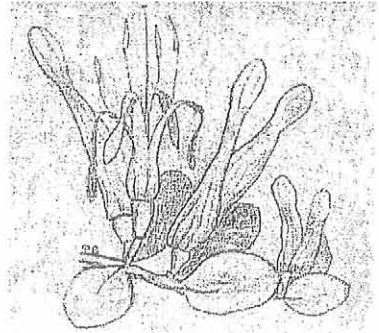


Botanical Society of Otago Newsletter. Number 16, January 2000.



Botanical Society of Otago Meetings

Monday February 14th, 7:30pm: Botanic Gardens Visitor Centre
“Nothing monotonous about monocots.” An illustrated ramble
(narrated slideshow) with Landcare Research botanist Dr Peter Johnson
among grasses, sedges, orchids, and other monocot plants.

Monday February 14th, after the talk.

Public meeting of the Botanical Society of Otago. Botanic Gardens
Visitor Centre. Anyone interested is welcome to come along.

Saturday February 19th.

Field trip to **Okia reserve** (a.k.a. “The Pyramids” on the Peninsula).
Bring: warm and wet weather clothes, sunscreen and a sunhat, handlens,
your lunch and a drink. Trip will leave from the Botany Department
carpark (Corner of Union and Great King Streets) at **9.00 am** back early
afternoon. Share transport. Trip leader Adrienne Markey.

POSTPONED Saturday February 19th /20th POSTPONED.

Unfortunately the field trip to Blue Mountains and Tuaepeka forest and
Birch Island has had to be **postponed**. Watch this space for more details.
Apologies to all those looking forward to the break away.

Mid to late February.

Workshop on **Herbarium preparation**. Contact Jennifer Bannister or
Janice Lord (Curators OTA), % OTA Herbarium, Botany Department,
University.

Sunday March 19th

FUNGI workshop, David Orlovich (whom you may recall from the
Profile of a Botanist in our last issue) has agreed to run a workshop on
fabulous fungi. There will be an early start to collect specimens (you can
bring some already collected, but David assures me that they are easier to
identify when fresh!). A late morning tea follows this and then David will
show us how to preserve our specimens for the herbarium (OTA) and
how to go about identifying them. Then we have the entire afternoon to
preserve and (hopefully) identify our specimens!!

From the President and from the Editor.

The Botanical Society of Otago just re-appeared, with plans to have the same mix as we used to, of talks, field trips, workshops, etc. You may have noticed that this time we have decided to fix subscriptions at a (hopefully) easily affordable amount (see back page for details), to cover postage and minor expenses of the society. On that note we'd like to thank everyone who has already sent in subscriptions and donations. Apologies to everyone who received issue 15 in the guise of issue 12.

The Saturday morning field trip to Cornish Head, at the north end of Waikouaiti beach, went well. Several carloads of enthusiastic people turned up in spite of the short notice (we wanted to get things going). It turned out to be the hottest day of the year (1999). We saw very nice vegetation on the soft cliffs (See Brian Patrick's report on the vegetation of Cornish Head below). We were impressed by the colony of *Corybas macranthus*, which was in full flower (there's a profile of it in this issue).

As you can see we are planning some talks, field trips and workshops (any interest in lichens and/or grasses for later in the year?). We could also consider larger projects. Should we be reviving the scheme to map species distributions in the Dunedin area? Are there any other projects we should think of? Any other ideas would be welcome and enthusiasm is always appreciated.

Have a happy New Year!
Dr. J. Bastow Wilson (President)
Barbara Anderson (Editor)

Cover picture: Flowering branchlet of *Peraxilla tetrapetala*

Drawn by Professor Bannister *Peraxilla tetrapetala* is our plant profile for January.

Cornish Head (Waikouaiti), 4th December Field trip.

By Brian Patrick (Otago Museum)

On the 4th December 1999 fourteen members of the Botanical Society of Otago explored several native plant communities of considerable scientific and conservation interest at Cornish Head, Waikouaiti. We would like to thank Mr John Toomey on Matanaka Drive, the landowner, for access.

These communities grow on Tertiary age sedimentary rocks at three discrete steep sites that face southeast, on the southwest margin of Cornish Point (I43 298075). It is ironic that this natural ecosystem has remained hidden and unrecognised at the site of the earliest organised European settlement in Otago, Matanaka (1840). All the significant sites found are virtual fire and stock refugia due to the difficulty of access and probable moisture constraints. The communities of great interest extend from near sea level to about 30 metres above sea level on coastal cliffs, and extend about one kilometre along the coastline to Cornish Head. A little further inland, cliff faces extending to 165 metres above sea level also harbour native plant communities of significance. The outer (eastern) coastline has been examined also and is of much less interest in terms of significant native plants and insects. Great care needs to be taken in examining all these communities due to the steepness and instability of the substrate at the sites.

Moist, mainly southeast facing slopes are dominated by fragmented silver tussock, *Poa cita*, grassland containing abundant sedges, herbs and low shrubs. Some of these refugia are extensive while others are less than 20 metres wide.

This community is significant for a number of reasons, among them:

- ❖ The presence of the tall form of *Gingidia montana*, otherwise only known in eastern Otago from Mopanui (Peat & Patrick

1995). At both sites it is rare and localised with less than 30 plants at Mopanui and less than 50 here. It was in flower when discovered at this site, and very conspicuous.

- ❖ The biogeographical importance of the presence of this form of *Gingidia montana*. The northeast Otago diminutive blue-green form is found as far south as Mt Watkin, which is only 10 kilometres to the northwest of Cornish Head. Only two sites on the eastern Otago-Southland have populations of this taller form of the species with the small form present further north to Shag Point and inland to the Horse Range and Macraes area.
- ❖ A large population, in excess of 130 plants, of an undescribed species of *Pimelea*, usually referred to as *P. urvilleana*. Further north on the coast south of the Shag River mouth is another large population of this low shrub. These are the largest populations known in eastern Otago and the Shag River population supports the only known population of a new species of diurnal moth in the genus *Notoreas*. It is possible that this colourful moth will be found at Cornish Head too as possible feeding damage was found.
- ❖ A diverse coastal remnant. This is the only remnant of this particular community known on the eastern Otago coastline. It is therefore a small window on the past vegetation of the Otago coast.
- ❖ The size of the individual refugia and extent of the community appears to be sustainable in terms of recruitment and stable in terms of threats.
- ❖ Aesthetically it adds much further interest to an impressive coastal area.
- ❖ The silver tussock supports the widespread tussock butterfly species *Argyrophenga antipodum* at its type locality. It was named in 1845 from specimens collected by Earl.
- ❖ Coastal grassland supports a large population of the tiny, diurnal moth *Mnesarchaea paracosma*. The species belongs to an endemic New Zealand moth family and is localised in its distribution.

- ❖ The community appears to be very little damaged by introduced animals. Possums have been much reduced in numbers in recent years (John Toomey pers. comm.)

Impressive cliffs further inland support large areas of broadleaf forest with shrubland of *Helichrysum lanceolatum*, *Corokia cotoneaster*, *Melicope simplex* and *Coprosma propinqua*. The localised liane *Scandia geniculata* together with *Parsonsia heterophylla* are draped over these shrubs. Yellow mistletoe *Ileostylus micranthus* grows on the *Coprosma* in places. Another mistletoe, the dwarf *Korthalsella lindsayi* is also present. Drier and more sparsely vegetated slopes to the east support more flax and *Hebe elliptica* with the exotic *Plantago coronopus* prominent. Other herbs of the turfs include *Suaeda novae-zelandiae*, *Samolus repens*, *Senecio carnosulus*, *Cotula dioica*, *Apium prostratum* and saltgrass *Puccinellia novae-zelandiae*.

Although this diverse community has survived 150 years of European settlement, we must not be complacent. Changes in land management could threaten these sites and greatly modify them in short time.

Inter-tussock species include:

<i>Acaena novae-zelandiae</i> ,	<i>Adiantum cunninghamii</i> ,
<i>Anaphalioides hookeri</i> ,	<i>Apium prostratum</i> ,
<i>Blechnum chambersii</i> ,	<i>Carex flagellifera</i> ,
<i>Corybas macranthus</i> ,	<i>Disphyma australe</i> ,
<i>Gingidia montana</i> (a form of)	<i>Haloragis erecta</i> ,
<i>Hierochloe redolens</i> ,	<i>Isolepis nodosa</i> ,
<i>Lagenifera pumila</i> ,	<i>Libertia ixioides</i> ,
<i>Linum monogynum</i> ,	<i>Phormium tenax</i> ,
<i>Pseudognaphalium luteoalbum</i> ,	<i>Puccinellia novae-zelandiae</i> ,
<i>Samolus repens</i> ,	<i>Sarcocornia quinqueflora</i> ,
<i>Senecio carnosulus</i> ,	<i>Tetragonia trigyna</i> ,
and <i>Phymatosorus diversifolius</i> ,	

Shrub and tree species include:

<i>Carmichaelia petriei</i> ,	<i>Coprosma crassifolia</i> ,
<i>Coprosma propinqua</i> ,	<i>Coprosma rubra</i> ,
<i>Cordyline australis</i> ,	<i>Corokia cotoneaster</i> ,
<i>Hebe elliptica</i> ,	<i>Helichrysum lanceolatum</i> ,
<i>Melicytus crassifolius</i> ,	<i>Melicytus ramiflorus</i> ,
<i>Muehlenbeckia australis</i> ,	<i>Myrsine australis</i> ,
<i>Myrsine divaricatus</i> ,	<i>Pimelea urvilleana</i> ,

And a low *Pittosporum colensoi*,
Griselinia littoralis, *Olearia avicenniifolia* and
Myoporum laetum were present both on the slopes and in adjacent
pasture areas.

Reference:

Peat, N. & Patrick, B.H. 1985 Wild Dunedin. University of Otago Press. 144pp.

Notes from the Otago Herbarium (OTA)

The OTA herbarium is currently one of the more active New Zealand's University based Herbaria and last year processed 2703 accessions. This included 1676 mosses and liverworts (mostly old specimens that hadn't been numbered), 890 lichens, 130 angiosperms (mostly Australian species in New Zealand genera), 5 algae, and 2 gymnosperms.

At present the Herbarium curators are Jennifer Bannister and Janice Lord. "*Friends of the OTA*" has been established to allow interested botanists not associated with the Botany Department greater involvement with the herbarium on a voluntary basis. At present there are 12 members of "*Friends of the OTA*" and Professor G.T.S. Baylis is the patron.

Current active research projects using the Herbarium include work on the New Zealand lichen flora by David Galloway, Jennifer Bannister and Alison Knight; the New Zealand bryophyte flora by Ray Tangney; the taxonomy of *Pachymenia* (Rhodophyta), Lisa Russell; and evolution in *Coprosma*, Adrienne Markey.

Book Review: *The Nature Guide to New Zealand Native Orchids.*

By Alison Knight

One of the nicest presents I got this Christmas was Ian St George's *The Nature Guide to New Zealand Native Orchids*, a Godwit book published by Random House, New Zealand in 1999. It is a slim, easy to read volume, giving descriptions of over 100 native orchids and well illustrated throughout with numerous colour photos. Clear distribution maps and a table of flowering times add to the ease of reference.

Ian St George lived in Otago until recently, so there is a special bias towards this area. His list of orchids is a personal update of the last 'official' taxonomic list in 1970 in the *Flora of New Zealand II*. Perhaps he is a little too keen on splitting hairs with new tag names. I would have trouble distinguishing the *Corybas* 'Trotters' that I saw flowering in Trotters Gorge in early October from the *C. macrathus* we found on the cliffs at Cornish Head on our December field trip. But the field is still in a state of flux. Gael Donaghy informs me that the new *Pterostylis* orchid in her photo on page 124 has now been identified as *P. alveata*.

As well as being a useful reference field guide the book is full of interesting quotes and snippets of background ecological and historical information, including a fascinating explanation by GM Thomson on why spiders frequent spider orchids so much, and a thoughtful section on mycorrhizal fungal associations.

Members can order the book at a reduced rate through the Wellington Botanical Society, via Alison Knight, for \$31 which includes post and packing. However we need to order at least 5 to receive them at that price.

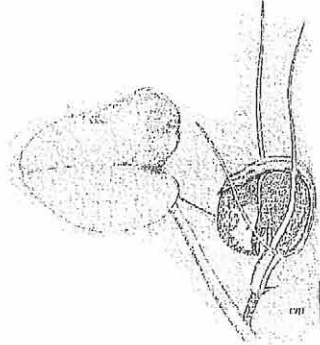
December's Plant Profile: a spider orchid - *Corybas macranthus* (Hook. f.) Reichb. f.

By Alison Knight.

Plant of the month for December 1999 has to be the very large and lush spider orchid that we found flowering halfway down the cliff right above the beach on the field trip to Cornish Head. I packed a flower in damp moss and sent it to Gael Donaghy in Nelson, and she confirmed our identification of *Corybas macranthus*.

"*Corybas macranthus* is the largest of the genus in New Zealand, liking well-lit sites, often under scrub, and forming large, loose colonies of many plants.

The stalked, green leaf is thick and fleshy, silver-backed, often bearing brownish markings along the edge; the petals are shorter than the sepals (both are much elongated), the labellum dark reddish black, the whole flower 1.5 cm across. ... It is common in New Zealand and flowers from October to January; it is predominantly insect-pollinated." Ian St George, 1999: *The Nature Guide to New Zealand Native Orchids*. (p69).



Picture from St George *et al.* (1996): *Field Guide to the New Zealand orchids*. The New Zealand Native Orchid Group, Wellington. p42.

Profile of a Botanist: John Scott Thompson and Thompson's Lichen Collection in OTA.

By Jennifer Banister

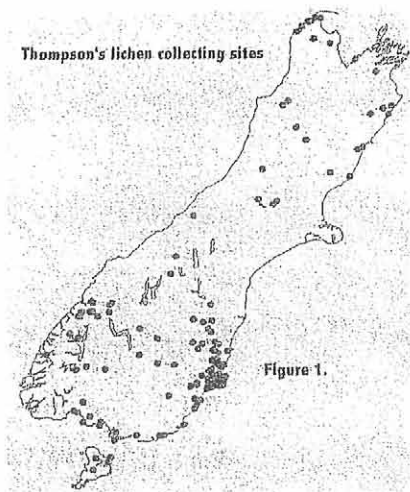
John Scott Thomson was born in Dunedin in 1882. His father, Alexander Thomson, had started a mineral water and soft drinks manufacturing business using water from mineral springs he had bought at Wairongoa outside Dunedin. The family home was Ferntree House, which Alexander had renovated and extended. John, known usually as Jack and sometimes as Scott, trained as an industrial chemist and worked in the family business all his life eventually becoming managing director. He was a keen botanist and gardener and became honorary botanist to Otago Museum. Other interests included mountaineering and photography.

Jack became good friends with George Simpson, who shared his botanical interests, and they made many tramping and botanical expeditions together. By 1925 they were collaborating with Leonard Cockayne, who named the two friends 'The Firm', and H. H. Allan, Director of Botany at the Department of Scientific and Industrial Research. In 1927 the Swedish botanist, Einar Du Rietz and his wife Greta, visited Dunedin and identified some lichens for Jack from Bethunes Gully and the Silver Peaks Forest where 'The Firm' had been investigating the occurrence of silver beech in the Dunedin area. Their visit started Jack's interest in lichens. H.H. Allan was already collecting lichens in the North Island and he suggested to Jack that he should collect lichens in the South Island to form a representative collection of lichens for the DSIR. However Jack retained his interest in flowering plants and continued writing on botany for the rest of his life. In 1936, Jack and George Simpson won the Loder Cup for their botanical work in the South Island.

In April 1933 he started the lichen collection that, by 1941, would reach over three thousand specimens. Two thirds of the lichens were collected between 1933 and 1935. In 1933 alone he collected

1380 lichens, collecting on 57 days. Many lichens were collected in the wider Dunedin area from Mount Watkin, Lee stream, Waikouaiti, Akatore, Trotters Gorge, Wairongoa; some from trips into Southland, Bluff, Riverton Bush, Pahia Point. He also collected from further afield on annual summer trips with George Simpson, these often involved strenuous tramping and mountaineering. In 1934 they visited Mt Tapuaenuku, the Chalk Range and Keckerengu Valley in Marlborough and he collected 50 lichens. In 1935 he collected 60 lichens when they travelled to Takaka Hills, Wakapuaka, Westhaven (Whanganui Harbour) and Lead Hills in Nelson and Tasman. The February 1936 expedition visited the Kelly Range, Hurunui, Maruia Saddle, Lewis Pass, Mt Trovatore and Alocs Knob in Canterbury and Westland and 70 lichens were collected. In 1937 they visited Pakawau, Mangarakau, Patarau Gorge, Te Rata, Big River, Kahurangi and the Ure (Waima) River in Tasman and Marlborough, 100 lichens were added to the collection. One of his last trips in March 1941 was to Stewart Island where he collected 150 lichens from Herekopere, The Neck, Freshwater Valley and Table Hill. In all he collected lichens from approximately 145 sites in the South Island (see fig 1).

In the words of William Martin:
"No attempt was made in any area to make a comprehensive collection of all species present, this being impossible in the short time usually available; nevertheless no other collection, other possibly than that made in 1926 by Dr and Mrs E Du Rietz, has been made on so extensive a scale (by any single individual) and, though determinations were not as a rule made by him, his work greatly enlarged our knowledge of the lichen flora."



Jack noted details of the collections in his logbooks, each lichen was given a number and placed in a tobacco tin along with a small scrap of paper with the number, locality and the name of the plant it was growing on, or the type of rock, written in pencil. Part of each specimen collected was sent to Allan who identified them or sent them overseas for expert determination. Many specimens were sent to Zahlbruckner in Vienna who published the results in 'Lichenes Novae-Zelandiae' in 1941. Zahlbruckner added 93 new taxa from the South Island and practically all these lichens were collected by Jack. About 33 packets of type material have been found so far in the OTA collection and there are probably more to be found. The lichens sent to H.H. Allan are in the Landcare Herbarium at Lincoln, CHR.

He died in 1943 and 28 wooden cases containing his lichen collection were sent to a storeroom at the Thomson factory. In 1952 William Martin discovered the lichens in excellent condition. It was decided that the best way of caring for the collection was for it to be gifted to Otago University. James Murray, a lecturer in Chemistry, who was working on New Zealand lichens, stored the crates in the Chemistry Department. When Murray was tragically killed in a car accident in 1961, the crates were moved to the Botany Department for safekeeping. Between 1963 and 1970 nearly a thousand specimens were transferred to numbered Herbarium packets but only some were identified at that time. The remaining tobacco tins, about two thousand, remained in the department until 1996 when a National Heritage Lottery grant was obtained to curate, identify and make a database of the whole collection. At this stage the crates were breaking up, the tobacco tins covered in the grime of years with spiders webs and even the odd rat dropping so that the tins had to be cleaned before their contents could be removed. Each lichen was placed in a cellophane bag for protection and then the cellophane bag was placed in a herbarium packet with Jack's label. These packets were boxed and the long process of

incorporating them into the herbarium collection started. This project is still under way.

Jack's own accession numbers reach 3145, about 30 numbered specimens were discarded by him and some specimens have been lost during the years of storage, but there are probably 2800 packets of Jack's lichen collection in the herbarium. This collection has made a very important and significant contribution to our knowledge of South Island lichens and their distribution.

Sources:

NZJB Newsletter Biographical Notes 23, by E.J.Godley.

John Scott Thomson FLS, FCS, Hon. FRNZIH (1882-1943)

J. Scott-Thomson's Contribution to NZ Lichenology. An Appreciation, by William Martin. (Unpublished)

Information from David Galloway.

Calendar review:

By John Steel.

Something a little different possibly, has been the release of a 2000 calendar by Judith Curnow and Heino Leps featuring Australian Cryptogams photographed by Heino. The twelve A4 sized photographs comprise a selection of fungi, mosses, liverworts and hornworts, with numerous small photographs interspersed among the calendar pages. Most of the species portrayed occur also in New Zealand. As one would expect from Heino, the quality of the photographs is excellent and each is accompanied by an unobtrusive but informative text. For those struggling to get started with these often difficult groups, the calendar provides a pleasant addition of reference material ... and of course, one could always use it for its other purpose. The calendar costs \$NZ15 and can be obtained by contacting Judith at Judith.Curnow@ea.gov.au who will advise on how payment can be made in New Zealand to avoid exchange costs.

***Peraxilla tetrapetala* (Pikirangi, red beech mistletoe): January's Plant Profile.**

By Professor Peter Bannister

To me the presence of red flowers in our native bush is one of the signs of the holiday season. In the South Island, although these are often rata flowers they may also be mistletoe flowers - particularly in beech forest. There are three beech mistletoes to be found in the Otago Region, the red-flowered *Peraxilla tetrapetala* and *P. colensoi* and the yellow-flowered *Alepis flavida* (all three were formerly considered to be species of *Elytranthe*). *P. tetrapetala* is probably the least common of the three in eastern parts of Otago but is more frequent in western Otago and the Queenstown Lakes District. It is relatively common around Lake Hawea (where there has been a monitoring programme in the Dingle Valley) and has been recorded in the Dart Valley and Eyre Mountains. Nearer to Dunedin, there are records from Waipori and Herbert Forest and Tapanui (Black Gully).

It is not easy to separate the various mistletoes from each other by vegetative characters. Although *Alepis flavida* (yellow mistletoe) tends to colonise the outer canopy of its hosts, the *Peraxilla* spp. tend to colonise the inner canopy and even the trunk. However, all three species produce haustorial runners or "roots" which tend to grow distally from the point of infection and thus provide a means of colonising the inner branches and trunk. Infections of both *P. tetrapetala* and *P. colensoi* can produce large bushes (2-3 m across) whereas those of *A. flavida* are smaller (up to 1m) and more lax. *P. tetrapetala* often has the most compact growth form of the three beech mistletoes and is the one most likely to be found on trunks.

In terms of leaf characteristics *P. tetrapetala* may be seen as intermediate between *P. colensoi* and *Alepis flavida*. Mature leaves of *P. colensoi* are relatively large (4 -7 cm) often a dark, almost blackish, green and broadly oblong to almost orbicular,

whereas leaves of *Alepis flavida* are usually smaller (2-6 cm long), linear oblong, often a much lighter yellowish-green. Leaves of *P. tetrapetala* tend to be smaller still (1-3 cm), and shortly ovate, oblong and often a lighter green (like *A. flavida*) but can be dark green and larger in shaded plants.

When flowering, the red-flowered *Peraxilla* spp. are readily separated from *A. flavida* (although yellow-flowered specimens of *P. colensoi* do occur). Typically, *P. tetrapetala* has fewer (1-3) flowers per cluster than *P. colensoi* (3-10) and has flowers that tend to be orange rather than the scarlet of *P. colensoi*. The flowers of both *Peraxilla* spp. are bird-pollinated and open by an explosive mechanism, which is triggered by native birds (Tui and Bellbird).

Very little work has been done on the physiology of the beech mistletoes. Graham Strong and I have looked (briefly) at carbon discrimination and electron transport rates in *P. tetrapetala* and the other beech mistletoes.

All three beech mistletoes are considered to be in decline. Possum browsing is usually cited as the main cause (in the Dingle Valley Survey the only plants of *P. tetrapetala* that flowered were on trees collared against possums) but absence of suitable bird species as pollinators and dispersers of fruit could also be important. The impact of environmental factors such as the recent droughts in Otago may also accelerate their decline, as mistletoes have to extract water from their hosts and could suffer when water is in short supply.

The status of mistletoes is always precarious, as they have not only to survive the rigours of existing on their hosts but their host must also survive. Their conservation therefore involves protecting both host and mistletoe. In Otago we are privileged to have seven species of mistletoe (Europe has only two!). Long may it remain so!

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".

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For information on activities:

The trip leader

or Barbara Anderson (contact above),

or see our webpage: <http://www.botany.otago.ac.nz/bs>

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