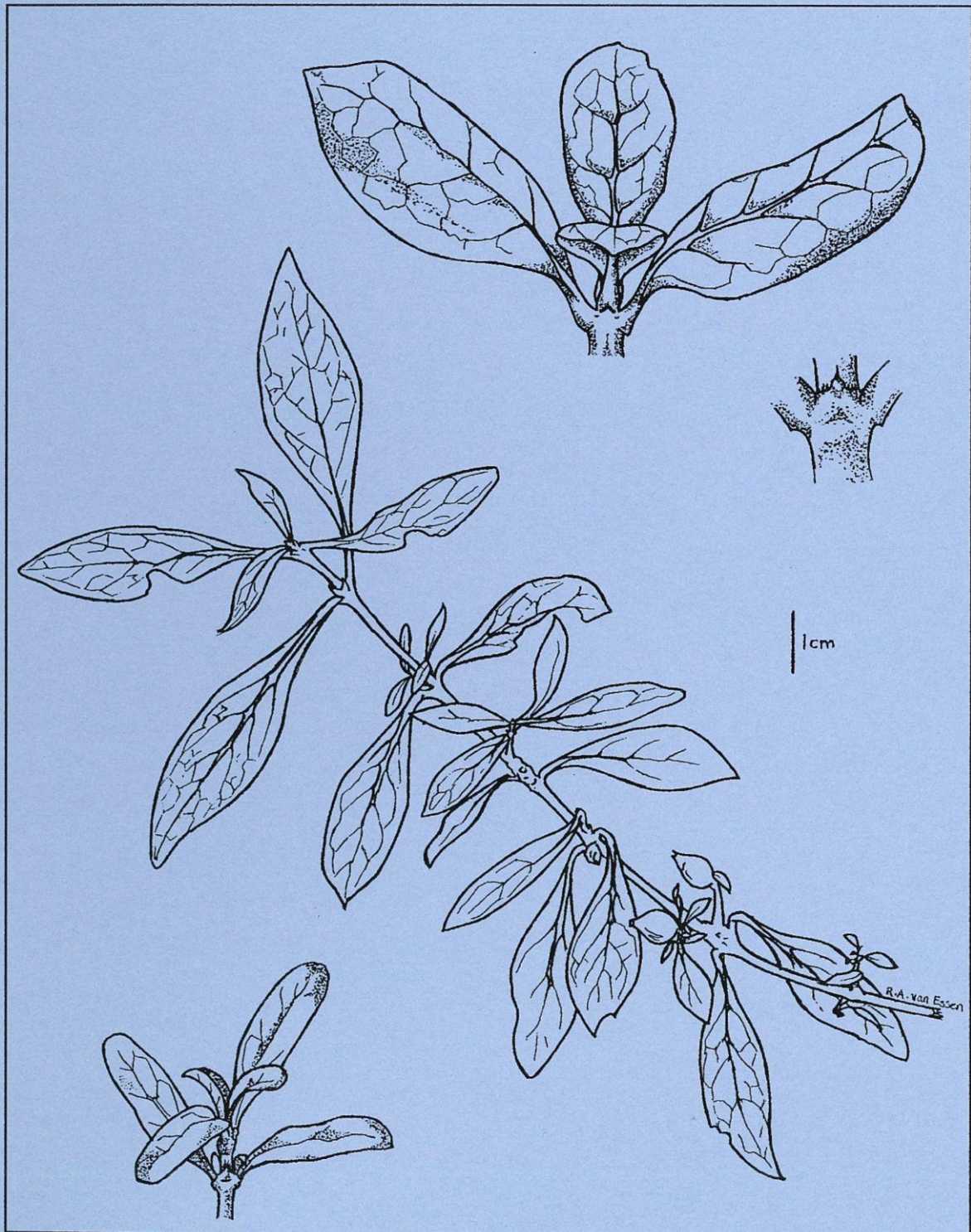


NEW ZEALAND BOTANICAL SOCIETY  
**NEWSLETTER**

NUMBER 77

SEPTEMBER 2004



## New Zealand Botanical Society

President:	Anthony Wright
Secretary/Treasurer:	Aaron Wilton
Committee:	Bruce Clarkson, Colin Webb, Carol West

Address:	c/- Canterbury Museum Rolleston Avenue CHRISTCHURCH 8001
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### Subscriptions

The 2004 ordinary and institutional subscriptions are \$25 (reduced to \$18 if paid by the due date on the subscription invoice). The 2004 student subscription, available to full-time students, is \$9 (reduced to \$7 if paid by the due date on the subscription invoice).

Back issues of the *Newsletter* are available at \$2.50 each from Number 1 (August 1985) to Number 46 (December 1996), \$3.00 each from Number 47 (March 1997) to Number 50 (December 1997), and \$3.75 each from Number 51 (March 1998) onwards. Since 1986 the *Newsletter* has appeared quarterly in March, June, September and December.

New subscriptions are always welcome and these, together with back issue orders, should be sent to the Secretary/Treasurer (address above).

Subscriptions are due by 28<sup>th</sup> February each year for that calendar year. Existing subscribers are sent an invoice with the December *Newsletter* for the next years subscription which offers a reduction if this is paid by the due date. If you are in arrears with your subscription a reminder notice comes attached to each issue of the *Newsletter*.

### Deadline for next issue

The deadline for the September 2004 issue (78) is 25 November 2004.

Please post contributions to:	Joy Talbot 17 Ford Road Christchurch 8002
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Send email contributions to [joytalbot@free.net.nz](mailto:joytalbot@free.net.nz) or [talbotj@cpit.ac.nz](mailto:talbotj@cpit.ac.nz). Files are preferably in MS Word (Word XP or earlier) or saved as RTF or ASCII. Graphics can be sent as Corel 5, TIF JPG, or BMP files. Alternatively photos or line drawings can be posted and will be returned if required. Drawings and photos make an article more readable so please include them if possible. Macintosh files cannot be accepted so text should simply be embedded in the email message.

### Cover Illustration

Top: *Coprosma repens*; Middle: *C. robusta* x *C. propinqua* (*C. x cunninghamii*); Bottom: *C. repens* x *C. sp.* Drawing by **Rosemary van Essen**. See article page 10 on the McEwan *Coprosma* Collection housed at MPN.

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## NEWS

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### New Zealand Botanical Society News

#### ○ From the Secretary

##### **Call for Nominations**

Nominations are called for the following positions of Officers and Committee of the New Zealand Botanical Society for 2005:

- President
- Secretary/Treasurer
- 3 Committee Members

Nominations for all positions opened 1 September 2004 and close on 19 November 2004. Nominations shall be made in writing to the Secretary, C/- Canterbury Museum, Rolleston Avenue, Christchurch 8001, and shall be signed by the Proposer, the Seconder, and by the Nominee to indicate their acceptance of nomination. If necessary, ballot papers for a postal election will be circulated with your December *Newsletter*.

Interest is also called for the ex-officio position of *Newsletter* Editor. An essential means of communication for our society, this voluntary position would ideally suit a person who is accurate in their work, has a keen interest in botany and has the time to put together four newsletters a year. Support will be given initially. Please contact the Secretary if interested.

##### **Allan Mere Award 2004**

The NZBS Committee is pleased to announce the award of the Allan Mere for 2004 to Dr Ian Atkinson of Upper Hutt.

Ian was nominated for the award by the Wellington and Otago Botanical Societies. The following are extracts from the letters and CV received with his nomination.

"Ian Atkinson has worked as a scientist since 1958, mostly with the NZ Department of Scientific and Industrial Research, briefly with Landcare Research, and self-employed with Ecological Research Associates of NZ since 1994. His scientific output includes authorship or co-authorship of 101 scientific papers. He is currently working on successional changes affecting the vegetation of Northland, Auckland and Coromandel coastlines. He is also working with John Campbell on the effect that rats have had on native forests by eating seed or seedlings of vulnerable tree species.

Ian chaired the Scientific Advisory Committee of WWF-NZ from 1993 to 95. He is a Life Member of both WWF and the NZ Ecological Society (President: 1986-87). He was a member of the Wellington National Parks and Reserves Board from 1981 to 1990 and a member of the Chatham Island Conservation Board from 1990 to 1999. He was a NZ Commemoration Medallist in 1990, received the Charles Fleming Award for Environmental Achievement in 1992 and was a recipient of a 'Biodiversity Accolade' in 2000."

"Ian was the originator, in 1989, of Wellington Botanical Society's commitment to the restoration of Te Marua Bush, Upper Hutt. This is a regionally significant matai/totara/black maire remnant which was infested with large sycamore trees, and a suite of other weed species. Since the removal of most of these, and the replanting of appropriate, locally-sourced native species on the margins, this 0.6 ha remnant is recovering well. Ian continues to assist with workbees and with advice on management."

"Ian's major research interests have centered on... (i) improving the effectiveness of conservation on the country's offshore islands... (ii) developing repeatable methods of mapping native vegetation as a means of identifying future change... (iii) the historical and current effects of introduced rats on the fauna and flora of New Zealand... (iv) the potential restoration of native plant-animal communities to provide viable systems in which native species can survive in the long term."

"In addition to his professional work, Ian has willingly and freely shared his expertise with interested groups, such as botanical societies."



The award for the Allan Mere will take place at the September meeting of the Wellington Botanical Society, **Monday 20<sup>th</sup> September, 7:30pm, Victoria University, Wellington, Lecturer Theatre M101**, ground floor Murphy Building, west side of Kelburn Parade.

Aaron Wilton, [wiltona@landcare.cri.nz](mailto:wiltona@landcare.cri.nz)

## Regional Botanical Society News

### ○ Auckland Botanical Society

#### June Meeting

Barbara Parris gave a talk on those pesky Grammitis ferns, where they grow in New Zealand, and how to identify them. Barbara was formerly Head of the Pteridophyte Section of the Royal Botanic Gardens, Kew, and now runs the Fern Research Foundation.

#### June Trip

Hinton's Bush, an area of privately owned forest at Hatfields Beach, is in the path of the proposed motorway. This visit showed that the ridges support fine stands of kauri and associates. A hybrid pohutukawa/rata caused much discussion. The remnant hard beech, which had been seen on a previous visit, was not found.

#### July Meeting

To a big audience at the Museum, Associate Professor Dave Kelly of the University of Canterbury delivered the 2004 Leonard Cockayne Memorial Lecture on the subject of mast flowering and seeding. The southern snow tussock, *Chionochloa pallens*, was highlighted as a species which dramatically flowers in unison every few years. He also mentioned the database of flowering and seeding records of mountain beech in the Craigieburn Range, Canterbury, maintained since 1965.

#### July Workshop

A large group turned up at the Unitech School of Natural Sciences to learn more about flowering plant families. Provision of a well-illustrated booklet, plenty of live material, a number of microscopes, and knowledgeable instructors, made for an interesting and informative day.

#### August Meeting

At a special general meeting Maureen Young was made an Honorary Life Member of the Auckland Botanical Society. Dr Steve Wagstaff from Landcare Research, Lincoln, then spoke on the biology and evolutionary history of the Stylidiaceae.

#### August Trip

McElroys Reserve, on the lower reaches of the Mahurangi River, is beginning to show signs of recovery from goat browsing. Ground orchids were prolific on the kauri ridges, and *Grammitis rawlingsii* was growing robustly on rotten mossy logs. Two small trees of toatoa were seen.

### FORTHCOMING ACTIVITIES

1 September	Student lectures (beneficiaries of the Lucy Cranwell Fund)
18 September	Craigs Bush, Pollock, Awhitu Peninsula
6 October	Bill Sykes – Lucy Cranwell Lecture
16/17 October	Weekend trip to Te Aroha
3 November	Keith Thompson – "Wetlands"
20 November	Hubbards Bush, Tawharanui

**Maureen Young**, 36 Alnwick Street, Warkworth. Email: [youngmaureen@xtra.co.nz](mailto:youngmaureen@xtra.co.nz)

### ○ Rotorua Botanical Society

It has been a while since the Rotorua Botanical Society (RBS) has provided an update of activities for this newsletter. However, the society is going well with a wide range of activities occurring throughout the year. The *Rotorua Botanical Society Newsletter* is currently being published twice annually and

includes a number of species lists from places in the region we cover, trip reports and articles of general botanical interest. RBS, with the help of the Department of Conservation, is undertaking a project to enhance the future of a population of mistletoe (*Tupeia antarctica* and *Ileostylus micranthus*) near Lake Okareka. Paul Cashmore and John Hobbs have been instrumental in organising this project.

We have had two talks in the last few months and both were excellent. Colin Ogle spoke at our AGM on "The impacts of weeds on sand dune country in the Manawatu dune systems". We also joined with the Royal Society of New Zealand (a Leonard Cockayne Memorial Lecture) for a talk by Dave Kelly.

On the same day as our AGM we had a workshop on grasses organised by Chris Ecroyd and assisted by Graeme Jane and Colin Ogle.

Recent trips have included the following:

Lake Rotomahana (30 May). A boat trip around Lake Rotomahana - the highlight of this trip was the geothermal cliff vegetation which included the following species; a large population of *Christella* sp. 'thermal', and also *Dicanopteris linearis*, *Nephrolepis* sp. 'thermal', *Cheilanthes sieberi*, and *Psilotum nudum*

Utuhina Stream and Falls, near Mamaku (1 August). A well attended trip for conservation week. Nice example of tawa dominated forest in a gully surrounded by largely exotic pine plantations. A good range of fern species were present.

Mauao or Mount Maunganui (8 August). A combined RBS and Waikato Botanical Society Conservation Week field trip held in wintery conditions. One plant of *Pimelea tomentosa* – a rare native daphne was found near the summit – this was a new record for Mauao and the Tauranga Ecological District.

#### FORTHCOMING ACTIVITIES

5 September	Aongatete Loop Track, Kaimai-Mamaku Forest Park
18 September	Okareka Mistletoe Restoration Project - host planting day
3 October	Fort Galatea Wetland, near Murupara
7 November	Thornton Kanuka/Rangitaiki Plains Wetlands
20 November	Okareka Mistletoe Restoration Project – weed control/plant releasing workday
5 December	Sanatorium Hill field trip and picnic with Waikato Botanical Society

#### Contacts:

c/- The Herbarium, Forest Research, Private Bag 3020, Rotorua

**President:** Chris Bycroft (07) 346-3647 [chris@wildlands.co.nz](mailto:chris@wildlands.co.nz)

**Secretary:** Joan Fitzgerald (07) 347 7917

#### ○ **Nelson Botanical Society**

##### May 16, Hori Bay

Our keen group of 18 assembled at the road end at Hori Bay on a clear fine day. Exploring the shoreline we found *Calystegia soldanella*, *Carex pumila*, *Lobelia anceps*, and the attractive native blue grass *Elymus sacandros* with its distinctive seed heads. The cliffs revealed *Linum monogynum*, *Peperomia urvilleana*, and *Einadia triandra*. We then left the beach and climbed the hill on the south side of the bay, through grassy areas with scattered scrub. We found the similar-looking *Coprosma lucida* and *C. robusta*, and also *Melicytus crassifolius*. Various ferns were found in the shady spots, and it was interesting to see the attractive ferns *Asplenium polyodon* and *A. oblongifolium* growing side by side. Lunch was eaten on a sunny face with a superb view north to D'Urville Island. A thick carpet of slender rice grass (*Microlaena stipoides*) provided comfortable seating. After lunch, a special find was the soft herb *Parietaria debilis*, a member of the nettle family. The track then entered a low forest of kanuka with a rich understorey of shrubs and trees. Kawakawa (*Macropiper excelsum*) was common and looked especially healthy, without the usual insect damage so typical of that species. The orchids *Pterostylis alobula* and *Acianthus sinclairii* were in flower. In places the track margins were carpeted with both species. Looping back down through a damp valley toward the road, we

found the trees taller and denser with less ground cover, but we did find a few juvenile nikau (*Rhopalostylis sapida*). Our last find was a large totara growing in a side gully. Trevor Lewis

#### June 20, Faulkner's Bush, Baigent's Bush, and Snowden's Bush.

In spite of the flooding caused by recent rain, nine people turned up to enjoy these mixed podocarp/beech lowland forest remnants. The Wakefield Bush Restoration Society members have been working in Faulkner's Bush for 5 years - hand weeding, track building, board walk construction and planting. Meeting at the playground we could see the native mistletoe *Peraxilla colensoi* in *Nothofagus solandri*. The main glory of this reserve is two stands of kahikatea, *Dacrycarpus dacrydioides*. Since 1990 extensive planting has been done by the local school and the community. Species planted include *Hoheria sexstylosa*, *Agathis australis*, *Sophora tetraptera*, *Pittosporum eugenioides*, and *P. tenuifolium*. Plants of these last two species are gigantic. Turning and following along the stream bank we noticed earthstars *Geastrum* sp. Along the boardwalk which meanders through the second kahikatea grove, we could well see the purpose of the buttresses of these tall trees standing knee deep (our knees) in water. Many ferns were noted – *Blechnum membranaceum*, *Hypolepis distans*, *H. ambigua* and *Blechnum discolor*. Shrubs included *Melicytus micranthus*, *Melicope simplex* and *Streblus heterophyllus*. After lunch we moved up to the middle area where small leaved shrubs were abundant. *Coprosma obconica* and *C. crassifolia* tested our powers of recognition. We were unable to find *Teucrium* sp or *Korthalsella* sp as noted on the species list.

With rain beginning five stayed to visit Edward Baigent bush reserve, which contains some very large *Prumnopitys taxifolia* and *Podocarpus totara*. Unfortunately *Vinca major* (periwinkle) and *Solanum pseudocapsicum* (Jerusalem cherry) are growing too well on the forest floor. Pamela Sirett.

#### July 18, Boulder Bank

Nine of us had a pleasant ramble on the Boulder Bank finding most of the expected species for the habitat. A lack of flowers made it more difficult for us to identify species; especially *Mimulus repens* which turned up unexpectedly amongst a sample of horse's mane (*Ruppia polycarpa*). *Melicytus* "Waipapa" with its toothed leaves that are thinner than *M. crassifolius*, and a *Polystichum* of 'yet to be determined' name, were probably the most interesting species found. Gay Mitchell

#### Hunza Wildflowers Tour, Pakistan

On 19th June a select group of five including three Nelson Botanical Society members left for a 20 day alpine plant tour to northern Pakistan. Tour leader was Cathy Jones, a DOC botanist and president of Nelson Botanical Society. The other two in the party were members of Auckland Botanical Society. The tour was organised by Silk Road Adventures.

The botanical part of our adventure began in the Naltar Valley near Gilgit in the Indus Gorge where we camped for three nights. Botanical highlights included the spectacular blue *Geranium pratense*, a lovely orchid and several species of forget-me-not. After refreshing ourselves in a hotel and staying with locals in a village for one night (and studying the plants along their irrigation channels), we camped for again, for two nights, in the Hunza Valley at Madurkushi. At about 3700 m, this site was reached by jeep then on foot, with donkeys to carry our gear over the final stage. We were right on a glacial moraine opposite a glacier icefall, with a backdrop of more spectacular mountains. Fantastic! Many more plants in flower were found as we climbed further up the next day, including a tiny blue gentian, and some of our common garden species such as *Aquilegia*, *Potentilla*, *Primula* and rhubarb. The best photo shots were lower down in the vicinity of camp, while higher up, around 4200 m and nearer the snow line, flowering had not yet started.

Although camping was over, the adventures hadn't ended, as our itinerary then took us on an exciting day trip to the Khunjerab Pass on the Chinese border at 4900 m, where we saw primulas and cresses as well as several golden marmots. Then back for a night at the border outpost of Sost where we were invited to another local home for afternoon tea and a tour of the village with its terraced fields. After that it was all downhill; some final souvenir shopping, more sightseeing then the long flight home.

Summing up, it was a wonderful adventure. Friendly people, spectacular scenery, lots of wildflowers, and we were very well looked after, especially by our Pakistani guide. Camping organization was excellent, and hotel accommodation good. If you get the chance, do it! Trevor Lewis

## FUTURE TRIPS

September 19 Maitai Doubles, leader Tim McArthur, 548 6437  
October 17 Sherry River area to see *Olearia polita*, leader Shannel Courtney, 546 9922  
Labour weekend camp, October 22 – 25 St Arnaud, leader Liselotte Seckler, 545 1413  
November 21 Coppermine Saddle, leader Rebecca Bowater, 545 1260

## Contacts:

**President: Cathy Jones** (03) 546 9499 Flat 2, 5 North Rd, Nelson. [cjones@doc.govt.nz](mailto:cjones@doc.govt.nz)  
**Treasurer: Gay Mitchell** (03) 548 3351 13 Albert Rd, Nelson

## ○ **Canterbury Botanical Society**

### 12 June, Annual General Meeting

We had an enjoyable AGM, a talk from David Given, the curator of the Christchurch Botanic Gardens and sumptuous potluck luncheon as our mid-winter meeting. David spoke of the roles of Botanic Gardens worldwide. There is no universally accepted definition of a botanic garden, but bringing people into gardens by specific displays, modern design so that people and nature can interact, and good use of colour is important. Icon plant collections are also important. Durban, for example, is known for its cycad collection and Singapore for its orchids. In Frankfurt, the Botanic Gardens has an excellent collection of NZ and Chatham Is plants. Conservation is especially important for modern botanic gardens and should be an important role – both in terms of collections and education – for Christchurch. Christchurch and Dunedin are the oldest Botanic Gardens in Australasia with Dunedin being just 6 weeks older. They will be 150 years old in 2013. By then, Christchurch Botanic Gardens aims to become one of the top 25 Botanic Gardens worldwide.

Margaret Geerkens

### July Meeting

Sarah Richardson spoke on her study of 120,000 years of ecosystem development at Franz Josef. Soil age sequences (chronosequences) from a series of moraines provided a unique opportunity to examine how ecosystems develop through time. Soil phosphorus concentrations were moderately high on new moraines, but declined 8-fold over the 120,000 year sequence. Soil nitrogen was initially very low on the youngest moraine but rapidly increased to a short-lived peak once N-fixing species such as *Coriaria arborea* established. There were strong shifts in vegetation composition along the chronosequence, while in terms of vegetation function, there was strong evidence that as soils become older and less fertile, plants recycle more of their leaf nutrients before leaf fall. From a global perspective, the levels of recycling were extremely high on old moraines near Okarito, suggesting that these old, highly-weathered soils are extremely infertile. Finally, there was evidence from leaf and litter nutrient concentrations that tree ferns can obtain large amounts of nutrients that are not available to either angiosperms (flowering plants) or conifers: the mechanisms by which tree ferns obtain these nutrients are not known but might include unusual mycorrhizal symbioses, or uptake through their caudices.

### July Field Trip

Seventeen members attended Max's walk at the Botanic Gardens. He showed us many Botanical curiosities, ranging from bark types to the unusual growth habits of some trees such as the Wych Elm or the Scotch Elm, *Ulmus glabra*, with its rough warty outgrowths and a tendency to sprout from epicormic shoots. Of interest were the large burrs on *Betula pendula* and *Eucalyptus viminalis*. Max had a list of twenty or so curiosities with which to hold our interest.

Neil O'Brien

### August Meeting

Roger Keey gave a most interesting talk on the botany and animal life of Campbell and Enderby subantarctic islands. It was excellent to see his good photographs, of megaherbs in full bloom, and to share with him the history, landscape formations and marine views of places that most of us will surely never visit.

### Planting of *Olearia Adenocarpa*

On Tuesday 10 August, six Society members supervised by Peter Heenan (Landcare Research) and Philip Grove (Environment Canterbury) planted 120 saplings of this nationally critically-ranked *Olearia* species on ECAN land at McLeans Island over two swales inside a rabbit-fenced enclosure of about 20 ha. This recently described species, with a known population of approximately 650 plants, occurs in two areas on the braided riverbeds of Canterbury.



## FUTURE EVENTS

Friday 1 October Jenny Schneiderheinze, our research grant recipient this year will speak about her project. Following this, Trevor Partridge will describe the botany of Kaitorete Spit.  
Saturday 2 October Trip to Kaitorete Spit, Birdlings Flat, leader Trevor Partridge  
Friday 5 November the taxonomy of *Craspedia* (the woollyheads) - Kerry Ford  
Saturday 6 November a Queen Elizabeth II Covenant on Banks Peninsula  
Friday 3 December Grant Bawden on alpine plants, especially those of Mount Somers  
Friday 10 December - Monday 13 December Early summer camp based at Mount Somers  
Friday 28 January 2005 Show and Tell evening for members

**Secretary: Margaret Geerkens** (03) 352 7922 PO Box 8212, Riccarton, Christchurch.  
Email: [bert.marg@xtra.co.nz](mailto:bert.marg@xtra.co.nz)

## ○ Other Botanic Society Contacts

### Botanical Society of Otago

**Chairman: David Orlovich**, [david.orlovich@botany.otago.ac.nz](mailto:david.orlovich@botany.otago.ac.nz)

**Secretary: Robyn Bridges**, [robyn.bridges@stonebow.otago.ac.nz](mailto:robyn.bridges@stonebow.otago.ac.nz), ph 479 8244, P O Box 6214, Dunedin North

### Manawatu Botanical Society

**Jill Rapson** Ecology, Institute of Natural Resources, Massey University.

### Wakatipu Botanical Group

**Chairman: Neill Simpson** (03) 442 2035

**Secretary: Lyn Clendon** (03) 442 3153

### Waikato Botanical Society

**President: Joanna McQueen**: [jmcqueen@waikato.ac.nz](mailto:jmcqueen@waikato.ac.nz)

**Secretary: Liz Grove**: [egrove@doc.govt.nz](mailto:egrove@doc.govt.nz)

Waikato Botanical Society, C/O Biological Sciences, University of Waikato, Private Bag, 3105, Hamilton

### Wanganui Museum Botanical Group

**Chairman: Ian Bell** (06) 343 7686 115 Mt View Road, Wanganui

**Secretary: Robyn Ogle** (06) 347 8547 22 Forres Street, Wanganui

### Wellington Botanical Society

**President: Vicky Froude** (04) 233 9823 (home)

**Secretary: Barbara Clark** (04) 233 8202 (h); (04) 233 2222 (fax) P O Box 10 412, Wellington 6036.

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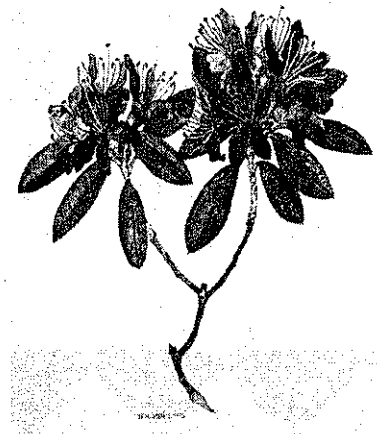
## WHATS ON

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### ○ The Botanical Drawings of Nancy Adams

Saturday 18 September 2004 - Sunday 7 November 2004, Visitor Lounge, Level 3, Canterbury Museum

This touring exhibition pays tribute to 78-year old Nancy Adams, one of New Zealand's foremost botanists and botanical illustrators. The beautiful exhibition features eye-catching watercolours and drawings created over a 50-year period. Never exhibited before this tour, the exhibition provides an opportunity to view the vivid coloration of Nancy's watercolours, the exquisite delicacy and subtlety of her drawing, and the original freshness of her work. The works are grouped by subject: native trees, alpine plants and seaweeds of New Zealand.



Rhododendron (Ericaceae)

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## Reports

### ○ 95th Birthday

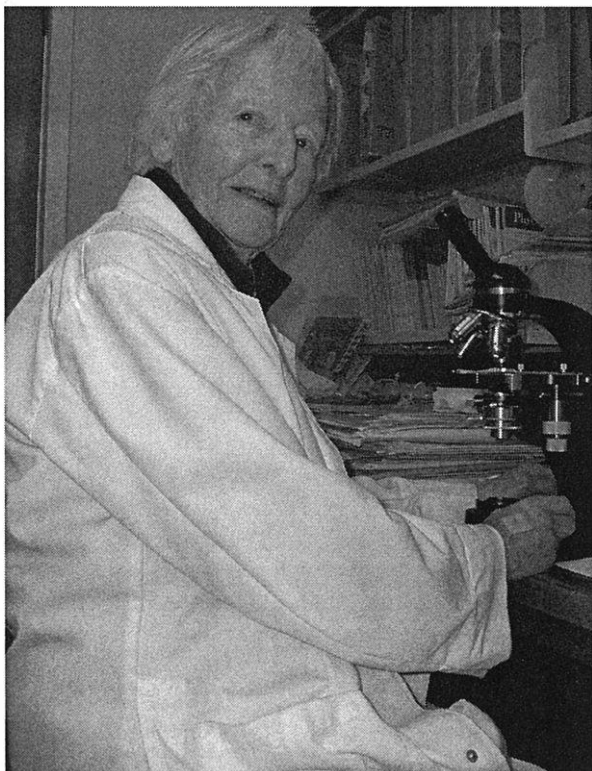
Dr Betty Flint turned 95 on 26 May 2004. About 50 Landcare Research staff, research associates and friends celebrated with Dr Betty at a vineyard lunch at Rossendale Restaurant. Murray Parsons gave the speech recounting Dr Betty's life and achievements.

#### Birthday another milestone in enduring career

*(Landcare Research's Media Release, written by Diana Leufkens)*

Landcare Research is preparing to celebrate an important birthday for a research associate who has been studying algae for more than 75 years – and is still passionate about her science. Dr Elizabeth (Betty) Flint is New Zealand's foremost researcher of desmids. These are tiny but spectacular single-celled freshwater algae, often resembling intricate chandeliers when viewed through a microscope. Dr Flint turns 95 on Wednesday, May 26.

Dr Flint still drives out to Landcare Research at Lincoln from Christchurch twice a week in her distinctive 1958 Ford Consul. She is currently writing a paper for the New Zealand Journal of Botany on desmids in four South Island tarns, in collaboration with British scientist David Williamson.



Dr Betty Flint at her microscope, in her office at Landcare Research Photo: Diana Leufkens

Dr Flint graduated with her MSc from the University of Canterbury (then Canterbury College) in 1931. She moved to the United Kingdom, and took up a position monitoring the problematic super-abundance of algae in London's metropolitan water supply, a job that often required rowing out onto reservoirs. During World War II, she worked for the RAF's Operational Research Section, compensating for lack of radar facilities by monitoring the positions of English planes. Highlights of her post-war career include assisting with commercial research on seaweed on the northern Scottish mainland and Outer Hebrides, and holding staff positions at Leeds and Hull universities.

After her return to New Zealand in the mid-1950s, Dr Flint worked for the Botany Division of the Department of Scientific and Industrial Research (DSIR). She was a co-author of three definitive volumes describing the desmid algae of New Zealand.

Dr Flint is still a passionate advocate for the importance of the study of algae (phycology). "Algae have long been a Cinderella subject, and we are now beginning to pay the price for ignoring their importance in the environment. We are now

realising the importance of what is happening to the algae in our lakes and other water bodies, and what it is telling us about the state of water quality."

Landcare Research phycologist (algal scientist) Dr Phil Novis is one of a small number of younger scientists researching algae. Dr Novis says Dr Flint has helped him a good deal.

"Betty's work is fundamental 'grass roots' taxonomy, describing the diversity of organisms in the environment.

"I showed my first manuscripts to her. She has a very critical eye, and is very rigorous and thorough,

with great expertise in traditional taxonomy.

"Betty is still describing new desmids, and I suspect there is still a huge diversity out there."

Dr Novis says as well as extending our understanding of the vast array of algal species, Dr Flint's work assists him in his own research. "Recently I needed to find a particular species of diatom, a single-celled alga with a silica cell wall. I found a reference to it in a 1946 paper of Betty's, and went back to the site she had sampled to collect it. For me to search throughout the South Island to get it would have been a project in itself."

Dr Novis reinforces Dr Flint's view that research on algae can provide an important perspective on water quality issues. "Algae are the base of the food chain in our waterways. Analysis of these aquatic communities can supplement standard water quality investigations and deepen our understanding of aquatic systems."



Phil Novis and Betty Flint. Photo: Diana Leufkens

#### Murray Parsons' speech at Dr Betty Flint's birthday celebration

A Very Happy Birthday Dr Betty.

I first met Dr Betty in 1966 when I had just finished my own Master's degree and I was visiting Christchurch.

Our friend Dr Betty Flint was born on 26 May 1909, in London. As mentioned in this morning's "Christchurch Press", she came to New Zealand when she was 12 in 1921. Betty's father, W.H.E. Flint, had been appointed the New Zealand manager of Thomas Borthwick and Sons, Ltd, and he became a prominent figure in the frozen meat exporting trade of New Zealand for more than 25 years. Later Betty's father, was chairman of the public company of Hay's Department store, which became Haywrights and is now Farmers, on Gloucester Street, Christchurch.

Betty went to St Margaret's College, and then Canterbury University College of the University of New Zealand. She graduated B.Sc. in 1935 and M.Sc. in 1936. Her Master's thesis was in Botany on the "Periodicity of Phytoplankton in Lake Sarah with consideration of some ecological factors" supervised by Professor Edward Percival. To further her studies on freshwater algae she returned to London to work under Professor F.E. Fritsch, at Queen Mary College. Professor Fritsch is the author of the wonderful two volume work "The Structure and Reproduction of the Algae". The distribution in time and space of algae in a London reservoir was the subject of her Ph.D. degree awarded in 1940.

From 1939 until 1942 Dr. Flint worked in the Laboratory of the Metropolitan Water Board where London's water supply is tested for bacterial, biological and chemical content. Between 1943 and the end of the Second World War she worked in Operational Research Section of the Ministry of Aircraft Production. Later she held lectureships in Botany at Victoria University College, in Wellington and in the Universities of Leeds and Hull, England.

Dr Flint returned to New Zealand in 1955 and joined a Department of Scientific and Industrial Research (DSIR) team investigating the fauna and flora of soils. She studied the algae (including those beautiful desmids) in lakes and ponds, all sorts of ponds: Oxidation ponds, farm ponds, thermal ponds and swimming pools and also the Waikato River. She looked at lakes rich in nutrients, especially phosphates, such as Lake Forsyth, Lake Hayes, Lake Horowhenua, where algae were so abundant that they become waterblooms. Blue-green algae are usually the culprits, they occur in summer and not only ruin a lake for all kinds of recreation but are poisonous and kill stock and dogs that drink the infected water.

There is a classic case-history of such a change in Horseshoe Lake, near Lewis Pass. When Betty first examined the algae there in 1964, innocuous desmids were characteristic. As pasture on the catchment area was improved, the algae in the lake changed and within 19 years waterblooms of potentially poisonous blue-green algae appeared. Similar changes in the catchment area of Lake Forsyth occurred between 1860 and 1907 when a waterbloom was first reported in this lake. Dr Betty's monitoring of places like Lake Forsyth will give a greater understanding of these pollution processes.

#### *The Desmid Flora of New Zealand*

Over the years Dr Flint sent New Zealand freshwater algae abroad for specialists to identify. Many samples of desmids went to Dr R. Grönblad in Finland. He planned to publish his results but died in 1962 while the work was in progress. Dr Betty asked Dr Hannah Croasdale, a distinguished desmidiologist of Dartmouth College, New Hampshire, USA, to finish off the manuscripts that Grönblad left. By 1979 Dr Croasdale was ready to publish and she invited Dr Flint to collaborate with her as co-author for the three volumes in *Flora of New Zealand Desmids*.

Dr Betty went to work with Professor Croasdale in USA for a few months each year from 1983-1989, and when Dr Croasdale became blind in 1987 Dr Betty finished off the third Volume. I won't go into the saga of funding for the Desmid volumes, for a long story it really is, suffice to say with the support of many people, particularly Dr Eric Godley and Dr Warwick Harris, these volumes reached the laboratory benches.

Do you remember, Dr Betty, during discussions with Dr Edgar and Dr Harris Warwick's opening gambit was "Time is not on your side"; the two authors were 78 and 74 years old at that time!

On 18 May 1987 Dr Flint moved from an office in Hereford Street, Christchurch to Lincoln, and was a Research Associate at Botany Division which has evolved in Landcare Research today.

I wish you all the best Betty for a wonderful day. And to paraphrase Shaun Plunket interviewing you on National Radio yesterday morning "May you and your 1958 Ford Consul have many miles to run".

**Ilse Breitwieser<sup>1</sup>, Diana Leufkens<sup>1</sup> and Murray J. Parsons<sup>2 1</sup>** Landcare Research, P.O. Box 69, Lincoln; <sup>2</sup> 242A Main Road, Moncks Bay, Christchurch 8008

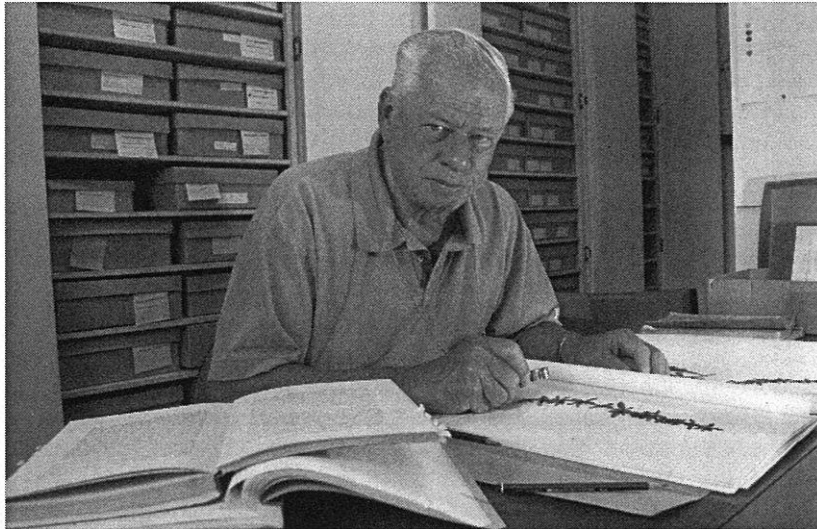
#### ○ **The McEwan Coprosma Collection housed at MPN**

**Gill Rapson**, Ecology, Institute of Natural Resources, Massey University.

The Dame Ella Campbell Herbarium at Massey University, Palmerston North, has been given a large number of *Coprosma* specimens collected over more than fifty years by the late John Martin McEwan.

Martin McEwan was a senior plant breeder with the Crop Research Division of DSIR, later Crop and Food CRI. In this role he was responsible for cereal breeding and at one stage nearly all the wheat grown in New Zealand were varieties that Martin had developed. This was well acknowledged in his obituary in the Dominion Post newspaper (Thursday, 12 February, 2004) which was titled "McEwan gave us our daily bread". His work involved breeding oats and barley as well as wheat.

Martin started on his botanical career at Victoria University and in 1954 was awarded first class honours with his thesis entitled "A study of some *Coprosma* species of the Wellington area with special reference to natural hybridisation." He was intrigued with the wide variation within the genus *Coprosma* and his student studies became the precursor of a life-long interest in which he made extensive field collections of the genus and used his expertise as a plant breeder to make numerous artificial crosses between species. He followed the terminology of Oliver (1935) in which the crosses *C. x cunninghamii*, *C. x kirkii* and *C. x buchananii* are recognised as naturally occurring populations and he attempted to reconstitute these artificially.



Martin McEwan at work at MPN on his *Coprosma* collection, March 2003.

The herbarium has acquired a large number of beautifully pressed and mounted specimens of over 30 species and a variety of crosses, F1, F2, BC1, BC2, and even third back-crosses in some cases. Up until a few weeks before his death Martin was working with staff and volunteers at the herbarium to arrange and annotate the collection. Unfortunately the work was not completed when he died in January 2004.

In addition to the mounted specimens there is a large collection of leaves and data on leaf measurements that were intended to give statistical evidence of introgressive hybridisation in the genus. A paper "Studies in the Genus *Coprosma*. 1. Introgressive Hybridization between *Coprosma propinqua* and *C. robusta*" was never completed for publication, but a draft copy is held. He also published a paper on fruit development in *Coprosma lucida*.

The following material, in some cases in several boxes, is held in the herbarium:

#### Species

<i>Coprosma acerosa</i>	<i>Coprosma parviflora</i>
<i>C. arborea</i>	<i>C. petriei</i>
<i>C. areolata</i>	<i>C. polymorpha</i>
<i>C. australis</i>	<i>C. propinqua</i>
<i>C. banksii</i>	<i>C. pseudocuneata</i>
<i>C. brunnea</i> (synonym for <i>C. acerosa</i> )	<i>C. pumila</i> (now <i>C. perpusilla</i> )
<i>C. chathamica</i>	<i>C. repens</i>
<i>C. cheesemanii</i>	<i>C. rhamnoides</i>
<i>C. crassifolia</i>	<i>C. rigida</i>
<i>C. colensoi</i>	<i>C. robusta</i>
<i>C. depressa</i>	<i>C. rotundifolia</i>
<i>C. foetidissima</i>	<i>C. rubra</i>
<i>C. linariifolia</i>	<i>C. rugosa</i>
<i>C. lucida</i>	<i>C. tenuicaulis</i>
<i>C. macrocarpa</i>	<i>C. tenuifolia</i>
<i>C. microcarpa</i>	<i>C. virescens</i>
<i>C. obconica</i>	<i>C. wallii</i>

#### Hybrids

A number of assumed natural hybrids are also held in MPN, the most significant being:

- C. x buechananii* (*crassifolia* x *robusta*)
- C. x cunninghamii* (*propinqua* x *robusta*)
- C. x kirkii* (*acerosa* x *repens*)

#### **Artificial crosses**

These artificial crosses were constructed by Martin under controlled conditions:

- *C. robusta* and *C. propinqua* (*C. x cunninghamii*) F1, F2, back crosses to *C. robusta* and to *C. propinqua*
- *C. brunnea* and *C. repens*, F1, F2

- *C. acerosa* and *C. petrei* F1
- *C. acerosa* and *C. repens* (*C. x kirkii*) F1, BC1 (*acerosa*)
- *C. crassifolia* and *C. repens* (*C. x buehnerianii*) F1, F2
- *C. brunnea* and *C. rugosa* F1, BC1 (*brunnea*)
- *C. repens* and *C. rhamnoides* F1, BC1 (*rhamnoides*)
- *C. repens* and *C. robusta* F1
- *C. repens* and *C. rugosa* F1
- *C. robusta* and *C. brunnea* F1
- *C. macrocarpa* and *C. propinqua* F1
- *C. robusta* and *C. rugosa* F1
- *C. robusta* and *C. tenuifolia* F1
- *C. tenuifolia* and *C. propinqua* F1
- 3 and 4 species crosses eg. (*C. x cunninghamii*) x (*C. x kirkii*)  
(*C. x cunninghamii*) x (*C. repens* x *C. rhamnoides*)

#### Access

The J. M. McEwan collection is housed at the Dame Ella Campbell Herbarium (MPN), which is in the Ecology Building of the Institute of Natural Resources, on Massey University's Turitea Campus, Palmerston North. Visitors wishing to view or use the collection are welcome, though it will be some time before it is accessioned.

#### Herbarium contact details:

Manager: Mrs Lesley van Essen  
Dame Ella Campbell Herbarium  
Institute of Natural Resources  
Massey University  
Private Bag 11 222  
Palmerston North

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Hours: Tues - Fri: 8.30am-1:00pm

Ph 64 / 6 / 350 5799 Ext 7716

Fx 64 / 6 / 350 5623

**Barbara Latch**, volunteer at MPN; assisted J. M. McEwan with organising his collection; contact at above address.

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#### ○ **Data on the origin of New Zealand's Fungi**

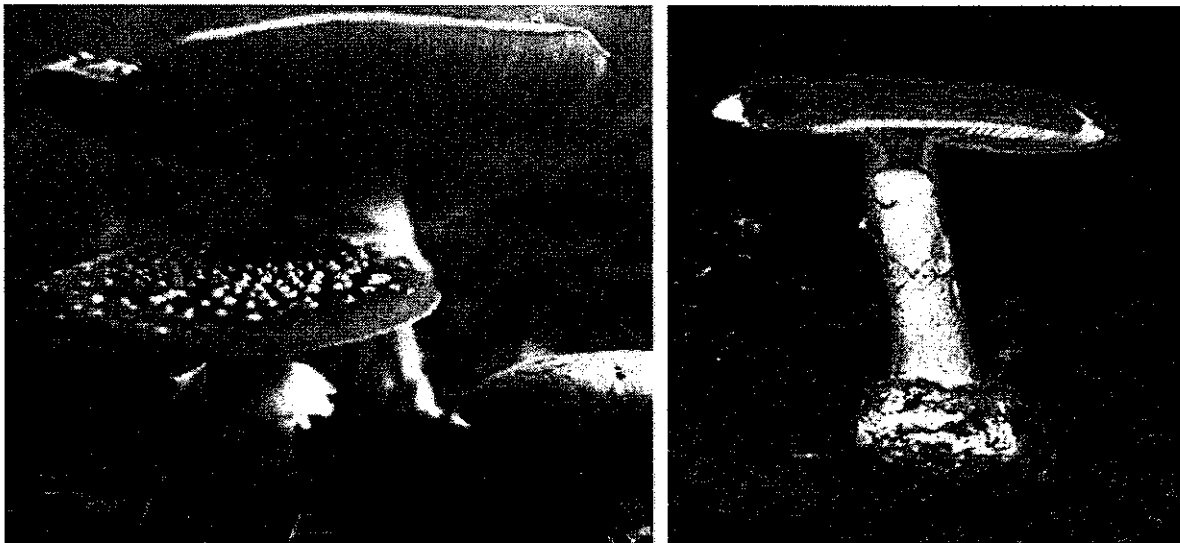
**Peter Johnston**, Herbarium PDD, Landcare Research, Private Bag 92170 Auckland  
[johnstonp@LandcareResearch.co.nz](mailto:johnstonp@LandcareResearch.co.nz)

The fungi of New Zealand remain poorly known compared with other groups of organisms. However, much of the data that exist on these fungi are available through the most complete web-accessible database for the fungi of any country in the world. The NZFungi database ([www.nzfungi.landcareresearch.co.nz/html/mycology.asp](http://www.nzfungi.landcareresearch.co.nz/html/mycology.asp)) was developed by Jerry Cooper as part of the Landcare Research Database Integration project ([www.landcareresearch.co.nz/databases/database\\_integration.asp](http://www.landcareresearch.co.nz/databases/database_integration.asp)), utilising data within existing Landcare Research legacy databases that had been built up piece-meal over the past 10 years or so.

As well as developing new database structures and web delivery interfaces, Landcare Research has put much effort into populating the NZFungi database. It now includes the names of all fungi reported for New Zealand in the literature or vouchered in the New Zealand Fungal Herbarium (Landcare Research, Auckland). The database lists over 7500 names of fungi accepted for New Zealand. Many of these fungi have been referred to historically by more than one name, and the database links these names to a single 'currently accepted' name.



A recent addition to the data provided is the 'biostatus' of each fungus – whether they are indigenous or exotic and, where data are available, whether the indigenous species are endemic or not. This information was collated with the assistance of funding from the TFBIS programme managed by the Department of Conservation ([www.biodiversity.govt.nz/land/nzbs/information/tfbis/index.html](http://www.biodiversity.govt.nz/land/nzbs/information/tfbis/index.html)). Most fungi introduced to New Zealand remain restricted to human-modified habitats, while most indigenous fungi remain restricted to natural habitats. However, some saprobic fungi are widely distributed in both human and natural habitats, and in most cases the origin of these species remains unknown. The orange pore fungus (*Favolaschia calocera*) is an example of such a fungus, widespread in natural forests as well as human habitats, and known to have been recently introduced (Johnston & Buchanan 1997, Johnston et al. 1998). The first collections of this conspicuous species were made during the 1960s. If it had been in New Zealand earlier than this, collections would have been made by Joan Dingley or G. H. Cunningham, who actively researched wood-rotting fungi in New Zealand from the 1930s through to the 1960s and beyond. One puzzle about the orange pore fungus was its origin. Originally described from Madagascar, until recently it was known from only Madagascar and New Zealand. However, recent unpublished molecular studies by Stephen Whitton and Duckchul Park (Landcare Research) have shown that the same species also occurs in tropical Asia, a more likely origin for New Zealand. Another widespread wood-inhabiting fungus that may have been a recent introduction is *Schizopora radula*. This white, insignificant, crust-like polypore fungus is common and widespread in forests and urban areas on both native and introduced hosts. Historical collections provide no evidence that this might be an introduced fungus. The first specimen in the New Zealand Fungal Herbarium is dated 1927, about the same time that these polypore fungi were



*Amanita muscaria* (left) and *Amanita nothofagi* (right). *A. muscaria* is an exotic species which has become naturalised in Nothofagus forests, and may be having an impact on populations of functionally similar native species, such as *A. nothofagi*.

first being studied in New Zealand. However, a molecular study by Paulus et al. (2000) showed New Zealand isolates of this fungus are genetically identical to isolates from Canada. Argentinian populations were more closely related to other Northern Hemisphere populations than they were to those from New Zealand. Unless there is regular and ongoing natural gene flow between north temperate and south temperate regions, this fungus is likely to have been introduced from the Northern Hemisphere separately to New Zealand and to southern South America, possibly with early shipments of wood.

These stories show that assessment of fungal biostatus is not an exact art. Solid genetic data are available for few species, the biostatus assessment in most cases being based on knowledge about the biology of each species. For example, fungi described from elsewhere in the world and known to be associated only with introduced plants in New Zealand are assumed to be introduced. Those known only from native ecosystems in New Zealand are assumed to be indigenous. Knowledge about New Zealand's fungi is still patchy. The data presented in the NZFungi database reflect the most recent knowledge and opinion on these fungi, but are continually being challenged and updated.

In addition to names, synonymy and biostatus, other data available over the web through the NZFungi database include copies of published descriptions and illustrations, identification keys (both copies of published dichotomous keys and 'test' versions of Delta-based interactive keys), images, distribution maps, information on available dried specimens and living cultures, and links to other sources of information on the same species. Also included are lists of those fungi in the various 'threat of extinction' categories from the Department of Conservation Threatened Species lists (Hitchmough 2002), and lists of those fungi in the various MAF biosecurity categories, such as 'notifiable organism', 'regulated pest', etc.

Data accumulation is assisted by volunteers willing to scan published articles (Clive Shirley and Shirley Kerr deserve special thanks), as well as private time provided by Landcare Research staff. Images have been provided by many individuals. Our aim is to provide a description and image of every fungus reported for New Zealand. We are initially concentrating on the macrofungi (mushrooms, etc.) as well as those species described from a New Zealand type specimen.

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## Research Reports

### ○ Notes on regeneration in six introduced Geraniaceae

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The importance of the Geraniaceae in horticulture is self-evident almost anywhere in New Zealand, by far the most significant genus being *Pelargonium* (L.) L'Hérit. Of the six species treated here two belong to *Pelargonium*, both being from South Africa where most of the species originate. An introductory paragraph to this large and complex genus with many hybrids and cultivars is given. There is a single species in the moderate-sized genus *Erodium* L. and three are *Geranium* L. species from Western Europe and North Africa. Four of the records are new and the other two are geraniums that have been recorded since *Flora of New Zealand, Flora IV* (1988), henceforth simply referred to as Flora IV. All six species are briefly described, concentrating on characters that enable them to be distinguished from the taxa described in the relevant genera in Flora IV. Four of these records are of species that were growing in Canterbury, one is from Dunedin and one from the Chatham Islands.

### **Pelargonium** (L.) L'Hérit.

Flora IV treats 10 *Pelargonium* taxa<sup>1</sup>. Apart from the Australasian *P. inodorum* Willd. they all originate directly, or indirectly in the case of some hybrids, from South Africa. These South African taxa rarely form viable seed and in New Zealand they are probably mainly represented by self-sterile clones, in fact the only example of well-formed mericarps that I have seen in the nine taxa are in some cultivars of the very well-known *P. \_hortorum* L. Bailey, zonal pelargoniums. Two other popular taxa grown for their large ornamental flowers treated in Flora IV are *P. \_domesticum* L., regal pelargoniums, and *P. peltatum* (L.) L'Hérit., ivy-leaved pelargoniums. The remaining six taxa have much smaller flowers and are at least partly cultivated for their aromatic leaves. They are all treated as minor escapes from cultivation in Flora IV with the commonest being the hybrid *P. \_asperum*; see under *P. radens* below. These six are among the so-called "scented-leaved geraniums", some of which are used for the extraction of "oil of geranium" in various countries across the world, especially those with subtropical or Mediterranean climates. I am unaware if any were introduced to New Zealand for oil extraction, but the most important taxa in this connection are growing here.

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<sup>1</sup> South African pelargoniums are often popularly referred to as geraniums. 15 true *Geranium* species are treated in Flora IV and 3 more are dealt with here. The two genera are also described and compared in Flora IV.

A good account of these scented-leaved pelargoniums (or geraniums), and the oils extracted from them is by Swain, R. Aromatic Pelargoniums. *Arnoldia* 34(3): 97–124 (1974). On the other hand, despite its scent, *P. panduriforme* treated below is not used for oil extraction as far as I am aware. Yet the closely related *P. quercifolium*, with which *P. panduriforme* is sometimes confused, is an important oil-producing species – see under *P. panduriforme*.

***Pelargonium panduriforme* Eckl. & Zeyh.**

Large bushy subshrub to c. 2 m high, strongly aromatic. Leaves with long petiole; lamina to over 15 \_ 10 cm in outline, pinnately lobed up to c. half-way; lobes few, broad and rounded; terminal one large or very large; margins crinkled, undulate and  $\pm$  upturned. Inflorescence a cluster of up to c. 12 flowers; peduncles often longer than leaves, patently pilose like the calyx. Corolla strongly irregular; upper petals 2, erect, c. 3–4 \_ 1 cm, oblanceolate, pink with dark crimson markings in lower two-thirds; lower petals 3,  $\pm$  forward-pointing, c. 2.8 \_ 0.8–1 cm, oblanceolate or oblanceolate-elliptic, uniformly pink. Mericarps and viable seed formed.

The above short description is based on specimens of this species collected on 20 April, 2004, at Diamond Harbour, Banks Peninsula, Canterbury (Sykes 52/04). The plants were of various sizes and were growing in the vicinity of cultivated parents in a garden on a steep, west-facing, frost-free slope. This seems to be the first record of *Pelargonium panduriforme* growing spontaneously in this country, but the species is probably not very commonly grown here and is mainly seen in the northern half of the North Island. The origin of these plants is from cuttings that I obtained from the Auckland Regional Botanic Garden nearly a decade ago. Plants grow freely in the Lyttelton Harbour area (i.e. including Diamond Harbour) and are at least as hardy as the common zonal pelargoniums, and like them *P. panduriforme* flowers for much of the year, but unlike most of them it produces at least some viable seeds.

*P. panduriforme* is quite different to any taxon treated in Flora IV. Thus in respect to the key to the ten taxa treated (p. 737), its habit and corolla length would place it with the common hybrid zonals, as well as the regal pelargoniums, *P. \_ domesticum* L. Bailey, but the corolla asymmetry, shape and lack of petal overlapping are more like the scented-leaved pelargoniums treated. However, its pinnately lobed leaves somewhat resembling common deciduous European oak leaves give it a very different appearance to any of the other nine, as well as to *P. radens* below.

Mention of oaks (*Quercus* species) leads directly to a brief discussion on the similarity of *P. panduriforme* to *P. quercifolium* (L.f.) L'Hérit., often called "oak-leaved pelargonium (or geranium)". The two species seem to often be confused, at least in New Zealand, for both are cultivated here, the latter probably rarer. Van der Walt & Vorster (p. 109, 1988) recognise their closeness and give a table of distinguishing characters. The main features are that unlike *P. panduriforme* the leaves of *P. quercifolium* are smaller, viscid, usually almost rough to the touch and very deeply dissected. Probably the last two features are the reason for the one record of *P. quercifolium* wild in New Zealand (see Flora IV, p. 738). However, this record really refers to the common hybrid *P. \_ asperum*, see under *P. radens* below. Also the corolla in *P. quercifolium* is smaller than in *P. panduriforme* with the upper petals no more than 2.5 cm long.

In 1987 I collected *P. panduriforme* growing spontaneously on Norfolk Island but, as with a specimen of a cultivated plant in Governor's Bay, Banks Peninsula, I misidentified it as *P. quercifolium*. Both species originate from mountain foothills in the central part of the Cape Province of South Africa, *P. panduriforme* growing slightly more to the east.

***Pelargonium radens* H. E. Moore (syn. *P. radula* (Cav.) L'Hérit.)**

Subshrub to c. 1 m high, the whole plant strongly aromatic. Leaves 3–6 mm wide between segments, whilst the segments themselves are 2–3 mm wide, narrow linear with revolute margins that accentuate their narrowness. Corolla irregular with the two upper petals 19–21 \_ 7–8 mm,  $\pm$  obovate, pale pink distally and dark crimson in lower narrower part; the three lower petals 13–15 \_ c. 4 mm, oblanceolate, uniformly pale pink. Anthers orange–pink. Stigmas crimson.

The above short description is based on a specimen of this species collected on 30 November, 1993, from a wild population at Port Hutt on the main Chatham Island (Sykes 410/93). There *P. radens* was covering many square metres of wasteland between houses and seafront, being the first known adventive occurrence in New Zealand of this species to my knowledge. However, in Flora IV, p. 738,

I described its hybrid *P. \_ asperum* Willd., and stated that most previous records of *P. radens* were based on specimens of *P. \_ asperum*, the latter being much commoner than either of its parents. Not surprisingly, *P. radens* has often been mistaken for *P. \_ asperum*, but the latter is distinguished from it by broader leaf lobes often >1 cm wide. Incidentally, this character of very narrow leaf lobes easily distinguishes *P. radens* from any other *Pelargonium* taxon regenerating spontaneously in this country.

The reason that this collection has not been already recorded in one of the subsequent checklists to Flora IV is because I only realised very recently that it was *P. radens* itself and not its hybrid. Incidentally, *P. radens* is usually known in horticulture by the earlier name *P. radula* but the latter is nomenclaturally superfluous. The small group of scented-leaved pelargoniums to which *P. \_ asperum* and its parents belong is well-known in Europe for the distillation of "oil of geranium" and *P. radens* is one of the most important species overseas for oil production. The other parent is *P. graveolens* Aiton with broader leaf lobes and softer hairy covering. This is also cultivated in New Zealand. Both *P. radens* and *P. graveolens* originate from south-eastern parts of Cape Province with the former extending further west and the latter with a second area in northern Transvaal and adjoining parts of Mozambique and Zimbabwe.

#### ***Erodium trifolium* (Cav.) Cav.**

Straggling biennial herb with light green, softly hairy, shallowly lobed leaves. Inflorescence densely glandular-puberulent and somewhat viscid. Corolla c. 2 cm across; petals c. 1 cm long; limb broad obovate, white except for rosy-purple veins on all petals and  $\pm$  elongated blotches of same colour on lower half of upper two petals only, thus giving a slightly asymmetric appearance; claw rosy-purple; filaments and stigmas rosy-purple; anthers dark purple.

The above short description is based on my specimen of the species collected in St Albans, Christchurch, on 5 December, 1996. It was from a spontaneous plant in a pot in which there was soil from Diamond Harbour, Banks Peninsula (Sykes 490/96). This is the first instance of the species being spontaneous in New Zealand that I know of. Also I don't recall seeing the species in the Diamond Harbour garden of horticulturist, the late Ashley R. Arnold, from whence came the soil, although I visited there many times. The species died out in St Albans after a year or two.

Despite the notoriety of some species of *Erodium* L. on account of their weediness, c.f. *E. cicutarium* (L.) L'Hérit. and *E. moschatum* (L.) L'Hérit., storksbill and musky storksbill respectively, there are a number of scarcely weedy or non-weedy ornamental species in the Mediterranean region, especially the western half. Thus *E. trifolium* (probably better known here as *E. hymenodes* L'Hérit.) comes from the Atlas Mountains of North Africa. It is sometimes confused with the closely related *E. pelargoniflorum* Boiss. & Heldr. from S.W. Turkey, another species with the upper two petals similarly bicoloured. Many cultivated plants supposedly of the latter are really *E. trifolium*. Incidentally, this corolla feature easily distinguishes *E. trifolium* from the four weedy species described in Flora IV and the flower size from the two commonest weedy species mentioned above.

#### ***Geranium endressii* J. Gay**

Perennial herb with thick decumbent or procumbent stems covered with old leaf remains that eventually form widespreading clumps to c. 30 cm high. Leaves with very long, slender, pinkish petioles; lamina to c. 7 \_ 8 cm, 5-palmatisect, with the main lobes  $\pm$  broad obovate in outline and lobulate or toothed; veins impressed above and prominent. Flowers paired, on slender pedicels patently hairy like the calyx. Corolla is c. 2 cm long and  $\pm$  cup-shaped or widely funnel form, pink; petals just over 1 cm wide, broad obovate, emarginate, veins indistinct. Seeds minutely alveolate.

The above description is based on Sykes 58/04, St Albans, Christchurch, from a garden border where a few plants were growing spontaneously amongst other herbaceous plants up to several metres from the parents. The species was obviously increasing by seed dispersal from plants that I originally introduced so it is included here. I have not found records of it escaping from cultivation otherwise in New Zealand, but it grows so freely and prolifically in Canterbury at least that it could be expected to behave similarly elsewhere. Also it is wild in many parts of the British Isles and is treated as having naturalised status there by authorities such as Stace (p.566, 1991). It naturally occurs further south in the Western Pyrenees (France and Spain).

Note that the only species with flowers superficially similar to *G. endressii* in size and colour in Flora IV is the Chatham Is. *G. traversii* Hook f. However, the vegetative habit and type of indumentum in this species is very different to *G. endressii* apart from various more minute differences. In addition, the flowers are solitary in *G. traversii* and paired in *G. endressii*.

Two species of *Geranium* L. have been recorded as adventive between the publication of Flora IV in 1988 and the present paper. A brief discussion of them is given here, mainly for comparison with the treatment of the 15 species in Flora IV, although this has been partially done with the very recently recorded second species, *G. lucidum*.

Recorded wild from Dunedin by Heenan *et al.* (p.159, 1998), with the comment "probably a garden discard that has established but not spread." This seems to be in line with its performance in New Zealand gardens where, in colder areas particularly, *G. phaeum* is easy to grow but does not regenerate freely.

**Geranium lucidum L.** shining crane's bill

## References

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## Herbarium Reports

### ○ Auckland Museum Herbarium (AK) report: 1 July 2003 to 30 June 2004

The \$53 million Stage II Museum redevelopment project began in September with major earthworks in the internal courtyard and at the back of the Museum; it has had little impact on the herbarium. Before the courtyard was cleared cuttings were taken from the Norfolk Island pittosporum and a clone of *Cordyline rubra* that sets fruit. The Vernon database has continued to be more finely tuned for the botany functions. I attended the annual Council Heads of Australian Herbaria meeting at Melbourne and included a tour of the storage areas of the Melbourne Museum.

#### Public Programmes

During the year the herbarium staff answered over 1000 enquiries (increasingly involving database searches), led 6 field trips, gave 9 lectures and were involved producing the new DNA exhibition. The Museum web site was upgraded, with a page for botany (<http://www.aucklandmuseum.com/?t=264>); next year we hope to have specimen data also available on line. The successful 5-day, annual 19<sup>th</sup> John Child Bryophyte Workshop based in the Hunua Ranges in September and was organised by Jessica Beever and AK staff, including John Braggins. It attracted 50 participants and resulted in the AK herbarium more than doubling its collection of bryophytes from this area.

#### Caring for the collection

The reboxing of the native monocots resulted in the complete separation of the Cheeseman specimens from the main run. This was desirable because the larger Cheeseman sheets required larger boxes. The gifted AKU specimens will rely on outside funding to be integrated, but any of these specimens referred to or sent out on loan are filed back in the main AK run.

#### Contract workers

Working part-time for 3 years John Braggins completed the Lottery Board grant to identify, database and packet his personal bryophyte collection (mainly liverworts), which he donated to the Museum. Over 5,000 specimens were databased, which has resulted in a four-fold increase in the Museum liverwort collection. John intends to voluntarily database his few hundred remaining specimens. The year finished with Matt Renner and Frances Duff, funded by the Museum, databasing mainly accessioned New Zealand naturalised specimens for a total of 6 weeks.

#### Fieldwork/Research

Fieldwork included trips to the Three Kings Islands with Department of Conservation (5 days, Nov); New Caledonia (12 days, Dec) and Lake Ohau area (8 days, Jan) both with the Auckland Botanical Society; and one-day visits to Aiguilles, Goat, Pakihi and Motueka Islands (Mar-Apr) with Landcare Research ecologists. In April New Zealand's first BioBlitz was held in St Heliers, focusing on Dingle Dell and a school grounds over a 24-hour period, 925 and 631 species of biota were recorded respectively from each locality. It was coordinated by Landcare Research and sponsored by the Royal Society; Ewen coordinated the vascular plant list. Herbarium staff published 17 articles, including an obituary on Bob Cooper (1917-2004) former Curator of Botany, records of native, naturalised and cultivated species in the Auckland region and a new subspecies of *Coprosma*.

#### Acquisitions and donated specimens

Staff collecting numbers totalled: 744 by Ewen Cameron and c.150 by Rhys Gardner. Specimens were also received from: Tricia Aspin, Jessica and Ross Beever, Steve Benham, Jonathan Boow, Paul Champion, Pat Enright, Alan Esler, Graeme Jane, Cameron Kilgour, Peter de Lange (610 specimens!), Lisa Forester, Colin Ogle, Barbara Parris, Matt Renner, Nick Singers, Bec Stanley, Mike Thorsen, Mike Wilcox, George Wilson, Anthony Wright, Shane Wright, Maureen Young and Biosecurity Officers of Auckland, Northland and Bay of Plenty Regional Councils. Several hundred vouchers for DNA sequences by Richard Gardner et al. at the University of Auckland were also accessioned.

#### Staff

Curator  
Honorary Research Associate  
Technician

Ewen K Cameron  
Rhys Gardner  
Mei Nee Lee



Contract staff

John Braggins (part-time), Frances Duff (June) & Matt Renner (May-June)

#### Volunteers

It was with sadness that in May 2003 Wendy Patterson became too frail to continue as a volunteer. Wendy started her Museum volunteer work as a guide in 1985, and changed to the Botany department in 1992, working 2-3 mornings per week mainly checking the new computer-generated labels against the original labels. In her 11 years in Botany she probably checked over 50,000 labels! Before 1992 Wendy was also a volunteer in the AKU herbarium for nearly two years mainly assisting with filing. Chris Ashton, Joan Dow, Frances Duff, Wyne Jones, Kay Haslett & Meryl Wright worked another year, and Nina Sopina (Sep-Oct) and Jenny Christianson (May-Jun) joined the volunteer team contributing a total of over 1200 hours. Rhys Gardner, Peter de Lange, John Braggins and Jessica Beever greatly assisted with difficult identifications.

#### Visitors

There were 58 visiting researchers, including major studies of lichens by David Galloway and liverworts by Matt Renner; eight interest groups visited, including 36 Auckland University Pacific Biogeography students mapping mistletoe distributions as a lab exercise; and some 3000 general public streamed through during an Open Day on 6 June. Loans were also organised for Barbara Parris, Peter de Lange and Auckland University students Matt Renner and Catia Delmiglio.

#### Statistics

Note – 20,500 of last year's accessions came from the amalgamation of the AKU database into the AK database.

New accessions:		(2002-03)
30 June 2004	287,329	
30 June 2003	<u>283,579</u>	
	3,750	(26,360)
Records on Vernon database:		
30 June 2004	194,796	
30 June 2003	<u>189,705</u>	
	5,091	(28,034)
Loans of specimens		
Inwards:	8[226 spec.] from 7 institutions	(21[481] from 8)
Outwards:	46[656 spec.] to 13	(44[1349] to 19)
Exchange specimens		
Inwards	338 specimens from 7 institutions	(346 from 6)
Outwards	656 specimens to 13 institutions	(480 to 9)
Total number of specimens out on loan:	7,489 to 34 institutions	(8,516 to 42)

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## BIOGRAPHY/BIBLIOGRAPHY

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○ **Biographical Notes (55) : Lilian Suzette Gibbs (1870–1925) and Harry Birley (c. 1863–1924)**  
**E.J. Godley**, Research Associate, Landcare Research, P.O. Box 69, Lincoln.

I first came across the work of Miss L.S. Gibbs in the 1940s when reading a paper by Professor Carl Skottsberg entitled "Antarctic plants in Polynesia" (1). It appeared that Miss Gibbs had published "Notes on the phytogeography and flora of the mountain summit plateau of Tasmania" in 1920 (2), and in it had proposed that such genera as *Oreobolus*, *Astelia*, or *Acaena* had their "focus of development" in the mountains of New Guinea. This contradicted Skottsberg's well-known view that these (and other genera mentioned by Gibbs) belong to an old Antarctic element. And he reacted accordingly.

But Miss Gibbs's reputation does not depend on whether her "Papuan austral-montane" element was of significance to the phytogeography of the Southern Hemisphere. She was no ordinary person, as the following quotations show. The first (3) was written by Dr. A.B. Rendle, Keeper of Botany at the British Museum, and the second is from Miss Gibbs's account of her expedition to the Arfak Mountains, Dutch New Guinea, in 1913 (4).

"Miss Gibbs was a woman of considerable personality; the ability to organize and carry through successfully her various journeys of exploration is ample evidence of this. She was a keen upholder of the rights of her sex, and was one of the earliest women-Fellows of the Linnean [1905] and Microscopical [1910] Societies; she was also a F.R.G.S. [1919]. She was generous in the distribution of her plants, a complete set of which is preserved at the British Museum. As a hostess she was delightful, and her botanical friends will remember with pleasure her little afternoon tea-parties. It is with deep regret that we realise that her work is finished."

"As there had been recent fighting between the coast and hill people, Mr. Tabbers judged it advisable to send an unusually strong escort, comprising five Amboinese armed policemen, "Pradjoerit," and ten convicts, "Orang ranté," attached to them, to help in the carriage of provisions should the Papuans desert, according to their usual custom. It was no doubt partly owing to these two circumstances that all my carriers remained with me on this occasion; I noticed great reluctance to stray far from the protection of the guns."

Miss Gibbs also visited New Zealand, but this was not noted by three of her obituarists (3,5,6); Nor was it mentioned in her entry in Britten & Boulger's Index (7) or in its update by Desmond (8). However, Cotton of Kew (9) noted that "on her way home [from Fiji] she visited New Zealand", and Vickery of the British Museum (Natural History) notes that during this visit "she appears to have concentrated on the bryophyte flora, collecting four species of liverworts which were new to science" (10). The present note describes this visit, making use of four articles that she wrote entitled "Deforestation in New Zealand" which I have exhumed from the pages of the "Gardeners' Chronicle" (11). They should be added to her published bibliographies (12).



Miss Lilian Suzette Gibbs (from *Bot. Soc. Brot.* 1925)

Lilian Suzette Gibbs was born in London on 10 September 1870, the eldest daughter of well-to-do parents. She was educated at private schools in England and on the Continent. In 1899–1900 she studied at Swanley Horticultural College, and in 1901 became a botanical student under Professor J.B. Farmer in the Royal College of Science, South Kensington (now Imperial College, London). During vacations she collected in the European Alps and North Africa. In 1905 she accompanied the British Association to Southern Rhodesia (now Zimbabwe) and published two papers from this expedition. At home, as a research student, she published on the development and structure of the seed in the Alsinoideae (Caryophyllaceae), and in 1910 was awarded the Huxley Medal and Prize for research in Natural Science. In the meantime she had visited Fiji and New Zealand in 1907–08 (8, 5, 7, 10).

Miss Gibbs mentions (2) that on her way to Fiji she called briefly at Hobart, which presumably means that she came via Capetown and perhaps went on to Sydney (but see below). Her object while in Fiji was "to work above a certain altitude, and so cut out the widely distributed Indo-Malaysian littoral flora and what one may call the ethnobotanical element, both more or less common to all the Polynesian islands". Through the kindness of the

Governor she "was enabled to carry out this idea by spending most of the spring months of August, September, and October at Nadarivatu, 2900 feet in altitude on the northern slopes of the Mount Victoria range, a small police station and the highest inhabited point in Fiji" (13).

From October 1907 to February 1908 Miss Gibbs traveled through New Zealand, from Auckland to Bluff. Her main task in October was collecting fruiting liverworts in the Waitakere Ranges near Auckland, principally in the "Nihotupu Hills" where a catchment had already been reserved to supply water to the city. From here she lists 22 fruiting species with two more from the Waitakere Falls (14).

Whether Miss Gibbs met Cheeseman in Auckland is not stated, but she writes in glowing terms of his recently published "Manual" and notes that it was due to his "earnest representations" that totara planting was attempted on anything like an adequate scale at Waiotapu, south of Rotorua, where prison labour was being used for afforestation.

But in Auckland Miss Gibbs certainly met Donald Petrie, the Chief Inspector of Schools, who advised her to make Mt. Te Aroha her next collecting station. As Miss Gibbs mentions mangroves at Thames, it is possible that she went there from Auckland by boat on her way to Te Aroha. Otherwise she went the long way round to one or both places by train. Anyway, from Mt. Te Aroha in November she gathered 21 species of liverworts, including one from the summit and some from near the Tui and Wairongamai gold mines (11,14).

Continuing southwards by train Miss Gibbs wrote: "After Morrinsville on the way to Rotorua, the monotonous Manuka plains which extend down to Lake Taupo begin. A gratifying break occurs around Mamaku where the railway crosses a low range still clothed with some splendid forest, including the lovely Kawaka (*Libocedrus doniana*) but it is being rapidly stripped of the sound trees by the colony of sawmills established there. The world-renowned Rotorua is a Manuka waste." (11)

After visiting the Blue and Green Lakes and Lake Tarawera "a weary day's coaching in blazing sun, loose sand, and drying dust takes one to Lake Taupo through nothing but manuka and bracken, varied sometimes by *Dracophyllum subulatum*. By the lake, broom is encroaching rapidly on the manuka and formed a blaze of colour in November." (11)

After crossing the lake to Tokaanu, Miss Gibbs continued south by coach to Ohakune "over high wind-swept tussock plains and sand ridges, noting *Nothofagus menziesii* in the gullies and blackened tree trunks sticking out of the sand in road cuttings. From Ohakune she went across to Pipiriki on the upper Wanganui River where she collected a liverwort on a "dripping soapstone bank" and took a canoe trip upstream (11,14).

Miss Gibbs does not mention Wellington in her deforestation articles, but in her liverwort paper she lists a *Symphogyna* collected at "Dale's [Days] Bay, Wellington" in mixed beech forest during July. This suggests that she passed through Wellington on her way to Fiji (either from Hobart or Sydney).

In early December, 1907, Miss Gibbs was at Nelson (arriving overland from Picton) and here she went up the Maitai Valley, Dun Mountain, and Ben Nevis with F.G. Gibbs, the Nelson teacher and botanist. She continued southward down the Buller to Westport, "a tedious two days" coach drive following the river banks, through beech forests which, however, are being cleared rapidly, as good alluvial soil exists by the river bed." However, "in early December *Loranthus tetrapetalus* was wonderfully effective, the profuse and brilliant red blossoms showing up, even on the slopes of distant hills. It forms regular bushes on the beech trees, some being quite 8 feet high, and broad in proportion" (11).

After returning from the Coast to Springfield in Canterbury via the Otira Gorge and Broken River, Miss Gibbs used trains again before taking another coach inland to Lake Pukaki and Mount Cook. From here she continued the well-trodden tourist path, with a three days' drive to Wanaka via Omarama and the Lindis Pass. From Wanaka she went "up the tedious Cardrona Valley and over the Crown Range to Queenstown." (11)

Miss Gibbs's next destination was described as follows in the *Encyclopedia of New Zealand* (15), published 2 years before her visit: "Mount Earnslaw Hotel, Glenorchy, Lake Wakatipu. This well-known and extensively patronized hotel is situated at the head of Lake Wakatipu. Tourists visiting Queenstown cannot fully realise the beauty and grandeur of the lake scenery without visiting Glenorchy. The view from the balcony of the hotel includes such mountain giants as Mounts Earnslaw [to the north] and Bonpland [to the west], Kosmos Peak and Forbes Peaks, whose snow-clad slopes and summits rise against the clear sky in silent grandeur, and fill the beholder with awe,

reverence, and delight. Special arrangements can be made for rowing parties on the lake or excursions to Paradise Valley and the rivers Rees and Dart as well as to Lake Harris and the West Coast Sounds."

The proprietor of the Mount Earnslaw Hotel was Joseph Karley Birley, a Yorkshireman, who had followed the gold rushes to California (1849), Victoria (1852) and Otago (1863), and whose claim at the Buckler Burn, near Glenorchy, was the best in the district. In 1866 he married Sarah Plummer of Norfolk, England, and they settled at Glenorchy, built the hotel, and reared a family of three (15). And it was their son, Harry, who guided Miss Gibbs during her stay.

Harry Birley was born at Glenorchy c. 1863 (16). In 1885 he and two others (Malcolm Ross and G. Marshall) climbed without ice axes to the glacier on the NE face of Earnslaw; and in 1887 Ross named this glacier after Birley (17).

On 6 November, 1886, James Park of the Geological Survey and his assistant, Courtenay Seymour, arrived from Queenstown to begin their exploration of the block of mountains lying between the Dart River at the head of Wakatipu and Big Bay on the West Coast. After laying in a stock of provisions at Mr Birley's store (their staple diet appears to have been porridge mixed with Liebigs meat extract) and arranging with Harry Birley to pack their gear to Sylvan Lake, they went on to Mr Mason's place at Paradise, north of Glenorchy, where they waited 4 days until the floodwaters in the Dart subsided. On the afternoon of the 10<sup>th</sup> they crossed the river and in the evening pitched camp a mile north-west of Sylvan Lake. The next day Harry returned to Glenorchy with the packhorses (17, 18).

On 16 March, 1890, Harry Birley made the first ascent of Mount Earnslaw, reaching the summit of East Peak on his own (17). In c. 1898 *aet* 35, he married Mary Hood of Macetown (16). Until 1902 he is listed as a guide at Glenorchy in Stone's Otago and Southland Directory, and from then until 1908 is listed as postmaster and guide. He is said to have installed telephone poles between Queenstown and Glenorchy (19).



Mr Harry Birley (from *Encycl. NZ*, 1905)

During Miss Gibbs's visit in February, 1908, Harry took her on two main excursions. The first was an ascent of Mount Boupland which lies just across the river from Glenorchy. On the top ridge they gathered a new alpine *Veronica* (*Parahebe*). When noting this discovery Taylor (20) states that Birley "led the 1908 expedition which also discovered *Celmisia bonplandii*." A similar statement is made in the entry for Miss Gibbs. But *Erigeron (Celmisia) bonplandii* was described by Buchanan in 1887 (*T.N.Z.I.* 19) from material collected by "Mr Martin on Mount Bonpland; there is a fine robust specimen growing in his nursery at Green Island."

The other and longer excursion was to Mt Earnslaw. It took nearly 3 days by buggy and on foot with a stay at a hut. Miss Gibbs lists two liverworts from "Paradise, slopes of Mt Earnslaw" gathered from altitudes of 2000 and 2500 feet. She also notes that "some woods which still clothed the slopes at the head of the lake were burnt down during my stay there through the carelessness of trippers. It is now necessary to go 11 miles up the Dart Valley to Paradise before reaching virgin forest." (11)

Miss Gibbs's final venture was to walk the Milford Track, as brief comments on the vegetation of the Clinton and Arthur Rivers show. She possibly left New Zealand from Bluff.

Miss Gibbs's articles show us that, at the turn of the 20<sup>th</sup> century, New Zealand could have seemed quite an ugly place to a tourist following the beaten track. On each side of coachroad and railroad, there would be a wide tract of destroyed forest with only the beginnings of domestication. She wrote: "the forest is replaced by a weedy upgrowth of *Fuchsia excorticata* and *Aristotelia racemosa*, mixed with any and every species of the heterogenous mass of the herbaceous and shrubby aliens which are ever ready to invade fresh areas, turning a natural garden into a vegetative slum." (11)

In 1910 Miss Gibbs climbed Mt Kinabalu in British North Borneo (now Sabah) and collected there; and in 1912 she went to Iceland. Also in 1912 she published "On the development of the female strobilus in *Podocarpus*", but I have not been able to see this paper and cannot report the sources of her material. In 1913, as noted above, she collected on the Arfak mountains; and on the way home studied the vegetation of the Bellenden-Ker Range (Queensland) in March, 1914, reaching the summit. She then spent September to March 1914–15 in Tasmania (which meant travelling home during the war). In September 1916 she read her Arfak Mountains paper to the British Association at Newcastle (England). She died at Santa Cruz on the island of Tenerife, on 30 January, 1925, and is buried in the English cemetery there.

In later life Harry Birley became a miner. At about the time of Miss Gibbs's visit mining for scheelite (calcium tungstate) had begun in earnest at Glenorchy, and Harry and three others took up a claim at about 5000 ft on Mt. Alaska. Birley was still working this claim in 1916 (19) and in Stone's Directory for 1917 he is described as a "Mine manager Glenorchy". He does not appear in the Directory in 1918–20, but in 1921 reappears as a "Coal mine proprietor, East Taieri". He died at The Grange, East Taieri, on 1 February, 1924 at the age of 61, survived by his wife, two sons and two daughters. He is buried in the East Taieri Cemetery.

### Eponymy

- 1887 Birley Glacier: on the NE slope of Mt Earnslaw beyond the head of Lake Wakatipu.
- ? Birley Pass: on the west side of the Eglinton Valley, Fiordland.
- 1911 *Veronica birleyi* "New Zealand. South Island: between rocks on the top ridge of Mount Bonpland, near Lake Wakatipu, 2435 m., Feb. 1908, Miss L.S. Gibbs, 1172. The name is given in honour of Mr Harry Birley, a well-known guide in the district, who accompanied Miss Gibbs, when this plant was collected." N.E. Brown. *Kew Bull.* 1911: 345.
- 1911 *Calobryum gibbsiae*. "Te Aroha, Wairongamai Mine, 1000, on clay banks, forest. \_\_, \_\_ Nov. 1064 p.p. A very interesting plant; a genus in which only two species are known, and the third has been sent in very complete condition." Stephani in L.S. Gibbs, *J. Bot.* 49: 265.
- 1911 *Lepidozia gibbsiana*. "Te Aroha, 2500, on stones and rotten wood, forest. \_\_ Nov. 1041". *Ibid.* 49: 266.
- 1917 *Gibbsia* Rendle in L.S. Gibbs *Phytogeography & flora of the Arfak Mountains* 129, Urticaceae.

### Acknowledgments

For assistance with references to Miss Gibbs I am indebted to Ms Ruth Lewis and Ms Tanja Webster, research librarians at Landcare Research, Lincoln, and for assistance with references to Harry Birley I am very grateful to Ms Cheryl Hamblin (McNab NZ Room, Dunedin Public Libraries), and Dr David Galloway (Dunedin). I also thank Mrs Wendy Weller for her typing.

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- (1) Carl Skottsberg (1936): Antarctic plants in Polynesia. In *Essays in geobotany in honour of William Albert Setchell* ed. T.H. Goodspeed. U. of California Press; (2) L.S. Gibbs (1920), *J. Ecol.* 8: 1–17; (3) A.B. Rendle (1925): Obituary. Lilian Suzette Gibbs. *J. Bot.* 63: 116–117; (4) L.S. Gibbs (1917): *Dutch N.W. New Guinea. A Contribution to the phytogeography and flora of the Arfak Mountains etc.*; with contributions by several others. London. Taylor & Francis; (5) Lettice Digby (1925): *Proc. Linn. Soc.* 1924–25: 72; (6) A. Quintanilha (1925): Necrologia. Miss Lilian Suzette Gibbs. *Bot. Soc. Brot.* 2 ser. iii: 239–241 (portr.); (7) J. Britten & G.S. Boulger (1931): *A biographical index of deceased British and Irish botanists*. Edn. 2 (ed. A.B. Rendle). London, Taylor & Francis; (8) Ray Desmond (1977): *Dictionary of British and Irish botanists and horticulturists, including plant collectors and botanical artists*. London, Taylor & Francis; (9) A[rthur] D[isbrowe] C[otton] (1925): Miss L.S. Gibbs. *Kew Bull.* 189; (10) Roy Vickery (1999): Lilian Suzette Gibbs. *Field Notes, The Natural History Museum Issue No. 3*; (11) L.S. Gibbs (1908, 1909): Deforestation in NZ *Gdnrs' Chronicle* Nov. 21: 355–356; Nov. 28: 375–376; April 10: 225–226; April 17: 243–244. (12) J.A. Ardagh in (3) & B. Daydon Jackson in (5); (13) L.S. Gibbs (1909): A contribution to the mountain flora of Fiji (including Cryptogams), with ecological notes. *J. Linn. Soc. Bot.* 22: 187–206; (14) L.S. Gibbs (1911): The hepatics of NZ. *J. Bot.* 49: 261–266; (15) Anon. (1905): The Post & Telegraph Office; Mt Earnslaw Hotel; Mr Joseph Karley Birley. *The Encyclopedia of NZ* 4: Otago & Southland, 1029; (16) Death certificate; (17) D.J. Galloway (1969): The Rees–Dart region. An historical introduction. *NZ Alpine J.* 23: 182–199; (18) J. Park (1922): Lecture to Otago Institute, 11 July, published by the Hocken Library; (19) Julia Bradshaw (c. 1997): *Miners in the clouds: a hundred years of scheelite mining at Glenorchy*. Arrowtown, NZ; (20) Marie Taylor (2002): *Meanings and origins of botanical names of NZ plants*.

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## PUBLICATIONS

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### Journal Received

New Zealand Native Orchid Group Journal No. 92 – September 2004 (with a new cover format)  
Edited by Ian St George [ISSN 1170-4543]

Original papers in this issue are: Ian St George (Editorial) – Is *Orthoceras strictum* in NZ? and is *O. novae-zelandiae* endemic?

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## CORRIGENDUM

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○ **Correction to page 10 New Zealand Botanical Society Newsletter Number 76**

An extra word slipped into the article "Geoff's early days in Auckland". The word "back" should be deleted from the last sentence in the fifth paragraph on page 10. The end of the sentence should read "...who was on his way to Oxford with an 1851 Exhibition Science Scholarship."



