch spot there was evidence of past logging of small totara. It seems that the area was once rich podocarp forest, lacking in beech which had been disturbed 150 or so years ago (giving rise to the small totara and then logged perhaps 50-80 years ago).

From here the party began to fragment with some returning to the vehicle and the remainder climbing to about 750 m to see *Hebe annulata* in the formerly grazed shrublands. Enroute a wide variety of alpine herbs were noted, the most frequent being the strongly smelling *Gingidia decipiens* and the spiny *Aciphylla aurea*. Others of interest included *Schizeilema nitens*, the bronze *Celmisia traversii* and *Anisotome haastii*. After a break on the saddle the party split again with some returning by an easier? route and the majority climbing for a long ridge route home. New plants recorded here included *Hebe hectori, Kelleria dieffenbachii, Pimelea pseudolyallii, Myrsine nummularia* and hybrids of *Coriaria sarmentosa* and *C. angustissima*.

Dean Forest and Giant Totara (5 Jan) – *Robyn Bridges*

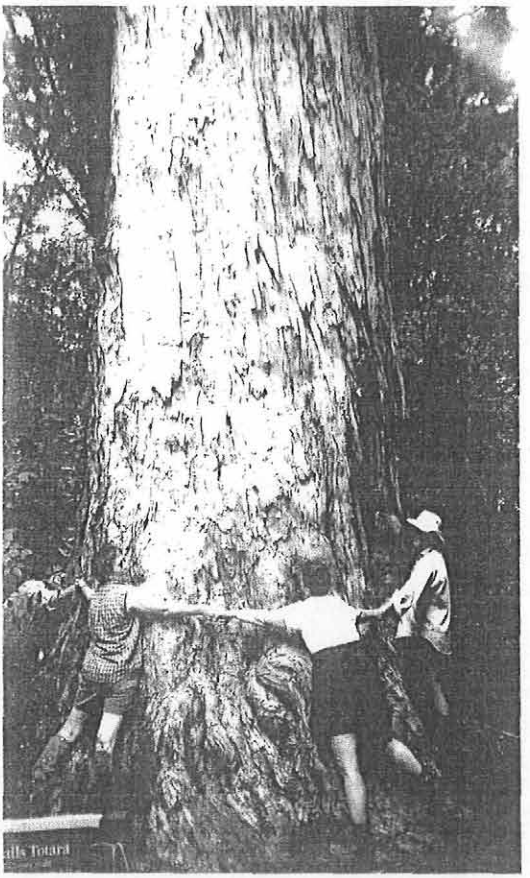
A much smaller group visited Dean Forest/Dean Burn and Motu Bush on Jan 5th, because a brilliant blue sky that morning, something we had not seen all week, drew a break-away group up to the alpine pastures of Mt Eldrig.

Down country a bit, turning right past the limestone of Clifden towards Lake Hauroko and then right again, the rest of us found ourselves heading back towards Lake Monowai. I later learned that in earlier days this was the old coach road to Lake Monowai. Today the road ends at the giant totara reserve. Why the old coach road ceased to be is a puzzle as it appears to run roughly parallel to the present road to Lake Monowai. The expanse of Dean Bush luxuriously covers the surrounding low-lying hills. The area of interest for us was the bush margin and the wetland that lay therein.

Of the bush margin, most noticeable were several large mature specimens of Weeping Matipo, *Myrsine divaricata*. This for me was the plant of the week and I have not before seen such large mature trees. Interesting *Coprosmas* included *C.* 'tayloriae' *C. wallii, C. obconica* and some stunning *C. rubra*.

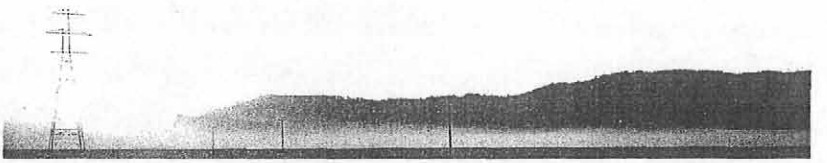
I now view these divaricating shrubs somewhat differently since I heard a visiting Botanical Society of Otago speaker expound (and demonstrate – his mimicry of a browsing moa was impressive) his theory that the divaricating habit of these species is a survival mechanism against ravaging ratites! Of the grasses, *Hierochloe redolens* was most memorable, with its sunlight golden glumes

Of the wetlands Brian Rance kindly sent the following summary: "The *Carex* sedgeland was generally dominated by *Carex sinclairii*, with some *C. geminata, C. secta, C. maorica, C. tenuiculmis* (status: vulnerable), spike rush *(Eleocharis acuta), Coprosma* sp. aff. *intertexta* and occasional herbs including *Epilobium pallidiflorum, Bulbinella angustifolia, Potentilla anserinifolia, Celmisia graminifolia* and others. The grass *Deschampsia caespitosa* (status: vulnerable) has also been recorded though we didn't see it there! Other parts of the wetland were dominated by red tussock or flax."



The day ended with the giant totaras, *Podocarpus hallii*. They were truly awesome and the largest ones I have seen. It took seven of us linking hands to surround the girth of one. There are just three (I think) left of these forests giants. How and why they were left makes for interesting speculation. The area was boardwalked which protected the tracks. It is a pity that the giant totaras weren't so favoured. It was sad to see where the outer layers of bark had been stripped off their lower trunks. Memorable too was the blood red trunk of a nearby Matai, *Prumnopitys taxifolia*. Audrey Eagle took a stunning slide of this, which she showed at the March BSO meeting, along with other visual treats from the summer trip.

The giant totara encircled by 7 people. From left to right Jill Goodwin, Robyn Bridges and Tony Aldridge. *Photo by John Knight.*



Misty farewell view from Borland Lodge on the last day. *Photo by Robyn Bridges.*

Plant Profile: *Porella elegantula* (Mont.) E.A. Hodgs.

John Steel, Botany Department, University of Otago

Order: Jungermanniales
Family: Porellaceae

The name, *Porella* (with the emphases on the first and last syllables), is a diminutive from the Latin, *Porus*, meaning a pore, hence little pore. It was the source of some fairly heated discussion in the scientific literature of the 19th century. The Latin suffix, *-ula*, generally means small, but in *elegantula* it refers to its less common usage as "very", therefore "very elegant". It was first described by Dillenius and his description was taken directly by Linnaeus. Dillenius's description caused some confusion, some taking it to refer to a missing specimen of *Selaginella*. The arguments ended without agreement but the name *Porella* has stayed with us

Porella is a worldwide genus with seventy to eighty species found mainly in tropical regions. This is the more common of the two species found in New Zealand and is a very beautiful little plant. An endemic, it occurs throughout the country from sea level to 1220m. Generally epiphytic, it can be found on a broad range of forest trees and shrubs and I have found it growing on a concrete wall in Leith Valley.

Considered large (by liverwort standards!), it can occur in flat clumps several centimetres across. The individual stems, up to 10 cm. long, are irregularly pinnately-branched. The leaves, up to 2 mm across, are tightly imbricate, with the margins decurved, especially when dry, giving it an almost scaly appearance. The colour ranges from reddy-brown when dry or in more exposed sites, to a beautiful, olive green-brown when in moist, less exposed habitats and this is when it is at its most recognisable.

The collections in OTA are mainly from Fiordland, as an epiphyte on beech, forest floor and limestone, with a few from Dunedin and Otago, from stream boulders, podocarps and assorted broadleaved trees and shrubs. This is probably due to its being overlooked rather than as an indication of rarity. Unfortunately, a x10 magnifying glass will be required to begin to appreciate this little beauty.

Moss Foray, 22 – 27 Nov, 2001. The 17th John Child Bryophyte Workshop will be held at the Tauherenikau Race Track, near Featherston, an hour north of Wellington. More details on Botany Dept noticeboard or contact Barbara Polly, email: barbarap@tepapa.govt.nz, address: Te Papa, PO Box 467, WELLINGTON

BOOKS

Book review - *Allison Knight*

Malcolm, W.M.; Malcolm, N. 2000. ***New Zealand Lichens***. 134 pp. Spiral-bound. Micro-optics Press, Nelson. $42.50

In this excellent little book Bill and Nancy Malcolm use New Zealand lichens as examples to illustrate much broader biological concepts. It is filled with fascinating details, not only of the life of lichens in general, but of the wider intricacies and interconnections of life on this planet. It should be of interest to anyone who has wondered what makes these ubiquitous but much neglected life-forms tick, and how they fit in to the rest of our ecology.

The lively text takes the reader on a journey of discovery from where lichens live to how they live, grow, reproduce and defend themselves. Along the way such ecological concepts as habitat, niche and community are clearly explained and colourfully illustrated (although some might take issue with the assertion that there is no difference between parasitism and predation). The origins of mutualism and symbiosis are discussed, with interesting analogies being made between the association of the lichen fungus with green algae or cyanobacteria, and the presence of mitochondria in plant and animal cells, and of chloroplasts in plant cells.

A nice touch is the boldface printing of 120 key biological and lichenological terms, which are explained in the text and indexed separately.

Likewise the striking illustrations, mostly in colour, which give a close up view of around 200 different species of New Zealand lichens, are well labelled and conveniently indexed by species name. The 10-page section on how lichens are named is far from dry and a useful introduction to botanical nomenclature in general.

Another aspect that has broad botanical applications is the final appendix on using a scanner to obtain high quality colour images at a fraction the cost of using a camera. This could equally well apply to ferns, mosses, leaves, small flowers and any other botanical specimens without too greater depth of field. The book is worth buying for this feature alone.

In all, this is a very worthwhile book, with much broader application than its title would suggest. It would make an excellent companion to "Lichens of rainforest in Tasmania" by G Kantvilas and SJ Jarman, which is still the closest available field guide to lichens in New Zealand. Both books can be obtained from Manaaki Whenua Press, Box 40, Lincoln 8152, NZ, who give a 20% discount to members of Botanical Societies

Notes from the Otago Herbarium (OTA)

By Jennifer Bannister, Honorary Curator – April 2001

After much hard work, the reorganisation of the bryophyte collection is complete. Packets have been removed from sheets, checked for accession numbers, repacketed where necessary and names updated using recent moss and liverwort checklists. Some names remain a mystery! A large number of bryophytes collected by Ray Tangney have also been incorporated into the collection. I would like to thank Ann Wylie for all her hard work and expertise - a friend of OTA indeed!

The next group to receive a name update will be the ferns. John Steel is going to update the fern collection when the new fern book by Patrick Brownsey is available.

Wenita Forest Products have donated the Forest Service collection of flowering plants and ferns to the herbarium and these will be accessioned and incorporated into the herbarium collections.

NEWS

Tree New to Science found in Waima Forest - *from NZ Herald, 2.3.01*

The bleak, windswept forest of the Waima Range in Northland has revealed another of its secrets – a mysterious tree never before discovered. The tree is 8m tall and was found with about 100 juveniles growing nearby. It belongs to the family Cunoniaceae, which includes the makamaka, towai and kamahi, and has probably been here since the giant land mass of Gondwana first began breaking up about 300 million years ago.

The new tree differs from its closest relatives by having larger leaves, different stipules (the leafy appendage formed at the junction of the leaf and stem) and leaf hairs. Dr Rhys Gardner and DoC rare plant expert Peter de Lange will describe the new tree, (*which was drawn in Dunedin by Audrey Eagle –ed.*). They will submit their findings to an international scientific journal and the naming process will probably take about a year. The last new tree discovered in New Zealand was Bartlett's rata, *Metrosideros bartlettii*, in the 1970's.

Tussock Grasslands added to New Zealand's Conservation Heritage

Prof Alan Mark's vision of a National Park in Central Otago, based on high country tussock grasslands, came a step closer last month when Conservation Minister Sandra Lee announced the purchase of 1300 hectares in the Lammerlaw Range by the Nature Heritage Fund.

The Minister said "Tussock grasslands are an essential element of New Zealand's landscape ecology and culture but historically were poorly represented in the parks and reserves system". She said "The land comprises tall tussock land with a significant shrubland component including areas of bog pine at high altitudes, sedge-rush wetlands and sphagnum bogs. Combined with adjacent conservation areas, the land will form part of the proposed 17.000 hectare Te Papanui Conservation Park"

Prof. Mark, DCNZM acknowledged the support of the Dr Marjorie Barclay Trust administered by the Royal Forest and Bird Protection Society and the Miss EL Hellaby Indigenous Grasslands Research Trust, which contributed towards the purchase. He still feels that the best of our Central Otago tussock grasslands deserve full National Park status.

Rare Native Plants Protected by Land Deal *from Otago Daily Times 15.2.01*

Rare native plants endemic to the western shore of Lake Dunstan will be protected by the purchase of 26ha of land by the Nature Heritage Fund, assisted by the Hellaby Trust and the Marjorie Barclay Trust. Known as Pisa Flats, the land, about 8km north of Cromwell on State Highway 6, has drought-tolerant native herbs and grasses, including silver tussock.

Plants only found in this area include *Myosotis uniflora* and *Craspedia* 'clutha', endemic to the Pisa Flats, and *Leptinella* and *Carmichaelia* (native broom). It is one of the best saline sites in the Upper Clutha region. Other uncommon, rare or poorly known species found there include the sedge *Carex decurtata*, a cress (*Lepidium sisymbrioides*), a herb (*Convolvulus verecundus*) and a tiny fern *(Ophioglossum coriaceum*).

The owners of the land, neighbours Steve and Raewyn Manson and Tom Glimour, have been keen and generous in protecting the area.

Constitution of the Botanical Society of Otago [draft, 2001 April 4]

Name

The name of the Society shall be the "Botanical Society of Otago", hereinafter referred to as the "BSO".

Definitions

'Botany' means 'Botany *sensu lato*' and includes the knowledge and study of angiosperms, gymnosperms, pteridophytes, bryophytes, algae, lichens, fungi, bacteria and viruses.

'Otago' means 'Otago *sensu lato*', i.e. the province of Otago at the time that provinces last existed (i.e. south of the Waitaki River in the east and of the Paringa River in the west, and including the southern islands of New Zealand).

Objectives

The BSO shall operate as a non-profit making organisation with the following objectives, all especially but not only within Otago:

i. To bring together people interested in botany.
ii. To promote the knowledge, appreciation and enjoyment of Botany through literature, art and science.
iii. To promote the conservation of the indigenous flora of New Zealand.
iv. To educate and enthuse the general public on Botanical matters.
v. To provide advice to other bodies on botanical matters.
vi. To further botanical knowledge.

Powers

The powers of the BSO shall be, in furthering the Objectives:

To hold meetings, workshops and field trips.

To produce any printed or electronic material (e.g. newsletter, web page) that the BSO may think desirable for the promotion of its objectives.

To award prizes.

To make submissions on matters of public interest relating to the objectives of the BSO.

To control, invest and deal with the money of the BSO in such a manner as may be thought fit by the BSO.

To remunerate any person or organization for services rendered or materials provided, or to be rendered or provided, to the BSO, as authorized by the committee.

To accept any gift of money, goods or property.

To take such steps by personal or written applications, public meetings or otherwise, as may be from time to time be deemed expedient for the purposes of procuring contributions to the funds of the BSO, in the shape of donations, annual subscriptions, sponsorship or otherwise.

To appoint officers to act in an honorary capacity to the BSO such as solicitor.

To do all other things that are conducive to the attainment of the objectives of the BSO.

Membership

Classes

The membership of the BSO shall consist of Ordinary members and Honorary members

Eligibility

Persons eligible for membership of the BSO shall be professional and amateur botanists, interested members of the public and affiliated societies and organizations.

Register of members

A register of members of the BSO shall be kept. It shall contain the following in respect of each member:

- The member's name and address
- Telephone number (optional)
- Electronic address (optional)
- Preferred mailing method
- Membership class

A list appended to the register of members of the BSO shall be kept by the Treasurer and shall contain the following in respect of each member:

- Member's name and address
- Subscription status.

Subscriptions

Membership subscriptions shall be decided at the Annual General Meeting. Special rates may be set for students, families and any other category. Membership of the BSO shall be annual. No subscription shall be payable by Honorary Members or invited guests.

Resignation

A member may resign from the BSO at any time by informing the Secretary but no refunds may be given. A member will be deemed to have resigned after two years of non-payment of the annual subscription

Officers and committee of the BSO

Officers

The officers of the BSO shall be:

Chairman
Secretary
Treasurer
Newsletter Editor
Auditor
any other such officer as the AGM may wish to elect

Committee

The Committee of the BSO shall comprise the Chairman, Secretary, Treasurer, Newsletter Editor, and at least two other members. In the event of a tied vote, the Chairman shall have a casting vote in addition to his/her ordinary vote.

Election

Officers and other Committee members shall be elected at the Annual General Meeting of the BSO, and shall hold office for one year. The Committee shall have the power to co-opted additional members.

An officer or committee member may resign at any time, in writing to the Chairman or Secretary. Such resignations shall be reported to the Committee. Upon receiving such a resignation, the Committee shall appoint a replacement for the remainder of the year, or may if it wishes convene an Ordinary General Meeting to do so.

General Meetings

An Annual General Meeting shall be held within the first three months of each year. Ordinary General Meetings may be held at any other time, if called by the Committee or in writing by ten paid-up members. Members shall be notified of any General Meeting via the Newsletter at least three weeks before the meeting. In the event of a tied vote, the Chairman shall have a casting vote in addition to his/her ordinary vote.

Finance

The Treasurer shall control all monies and keep a record. Money other than a small amount of cash shall be kept in an account under the BSO's name at a major trading bank. All payments shall be authorized, by cheque signing or by other means, by two persons out of the Chairman, Treasurer, Secretary and one other member of the committee to be appointed by the committee. All expenditure shall be approved by the committee and recorded in the minutes which is greater than a limit to be set each year by the committee

The financial year for the BSO shall end on December 31 each year. A statement of income, expenditure and financial balance shall be presented to the Auditor for evaluation and then, with the Auditor's comments, to the Annual General Meeting for approval.

Payments, in relation to charitable status

In order to prevent benefit to members:

Any income, benefit or advantage shall be applied to the charitable purposes of the BSO, as listed above.

No member of the BSO, or any person personally associated (e.g. as a relative or partner) with a member, shall participate in, or materially influence, any decision made by the BSO in respect of the payment to, or on behalf of, that member or personally associated person of any income, benefit or advantage.

Any such payment shall be reasonable, and equivalent to that which would be paid at an arm's-length transaction (i.e. the open market value)

Dissolution

The BSO may be dissolved by a resolution carried at any special general meeting by a two thirds majority.

If the BSO be dissolved, its assets shall be disposed in accordance with the directions given by the concluding General Meeting of the BSO, or in the event of a quorum not being obtained at that meeting by the Committee then in office, provided that the assets shall go to bodies within New Zealand that further the Objectives of the BSO, and that have a tax-exempt status as charitable organisations.

Amendment

Amendments to this constitution may be made only by decision of any General Meeting. Members shall be notified of any proposed amendment via the newsletter or via a General Meeting at least three weeks before being voted upon. Minor amendments to the notified constitutional amendment, within the spirit of the proposed constitutional amendment, may be made in the normal way when it is formally discussed at a general meeting. A simple majority of those present and not abstaining shall be sufficient to carry the amendment.

Any amendments to this constitution shall retain: (a) the "Objectives" (Clause 3) as only activities appropriate for a charity, (b) the thrust of "Payments, in relation to charitable status" (Clause 9) as preventing members obtaining personal benefit from the BSO, and (c) "Dissolution" (Clause 10), as limiting distribution of the assets to appropriate organisations.

Notes on Forthcoming Field Trips

Waipori Fungal Foray, Saturday **12th May**. Waipori Gorge is a local area of *Nothofagus* forest and we should expect to find a beautiful array of native mushrooms there. At this time of year, we expect to find many species of *Cortinarius*, which is one of the most colourful and diverse genera in the world.

Meet at the Department of Botany car park at 9 am.We will travel to Waipori Gorge and spend a couple of hours collecting, returning to the Department of Botany by about 1 PM. For those interested in identifying and describing their collections, one of the laboratories will be available with photography equipment, microscopes etc for the afternoon.

National Fungal Foray, 8 –12 May, 2001. This year the 15th New Zealand Fungal Foray will be held at Lake Whakamarino, near Urewera National Park. Four full days of collecting, discussing and identifying fungi. For more information see the PDF file on our BSO web page: http://www.botany.otago.ac.nz/bso, or email David Orlovich: david.orlovich@botany.otago.ac.nz

Otago Peninsula and Varleys Hill field trip, Sunday 29th April.
Kath Dickinson will lead the morning trip to investigate areas of small-leaved shrubs on the harbour side of the Peninsula. The aim is to determine which locally occurring species could be used enrich depleted jewel lizard habitats.

In the afternoon Moira Parker will take us around Varleys Hill. Details below.

Directions to Varleys Hill, for anyone wanting to meet there for the afternoon.
- drive to Portobello
- turn right up Allans Beach Road (opposite the Portobello garage)
- turn left at Hoopers Inlet
- continue along Allans Beach Rd past the turning for Sheppard Rd
- park on the roadside by Hoopers Inlet Hall
- go through gate to Hoopers Inlet Hall and through a second gate to Varleys Hill

For the field trip - come prepared for steep hillsides, some untracked bush and heaps of bidibids. Gloves are good protection from occasional blackberry and gorse.

Varleys Hill (134m) is situated between Hoopers and Papanui Inlets on the Otago Peninsula. The 32ha area belongs to John and Moira Parker and is protected by a QE II covenant. There is a variety of vegetation types: kanuka-mahoe forest, ngaio-totara forest, coprosma scrub, gorse, exotic grasses, saltmarsh and two woodlots (eucalyptus and macrocarpa).

Varley's Hill has had no grazing by stock for the past 7 years and the regeneration below the tall kanuka canopy is most encouraging. Areas which were quite bare at the time of purchase, are now covered in a variety of broadleaved saplings, young tree ferns, small totara and the occasional matai. There has been a prolific growth of ferns in some of the damper spots. Climbers such as *Parsonsia heterophylla*, *Clematis paniculata* and supplejack are all increasing.

The downside of the absence of farm stock is the potential for weed species to establish. Vines, such as banana passion fruit *Passiflora mollisima* and the climbers *Alstroemeria* and *Bomarea* are the major concern, as they climb so rapidly into the canopy and the seeds are dispersed by birds. Greater bindweed *Calystega silvatica* has been found at one location. So far I have not found old man's beard, but that doesn't mean it is not growing somewhere on the property. One of the enjoyable, but time consuming tasks, is looking for these introduced vines and eradicating them before they seed. Help with weed surveillance (I'll do the eradicating later!) from sharp-eyed botanists at the field day will be much appreciated.

The covenant area includes three sites recommended for protection by Peter Johnson, 1982, Forest and Scrub Vegetation on the Otago Peninsula, Botany Division, D.S.I.R. Considerable changes have taken place since Peter's survey, particularly since 1993 and the cessation of grazing. I have compiled species lists of monocots, herbaceous dicots, woody dicots, gymnosperms and ferns, from Peter's report and it would be interesting to be able to accurately record additional species. Already, I have been able to add six new fern species, as a result of last year's fern workshop.

News from other Botanical Societies

Current newsletters from other Botanical Societies are displayed on the BSO notice board in the Otago University Botany Dept tea room. Back issues are filed on the bottom shelf of the adjacent library. We are pleased to have received newsletters from the New Zealand Botanical Society and from the Auckland, Waikato, Manawatu, Wellington, Nelson, Canterbury and Wakatipu regional societies. Also full of interest are the Otatara Pigeon Post and Willdenowia, the Annals of the Botanic Garden and Botanical Museum, Berlin-Dahlem.

Dates for your Diary, BSO events in boxes

9 April, Mon. 8pm. Hutton Theatre, Otago Museum. Royal Society and Astronomical Society Carter Memorial Lecture. Eminent astronomer Steve Edberg talks on **Solar System Exploration.**

11 April, 12 noon. Botany Dept Seminar.
Simon Johnson, Botany Dept & School of Environmental Sciences
***Prumnopitys ferruginea* (miro) seedling dispersal patterns in the Catlins.**
and Andrew Luxford, Botany Dept.
The conservation management of the Sutton Salt Lake Scenic Reserve.

11 April, 12 noon. Otago Institute Lecture. Ian Hall. **Troubled Truffles - a snapshot of NZ science since 1975.** Hutton Theatre, Otago Museum.

18 April, 7.30 pm Friends of the Botanic Gardens meeting. Speaker Ron Abernethy, Daffodil Club. **Daffodils.**

28 April, Akatore – Alun Baines. Dunedin Naturalists' Field Club Trip. Visit Rhondonite outcrop and Akatore Fault. **10am-4.30pm**. Bus. $15.

29 April, Small-leaved shrubs – **Otago Peninsula & Varley's Hill** – Kath Dickinson & Moira Parker. BSO Field trip. More details front page and inside.

2 May, 12 noon Botany Dept Seminar. Kate Neill, Botany Department, O.U.
Seasonality in the endemic red seaweed *Gigartina lanceata*: Population dynamics and phycocolloid chemistry in Otago, New Zealand

5 May Split Rock/Karitane – Leader Ken Allen, Dunedin Naturalists' Field Club Trip **10 am – 4.30 pm**. Bus $15.

7 May , Mon. 7.30 pm, Red Lecture Theatre, Medical School, Gt King St.Dunedin Naturalists Field Club Meeting. Dr Catriona Hurd, Botany Dept, O.U.
Exciting Seaweed Research in Otago.

9 May, 12 noon. Botany Dept. Seminar. David Burnett, Botany Department, O.U.
The ecological effects of polyploidy and genome size- a tangled web

12 May, 9am. BSO Fungal Foray to Waipori Gorge with David Orlovich. Bring knife, greaseprof paper and collecting container. Meet Botany Dept car park

12 May Friends of the Botanic Gardens **Plant Sale**, Upper Botanic Gardens.

16 May, 12 noon. Otago Institute Lecture. **Matt McGlone** (Cockayne Lecturer/RSNZ). **Reconstructing the future: Past and present influences on the vegetation cover of New Zealand and future trajectories.**

16 May, 12 noon, Botany Dept seminar. Dr Christian Zidorn, Leopold-Franzens Universitat Innsbruk, Austria: **Chemosystematic investigations of European Lactuceae and New Zealand Apiaceae**

16 May, 7.30 pm. Friends of the Botanic Gardens meeting. Speaker Nancy Syme, President of the NZ Chrysanthemum Society: **Chrysanthemums.**

19 May, 8.30 am Field trip with Gary Eckhoff to **"Witherow" Island**. Leader Brian Patrick. Meet 8.30 am, Botany Dept Car Park, 464 Gt King St

19 May. Leith Saddle – Ian West. Dunedin Naturalists' Field Club Trip. Boardwalk from motorway to bushline. Rewarding ferns, trees and birds. Carpool **10 am**. $3.

23 May, 12 noon. Botany Dept Seminar. Svenja Heesch, Botany Dept, OU **Endophytic brown algae of New Zealand**

30 May, 12 noon. Botany Dept Seminar. Chris Hepburn, Botany Dept, OU **The influence of filter-feeding invertebrates on the giant kelp, *Macrocystis pyrifera***

2 June. North Dunedin Walk. Ann Ford, Dunedin Naturalists' Field Club Walk. Meet **1.30 pm** at Queen St entrance to Woodhaugh Gardens.

Botany Dept Seminars are on Wednesdays at 12 noon, upstairs in the Union St Lecture Theatre (formerly Botany School Annexe), in the red-brown bldg, Cnr Union St West & Great King St.

Dunedin Naturalists' Field Club Meetings are on the first Monday of the month, 7.30 pm, in the Red Lecture Theatre, Scott Building, Medical School, Gt. King St. Their Field trips leave from the Citibus Depot, Princes St. Visitors are welcome. Contact: Beth Blain, President, 455 0189

Dunedin Forest and Bird meetings are on Tuesday, at 7.45 pm in the Hutton Theatre, Otago Museum. *Field trips leave from Otago Museum Gt King St entrance, 9am, Saturday.* Secretary: Paul Star 478 0315

Friends of the Botanic Gardens meet on the third Wednesday of the month at 7.30 pm in the Education Centre, Lovelock Ave. Secretary: Mrs Betty Wolf, 488 1550

Otago Institute contact: Michelle McConnell, secretary. Phone 479 5729, email: michelle.mcconnell@stonebow.otago.ac.nz

Botanical Society of Otago: whom to contact

Submissions for the diary and new members, subscriptions or donations to:

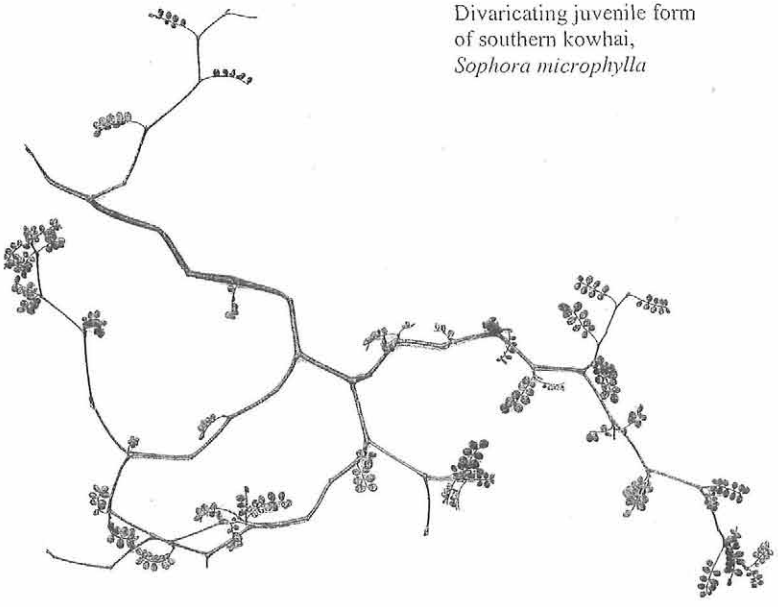
Trish Fleming
c/o Botany Dept., University of Otago, P. O. Box. 56, Dunedin
Phone (03) 479 7579
email trish@planta.otago.ac.nz

Submissions for the newsletter email Allison Knight: curator@botany.otago.ac.nz

Ideas for activities to:

Bastow Wilson,
c/o Botany Dept., University of Otago, P. O. Box. 56, Dunedin
e-mail bastow@otago.ac.nz
Phone (03) 479 7572 work, 473 9300 home.

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



Divaricating juvenile form of southern kowhai, *Sophora microphylla*

This Newsletter was published on the 8th April 2001. ISSN 0113-0854

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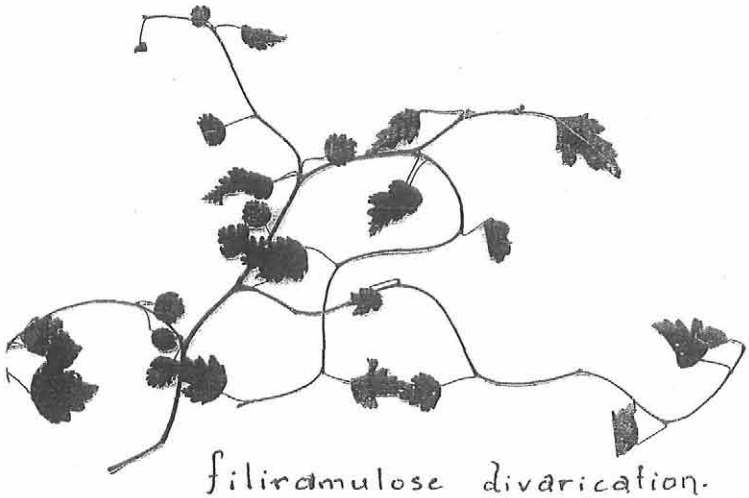

filiramulose divarication.