

NEW ZEALAND BOTANICAL SOCIETY

NEWSLETTER

December 2007



New Zealand Botanical Society

President:	Anthony Wright
Secretary/Treasurer:	Ewen Cameron
Committee:	Bruce Clarkson, Colin Webb, Carol West
Address:	c/- Canterbury Museum Rolleston Avenue CHRISTCHURCH 8001

Subscriptions

The 2008 ordinary and institutional subscriptions are \$25 (reduced to \$18 if paid by the due date on the subscription invoice). The 2008 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 28th 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 March 2008 issue is 25 February 2008

Please post contributions to:

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Send email contributions to atropa@actrix.co.nz. Files are preferably in MS Word (Word XP or earlier), as an open text document (Open Office document with suffix .odt) or saved as RTF or ASCII. Graphics can be sent as 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

Brachyglottis lagopus (Raoul) B.Nord. Collected and drawn by Cathy Jones, from Bert's Creek, Molesworth Station, South Marlborough on 16 February 2007. a. disc floret, b. ray floret.

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NUMBER 90 **December 2007**

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NEWS

New Zealand Botanical Society News

■ From the Secretary

Subscriptions

We are pleased to hold subscriptions at the existing level, please refer to the enclosed invoice.

Committee for 2008

Nominations for positions of President, Secretary/Treasurer and three committee members for the New Zealand Botanical Society closed on 19 November 2007.

The following nominations, equalling the number of positions available, were received, and are declared elected: President Anthony Wright, Secretary/Treasurer Ewen Cameron, Committee members Bruce Clarkson, Colin Webb, Carol West.

We are pleased to announce that Melanie Newfield has agreed to continue as Editor for 2008.

Submission on a proposal for the Royal Society scientific journals

The committee wrote a submission to the Consultative Group examining the future of the Royal Society scientific journals on their proposal to amalgamate their seven journals (*NZ Journal of Agricultural Research*, *Botany*, *Crop and Horticultural Science*, *Geology and Geophysics*, *Marine and Freshwater Research*, and *Zoology*; and *Journal of the Royal Society of NZ*) into one "flagship" journal. Their future proposed model:

- The journals published by the Royal Society of NZ will be combined into one journal;
- The new journal will be published electronically, made available on Open Access, and published in print format at monthly intervals;
- There will be no author page charges or fees for publication;
- A web-based electronic manuscript management system (e.g., ScholarOne, Osprey) will be used for all stages of manuscript control, including submission, evaluation and proofing;
- The editorial structure of the new journal will consist of a large editorial board composed of leaders in their fields, representing the broad range of sciences (e.g., natural, agricultural, physical);
- Editorial board members will be composed of representatives from academia, CRIs, Royal Society fellows and others, to cover the full spectrum of published articles;
- Article production will be facilitated by an expert group of staff based at the Society in Wellington;
- The new journal will publish quality science with survey articles and special issues included as regular highlights, to be commissioned or written by the Associate Editors;
- The new journal will have generic title such as *Southern Science* or *Southern Nature*, with a byline such as "a national journal published by the Royal Society of NZ".

The main thrust of the committee's submission was that we'd welcome the no page charges and open access but couldn't understand why that couldn't occur and still retain the current *NZ Journal of Botany* (NZJB). We strongly argued for the retention of the NZJB as a focal point for all NZ botanists and its unique flora.

Ewen Cameron, Secretary/Treasurer NZBS

Regional Botanical Society News

■ Auckland Botanical Society

September Meeting

Mike Wilcox spoke on his current interest in the seaweeds found on the shores of the Auckland region. He described the physical features of Auckland's seashores, the dominant seaweed communities, and the biological characteristics of the main seaweed groups. He also illustrated the diversity of seaweeds on our rocky shores.

September Field Trip

The Department of Conservation boat, Hauturu, was made available as transport to Tiritiri Matangi Island, which is so popular with Aucklanders as a conservation island. Alan Esler documented the flora in the 1970s when the island was still farmed, and it has since been thoroughly rebotanised by Neil Davies and Ewen Cameron. The wealth of birds that inhabit the, largely, planted bush were a feature of the day. Plants of note were *Ranunculus urvilleanus* and *Plantago raoulii*, and the most southerly population of *Ipomoea cairica*. The seaweeds were also noted.

Additional September Field Trip

To take advantage of the spring tide, a trip was undertaken to Goat Island Marine Reserve, near Leigh, to study the seaweeds exposed by the very low tide. First Dr Alwyn Rees gave a thought-provoking introductory talk, and a trip in a glass-bottomed boat allowed us to see the *Ecklonia* forests and the many fish swimming there. The rocky shore was then explored, and Mike Wilcox identified the many algae growing in an area where natural processes are allowed to function. A favourite seaweed was the fluorescent *Champia laingii*.

October Meeting

Maureen Young spoke briefly on *Thelymitra matthewsii* in Victoria, Australia, and then Jessica and Ross Beever gave botanical impressions of a short visit to Malaysia and Indonesia. The evening's speaker, Nick Waipara, is involved in researching the control of environmental weeds by biological control. This involves travelling to the country of origin of our weeds, and finding what pathogens and pests attack them in their native environments. As well as research skills, this also requires a diplomatic approach, so countries don't feel that we are just taking, and not giving anything in return. His talk focused on weeds from South America, and some of the challenges of finding suitable agents.

Labour Weekend Camp – Whangarei Heads

Nineteen people enjoyed a rain-free weekend in a remarkable part of Northland. Physical fitness was tested by successively climbing Mt Aubrey, Mt Manaia, Bream Head and Busby Head. The highlight of the weekend was being shown the newly described *Pseudowintera insperata*. The beauty of the northern coastal forest, most especially on Bream Head where the "island influence" seems to be operating, impressed all.

November Meeting

The meeting began with Alison Wesley showing some of the botanical highlights of her trip to Chile. Peter Bellingham then gave a fascinating talk on "Island ecosystems: seabirds, nutrients and plant growth". He contrasted the vegetation on islands where there were rats present, and on rat-free islands, and some of the insights he provided surprised the audience. The talk provided food for thought for those involved in island restoration projects.

November Field Trip

A boat trip from Mangere Bridge to Wattle Bay, at the end of the Awhitu Peninsula, began an interesting day's botanising on a calm, sunny day. A walk along the beach revealed *Tetragonia tetragonoides*, *Schoenoplectus pungens*, and *Blechnum triangularifolium*. A patch of kauri bush on private property contained *Leionema nudum* flowering nicely, *Simpliglottis cornuta*, *Pterostylis cardiotigma*, *Syzygium maire* and *Drosera binata*. The boat trip home included a conducted tour of the northern coastline of the Manukau Harbour.

FORTHCOMING ACTIVITIES

15 December	End of year pot-luck dinner/ walk on Mt Wellington
25-28 January 2008	Anniversary Weekend Camp at Okataina (Rotorua) and Whirinaki
16 February	Tomarata Lakes, Wellsford
5 March	Jonathan Boow: Californian plants
15 March	Waiomu Kauri Grove, Coromandel Peninsula

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■ Rotorua Botanical Society

Recent trips

The Rotorua Botanical Society trip programme has gone well for the last few months with trips to the following locations:

June – Kohi Point Scenic Reserve

August – Matata-Otamarakau dunes/wetland

September – East Coast weekend (see below)

October - Lake Rotoehu by boat

November - Lake Rotokawa (near Taupo)

Some highlights:

Field trip to BOP East Coast 8-9 September 2007:

A dozen plus keen botanists from the Bay of Plenty met at Opotiki to explore the Opape coastal headland, a greywacke outcrop rising to the east above the coastal plain. It has a large population of the acutely threatened tree daisy, *Olearia pachyphylla*, mixed into pohutukawa-broadleaved coastal forest. This area has recently been opened as a public walkway by the local hapu, Ngai Tama (Whakatohea). We then headed further east to Whanaruia Bay for the night (courtesy of EBOP pest plant officer Tim Senior), and all day Sunday we explored the Tokatea QEII covenant, where *Carmichaelia williamsii* was in glorious flower, and where Chris Ecroyd found a few plants of *Crassula mataikona*. The previous northern limit for this small coastal herb was the Egmont Coast! It was a truly fun and fascinating weekend of coastal botany, in an area that is currently under-botanised. We intend to return to this site in October 2008. On a sad note, we were dismayed to see how many more naturalised weeds are establishing along the coast, and how some species are really taking off, e.g. *Prunus campanulata*. (Trip report and leader: Jenny Lux).

Talk by Ewen Cameron on 'Vascular flora and some fauna of small northern New Zealand islands', Monday 15 October 2007:

Ewen came down to Rotorua for the night and spoke to an audience of ca. 50 Rotorua Botanical Society and Forest and Bird members about his exciting pursuits documenting the botany of small offshore islands from the Three Kings to the Bay of Plenty. We were most enthralled with the quality of the slides (including some historical comparisons with modern photos) and the format of the presentation, in which each island was neatly summarised by size, species number, proportion of exotic to native species, and presence/absence of pests and native animal species (which are key determinants of the flora). (Jenny Lux).

Field trip to Lake Rotokawa – the one near Taupo

On Saturday 3 November seven people botanised the geothermal area to the north of Lake Rotokawa in the Lake Rotokawa Conservation Area. This area has been greatly exploited by mining in the past and considerable evidence of these works remain. The site also contains extensive areas of pest plants, with some control of these species (particularly wilding pines) having been undertaken by the Department of Conservation. However, the site contains many interesting geothermal features and patches of geothermal vegetation. Prostrate kanuka (*Kunzea ericoides* var. *microflora*) is common around geothermal features. Manuka (*Leptospermum scoparium*) has been planted over large areas at the site as part of the rehabilitation following mining. Despite the trip being botanical in nature the group enjoyed viewing many of the geothermal features present. Some comments were made at the

lack of diversity at the site, at one stage there was some excitement when a common species was added to the list. However, sites that initially appear to lack diversity can produce some botanical gems. The highlight of the day was a good-sized population of the red-bearded orchid (*Calochilus robertsonii*), the first plants found by Sarah Beadel. Over 70 plants were found with many in spectacular flower. (Trip report and leader: Chris Bycroft).

FORTHCOMING ACTIVITIES

- Sunday 2 December Kakahu Stream kauris, Kaimai-Mamaku Forest Park (combined trip with Waikato Botanical Society) Leader: Paul Cashmore.
- Late January/early Feb (date to be confirmed): Poronui Station (East of Taupo) – returning to the station to look further afield – after a successful trip in early 2007. Leader: Nick Singers.
- Tuesday 12 February Botanising after 5pm at Five-Mile Gate Wetland near Rotorua. Followed by BBQ. Leader: John Hobbs.
- 17 February Lake Whakamaru and Lake Atiamuri by boat. Leader Willie Shaw.
- 8 March Kemp Road, Tutukau Bush: Leaders Paul Cashmore and Robin Black.
- 4-6 April "Not the official "Tongariro Crossing" but a Tongariro Crossing. A full weekend botanising tramp. Probably involves tramping/tenting on the tops. Leader Chris Bycroft.

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■ Nelson Botanical Society

August field trip: Whangamo River Mouth

A patch of bush not previously explored by our members yielded a surprising number of species in spite of being accessible to stock. The group discussed differences between miro and matai, kanuka and manuka, and *Dicksonia fibrosa* and *D. squarrosa*. It was good to see tawa (*Beilschmiedia tawa*), mapou (*Myrsine australis*), *Lophomyrtus obcordata*, *Coprosma areolata* and *Melicytus micranthus*. Nearer the coast, many ferns including *Doodia australis* were on the track banks. There was some pingao (*Desmoschoenus spiralis*, Chronically Threatened: Gradual Decline) on the dunes, mostly in a small fenced patch planted by DOC. On our last visit we had seen a few plants of the native spinach, *Tetragonia tetragonoides* (At Risk: Sparse) but were unable to find it again.

August evening talk: Pohutukawa and rata: New Zealand's iron-hearted trees by Philip Simpson

A large and very appreciative audience heard about Philip's botanical beginnings and his book, *Dancing Leaves, the story of the New Zealand cabbage tree*, which won a Montana book award in 2001. Next to come under his scrutiny was the decline of pohutukawa and rata, which resulted in another Montana Book Award winner (2006) with the same title as this talk. Philip also spoke of Project Crimson (he is its South Island coordinator), a huge NZ-wide effort, set up by DOC and NZ Forest Products (now Carter Holt Harvey) to increase numbers of these special and very precious trees.

September field trip: Pukatea Track, Hira Forest

Despite the doubtful weather prospects, 14 members turned up and entered the bush by the big pukatea that gives the track its name. Under a canopy of kamahi was a carpet of regenerating native flora. The ferns *Asplenium bulbiferum*, *A. oblongifolium*, *A. polyodon*, *A. flaccidum* and *A. appendiculatum* ssp. *appendiculatum* filled in gaps between seedlings, shrubs and tree trunks. There was a patch of *Pterostylis banksii* not quite in flower. Large miro, matai and rimu were draped with rata vines, *Metrosideros colensoi*, *M. perforata* and *M. diffusa*, also *Griselinia lucida*. Tree ferns *Cyathea dealbata*, *C. smithii* and *C. medullaris* all helped to shut out the light, but only about 100 metres in we found *Raukaua edgerleyi* (Chronically threatened: Gradual Decline) growing on a silver fern trunk. We eventually found 11 more plants, all on silver ferns.

In a lighter, stony gully was a large patch of sweet fern (*Pteris macilenta*) and *Tmesipteris elongata* was hanging from tree fern trunks. Common in the understorey was *Pseudowintera axillaris*, loaded with flower buds. Cathy Jones gave members a lesson on the differences between smooth shield fern (*Lastreopsis glabella*) and lace fern (*Leptolepia novae-zelandiae*).

September evening talk: Nancy Adams' alpine flora – a Nelson-Marlborough perspective

Shannel Courtney presented a brief bio on Nancy Adams and explored how the various reprints of *New Zealand Alpine Plants* (by Alan Mark (text) and Nancy (illustrations)) did justice to Nancy's skill. Side-by-side images of the same plant from printings by Reed Publishing (1973, 1979) and Godwit Publishing (1993, 1995) and scans of Nancy's originals provided material for comparison. Also, some of Nancy's drawings were compared with high-quality photographs, which enabled the audience to appreciate Nancy's strengths (e.g., distinguishing white features from a white background, teasing out the subtle differences between species) and weaknesses (representing grasses and vegetable sheep). The talk ended with a few local special places that Nancy and Alan didn't get to when preparing *New Zealand Alpine Plants*.

October special talk: Around the world in 80 days

Graeme Jane formed Nelson BotSoc in 1989, and was its hard working president until he left the area in 2000. Over 30 members attended his presentation of images collected during a recent trip to Denver (Colorado), Scotland, Sweden, Germany, Slovakia, Britain, and finally South Africa where the flowers were much more abundant as it was spring there. We saw various irises, *Bulbinella*, *Euphorbia*, *Solanum*, *Oxalis obtusa*, many daisies and some general shots of massed colour.

LABOUR WEEKEND CAMP: Waima Valley, South Marlborough

Twenty people, including visitors from Tauranga, Christchurch and Australia, arrived at Te Rapa Station in the Waima Valley to find South Marlborough looking lovely with (mainly) blue skies, blue ocean and cliffs covered in the two subspecies of *Heliohebe hulkeana* in very beautiful full flower.

Saturday 20th October: Waima River, Isolation Creek and Sawcut Gorge

Soon after the first of many river crossings on our way up the Waima River we found South Marlborough endemics: pink broom (*Carmichaelia glabrescens*), Marlborough daisy (*Pachystegia insignis*), *Heliohebe hulkeana* ssp. *evestita*, *Parahebe martinii* and *Brachyglottis monroi*. Kowhai, close to the end of its flowering season, stimulated much discussion as we had *Sophora prostrata*, *S. microphylla* and hybrids. One *S. prostrata* had several plants of *Korthalsella clavata* growing on it. *Clematis afoliata* and *C. foetida* were also in flower. *Asplenium lyallii* was found on limestone, as was *A. trichomanes* and *Wahlenbergia mathewsii*, the first of our threatened plants. *Pterostylis banksii*, *Corybas macranthus* and *C. "whiskers"* were seen in flower. Just before Isolation Creek, we found several *Pseudopanax ferox* and a tiny clump of the small uncommon deciduous fern *Pleurosorus rutifolius*. Sawcut Gorge, as usual, stunned those who had not seen it. On a small limestone scree upstream of the gorge were *Carmichaelia astonii*, *Galium "limestone"*, *Epilobium wilsonii*, *Gentianella astonii* ssp. *astonii*, *Festuca multinodis*, *Vittadinia australis* and an interesting un-named *Senecio*.

Sunday 21st October: Okiwi Bay track to Patutu

This is part of a network of tracks between Okiwi Bay, Patutu, Half Moon Bay and Seaward Road, recently upgraded by DOC. The main party headed towards the local highpoint at Patutu, entering regenerating coastal broad-leaved forest and scrub with *Clematis foetida*, *C. forsteri*, *C. afoliata* and *Parsonsia heterophylla* in flower. *Clematis paniculata* and *P. capsularis* were seen later in the climb. A small group headed south for the longer walk to Half Moon Bay, while the rest followed the Patutu track down into a valley with large rimu, black beech, titoki, lowland totara, matai and kahikatea and up the other side through more scrub towards the peak. In the reasonably moist, sheltered conditions there were many ferns including *Asplenium hookerianum*, *Hypolepis rufobarbata*, *Ctenopteris heterophylla* and beautiful large mamaku. Juvenile and large adult *Hoheria angustifolia* were of interest as was the one *Plagianthus regius* sapling that was with them. *Nertera depressa*, *N. villosa*, *Plantago raoulii*, *Raoulia glabra*, *Anaphalioides bellidioides* and *Helichrysum filicaule* appeared on the trackside and we found one large *Gahnia setifolia*. Higher up were *Aciphylla aurea*, *A. glaucescens*, *Ozothamnus "George"*, *Poa cita*, *Hebe anomala*, *Heliohebe hulkeana* ssp. *hulkeana*, *Ranunculus insignis* (incl. *R. monroi*), *Helichrysum parvifolium* and *Pimelea oreophila*. The team that had headed south found many of these species plus adult *Elaeocarpus hookerianus* and *E. dentatus*.

Monday 22nd October: Cape Campbell

This day comprised five short stops on private land at Cape Campbell. First there was a sandy coast

community of sand tussock (*Austrostipa littoralis*), pingao, *Coprosma acerosa*, horizontal matagouri, coastal cushion daisy (*Raoulia* aff. *hookeri* "coast"), sand convolvulus (*Calystegia soldanella*) and *Carex pumila*. The next two stops were to look at wiggywig, shrub pohuehue or tumingi (*Muehlenbeckia astonii*) (Nationally Vulnerable) and to learn how it differs from *M. complexa*. We inspected a covenant where DOC has added about 80 plants to the original 30 occurring there, and has planted associate shrubs, *Olearia solandri* and *Ozothamnus leptophyllus*. Stop 4 was a sandfield with large numbers of *Raoulia* aff. *hookeri* "coast". At the lighthouse, we explored papa hills and cliffs which provided interesting forms of *Plantago spathulata*, *Microseris scapigera*, *Dichondra brevifolia* with *Pimelea prostrata*, *Disphyma australis*, *Samolus repens* and very beautiful *Convolvulus waitaha* in full flower. Occasional plants of a large lobed-leaved *Senecio* aff. *glaucophyllus* and an area of *Eryngium* aff. *vesiculosum* were also found. Horse mushrooms and wild silver beet from the shoreline provided some with a tasty meal when they got home.

FUTURE TRIPS

Dec 14–16: Camp. Cobb Valley, Lake Peel and ultramafics. Leader Shannel Courtney (03) 546 9922.
Jan 20, 2006: Robert Ridge, Nelson Lakes National Park. Leader Cathy Jones (03) 546 9499.
Feb 1–4: Camp. Venue to be decided. Leader Cathy Jones (03) 546 9499.
Feb 17: Ben Nevis, Richmond Forest Park. Leader Sue Hallas (03) 545 0294.
Mar 16: Moa Park, Abel Tasman National Park. Leader Don Pittham (03) 545 1985.

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■ Canterbury Botanical Society

September Meeting:

Phil Knightbridge gave a talk on *Coprosma wallii* and other plant conservation stories from the West Coast. Although relatively common on Banks Peninsula (a national stronghold), records of *Coprosma wallii* from Westland are uncommon with populations mostly occurring along the line of the Alpine Fault – possibly relating to site disturbance. Good populations have now been documented near Maruia, with the local community getting involved in protection and planting programmes.

There are few threatened plants on the West Coast (c. 4%), though several are West Coast endemics. Examples include the Charleston gentian, *Gentianella scopulorum*, *Carmichaelia juncea*, and *Peraxilla colensoi*. Only 16 flowering plants were found of *G. scopulorum* when initially surveyed but planting programmes at other sites near Cape Foulwind have increased this to around 95 plants. Populations of *Carmichaelia juncea*, a prostrate broom growing on open gravel river margins, tend to boom and bust according to disturbances by major flood events. Trials with exclosures show that hares target the new growth of the broom, but also control competitive grasses. Scarlet mistletoe, *Peraxilla colensoi*, is very vulnerable to damage by possums. Mistletoe can make up to 1/3 of their diet in recently colonised areas, with prospects that populations will be eliminated within 10 to 20 years unless possum control programmes are in place, preferably from the outset. The health of scarlet mistletoe is related to the health of some native birds (mistletoe can seasonally make up to 60% of kaka diet), hence the implications of mistletoe decline are very significant.

October Meeting:

Nicholas Head from DOC gave a talk on the limestone flora of Canterbury and the results of the Department's limestone survey work. Nicholas gave an overview of the fascinating variety of limestone features, habitats and species that occur across Canterbury. He highlighted the importance of limestone ecosystems as refugia for numerous rare and threatened native plant species, many of which only occur on limestone. Examples include *Australopyrum calcis* subsp. *optatum*, *Gentianella calcis* 3 subspecies, *Hebe raoulii* var. *maccaskillii*, *Myosotis colensoi*, *Pachycladon exilis*, and *Poa spania*. His talk also highlighted the importance of limestone ecosystems as often the last 'islands' of native species in highly modified landscapes. He discussed management aspects, control of weeds, the demand for limestone for fertiliser with more intensive use of the land, and reestablishment of the low bush cover.

October Field Trip:

This trip to Church Bay, Lyttelton Harbour followed the coast track from Black Point promontory east to the mouth of Church Stream then on around Pauahinekotau Head to join up at a steep site members know as the "succulent garden" (grid ref. c. M36:880313). Along the track were succulent species including species of *Aeonium*, *Agave*, *Aloe*, *Aptenia*, *Carpobrotus*, *Cotyledon*, *Crassula*, *Echeveria*, *Lampranthus*, *Passiflora*, *Sedum* and *Opuntia vulgaris*. The slopes of the "succulent garden" held many more remarkable plants. Unfortunately the South African perennial veld grass (*Ehrhartia erecta*) has overtaken many plants and will be a problem to eradicate. Also prominent were the Macaronesians pride of Madeira (*Echium candicans*) and tree lucerne (*Chamaecytisus palmensis*, Canary Islands). Of the natives, *Coprosma propinqua* and *Muehlenbeckia complexa* were prominent, while *Sophora prostrata*, with buds opening, *Corokia cotoneaster* and *Carmichaelia australis* were also present.

Bryony Macmillan

October Meeting:

Amber Sciligo, our student grant awardee at Lincoln University, posed the question, "Is self-pollination more advantageous than out-crossing in *Drosera* (sundews) due to conflict of the pollinating insects also being prey (trapped on the glands on the leaves)". The results of breeding observations show that while all species out-cross and self-pollinate, *D. arcturi* does not depend on pollination. It out-crosses the least and captures the large flies, its pollinators, on its leaves. *D. spatulata* captures mostly small blackflies and ants. *D. arcturi* chooses food rather than sex for successful reproduction.

Bryony Macmillan

NOVEMBER MEETING:

Trevor Partridge and Bill van den Ende spoke on "Aquatic Plants around Christchurch". The rivers studied were the Avon and Heathcote Rivers along with their tributaries, and Styx River, Smacks Creek and Kapitone Stream, all in Belfast area. All the waterways are starting to silt up and natives were uncommon, *Potamogetum ochreatus* and *Lemna minor* being the most abundant; *Elodea* and *Potamogetum crispus*, both exotic species, now dominate the waterways. Grey *Salix* and flag *Iris* are also local nuisances. Overall there has been a large reduction in the cover of aquatic plants due to a combination of excessive shade from riverbank trees, excessive sediments (created by people) and yearly weed harvesting as a result of the need for a "tidy appearance" in the rivers. This study will hopefully form the basis of how these rivers are managed into the future.

Margaret Geerkens

FUTURE EVENTS

January 11 – 18 2008	Field trip to Mokihinui region staying at Rata Lodge (Gentle Annie).
February 1	Larry Burrows will talk about Carbon sequestration.
February 2	Field trip to Mt Hutt
March 7	Roland Dale - Nature photography
March 8	Field trip to Nth Canterbury limestone area, location yet to be decided
April 4	Show and Tell
April 5	Boggy Reserve, Lake Ellesmere – to find bladderworts and create new species list
August 26	Trip to Gold Coast Australia, 7 nights with Russell Moffit

■ Other Botanic Society Contacts

Waikato Botanical Society

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Our newsletters are available on <http://cber.bio.waikato.ac.nz/Waibotsoc/WaikatoBotSoc.html>

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Manawatu Botanical Society

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Wakatipu Botanical Group

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Events

■ Josephine Ward Symposium 15 April 2008

A botanical symposium to celebrate Josephine Ward's career and contributions to New Zealand botany



Josephine Ward will retire at the end of March 2008 after a long career teaching plant biosystematics at the University of Canterbury. She has taught innumerable undergraduate students and supervised many PhD and MSc projects, with the students benefiting from Jo's wide knowledge of the New Zealand flora and her skills in plant taxonomy, anatomy and morphology. Many of her students have gone on to make important contributions to botanical research, conservation research and management, and science leadership in New Zealand.

For her PhD, Jo studied the relationships in the New Zealand genus *Raoulia*, using phenetic analysis on a mainframe computer, a new technique at the time. *Raoulia* and allied genera have remained her life-long research interest.

Symposium presenters will include her former undergraduate and graduate students and collaborators Ilse Breitwieser, Christina Flann, Kerry Ford, David Glenny, Nic Head, Peter Heenan, Gary Houlston, Janice Lord, Robert McKenzie, Phil Novis, Ines Schoenberger, Rob Smissen, Aaron Wilton.

When: Tuesday 15 April 2008

Where: Coppertop venue (Commerce Building), University of Canterbury

To receive a second circular and registration details please post or email your contact details to: Josephine Ward Symposium 2008, Allison Kerr, Landcare Research, PO Box 40, Lincoln 7640 (kerra@landcareresearch.co.nz)

Organised by the Allan Herbarium, Landcare Research, in collaboration with the School of Biological Sciences, University of Canterbury.

A registration form for this symposium can be found at the back of the newsletter.

■ National Pollination Survey

The purpose of the National Pollination Survey is to measure the health of bird-plant mutualisms throughout New Zealand, using the pollination service for tree fuchsia as an indicator. This is part of ongoing research (jointly run by Landcare Research, Department of Conservation and University of Canterbury) estimating the health and wellbeing of our native ecosystems by monitoring plant-bird interactions. These interactions between plants and animals are a critical feature for maintaining indigenous biodiversity.

Tree fuchsia (*Fuchsia excorticata*) flowers are a much sought-after food source for a number of native bird species, in particular bellbirds, tui and silvereyes. This makes it an ideal plant to use for surveying because it is widespread and the levels of pollen deposition reflect the number of birds in an area. It also flowers for a number of months.

Unique pollination features of tree fuchsia enable us to survey pollination in one visit. The pollen is bright blue and highly visible on the yellow stigma. This makes it easy to tell if a bird has deposited pollen on the stigma (presence of blue pollen).

By the time this newsletter is published the 2007 survey will be nearly complete. In future years we will resurvey sites and see if the pollination service has changed.

We need your assistance. We need lots of people to complete the survey from lots of locations all over New Zealand next spring and summer. Please help by completing the survey for a tree fuchsia population near you.

For more information and the survey forms visit:

http://www.biol.canterbury.ac.nz/pollination_survey/index.shtml

NOTES AND REPORTS

■ The botanical aftermath of James Cook's first and second voyages to New Zealand in relation to the genus *Pimelea* (Thymelaeaceae)

Colin Burrows, Research Associate, Biology School, University of Canterbury

Part 2. Diversions: The Forster Collections

A great complicating factor for New Zealand *Pimelea* nomenclature was the work of the German botanists, Johann Reinhold Forster (1727-1798), (father) and Johann Georg Adam (1754-1794), (son) who, with Anders Sparrman (Sweden, 1748-1820) were contracted to join James Cook and his crew aboard the "Resolution", during the second voyage. Joseph Banks had fallen out with Cook and withdrew from the expedition; the Forsters and Sparrman were naturalists in place of Banks and Solander. Young Georg Forster (18 in 1773) was employed as an artist for both plant and animal specimens¹. His work is not as accomplished as Parkinson's, but his drawings are valuable records and he became an effective botanist, eventually performing most of the publication work.

During the voyage the "Resolution" first visited Dusky Sound in Fiordland and then went to Ship Cove in Queen Charlotte Sound, Cook's favourite anchorage in New Zealand. They were in "Totaranui" on three occasions (Fig 1.). There were many local land visits, both in Dusky and Queen Charlotte Sounds, but they were ashore in no other parts of New Zealand.

The extensive plant collections, again, were worked up during the voyage, with preliminary descriptions and some illustrations prepared. Anders Sparrman apparently did a lot of collecting and wrote many descriptions but was never credited with the work in subsequent publications, except in introductions to two of them.

Back in England in July 1775, the Forsters had access to the Banks and Solander collections². They got into print with a book entitled *Characteres Generum Plantarum quas in Itinere ad Insulis Maris Australis* (London, November 1775). In this the genus *Banksia* was defined and three species (that were eventually placed in *Pimelea*), were described, each by a mere line of text, (as *B. gnidia*, *B. prostrata* and *B. tomentosa*). Probably this generic name was coined because the Forsters depended on Banks for some funding. Thus, the Forsters ignored Solander's generic name and his specific names *laevigata* (= *prostrata*) and *axillaris* (= *tomentosa*). Hereafter the Forster plants are referred to as "Banksia".

Reinhold Forster was to have collaborated with Cook in a book about the voyage (with Forster responsible for chapters on biology and ethnography). Georg Forster, in the meantime, wrote a book *A Voyage Round the World in His Britannic Majesty's Sloop Resolution* (London, 1777). It appeared just before Cook's own initial account of the expedition was published. This caused a major rift between the Forsters and the British Admiralty and the book-writing contract was cancelled and manuscripts, illustrations and specimens forfeited.

G. Forster went to France in 1777, apparently with some New Zealand plant specimens. Many Forster original botanical documents and a few specimens are now at the Museum de Histoire Naturelle (Paris) P³. Plant specimens and pictorial items are also at the BM, K and LINN in London.

J. R. Forster published a book *Observations Made During A Voyage Around The World* (London, 1778). Though he retained some plant specimens from New Zealand which later were sold and are now in many repositories in Europe, he did not contribute anything further to New Zealand botany. He lived in Halle, Germany, until his death.

In October 1778, G. Forster left England with specimens, drawings and manuscripts. He was employed at the University in Kassel, Germany, 1778-1784. He published a full account of ten tropical or South Seas plants (including the three "Banksia" spp. noted above): *Decas Plantarum Novarum ex Insulis Maris Australis – Nova Acta Koninglinga Vetenskapii Societe Upsala 3*, 171-186 (1780). For reasons that are unexplained, he changed the name "*B.*" *tomentosa* to "*B.*" *pilosa*.

A further complicating factor with respect to *Pimelea* was an action of Carl Linnaeus (the younger), (Sweden, 1741-1783). He transferred the three "Banksia" species of the Forsters into a genus *Passerina* (otherwise African) in *Supplementum Plantarum* (1781). This was an inept decision as *Passerina* has eight stamens per flower and *Pimelea* only two. Linnaeus f. then used the name *Banksia* for plants in a spectacular Australian genus of the Proteaceae⁴.

Linnaeus f. lived in London. On his death his collection (which included some Banks and Solander and Forster *Pimelea* species) was bought by J. E. Smith, a wealthy dilettante with botanical interests, who founded the Linnean Society, London. It has recently been realised that Smith wrote an account of *Pimelea* (both Australian and New Zealand, and spelt *Pimelaea*) for a British publication *Rees' Cyclopaedia Vol. 27* (1819). I am still examining the effect of this article on nomenclature of some New Zealand species.

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Part three will be printed in a subsequent issue of the New Zealand Botanical Society Newsletter.

■ ***Veronica* and *Hebe*: a response to Rhys Gardner**

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Dirk Albach, Institut für Spezielle Botanik, Johannes Gutenberg-Universität Mainz, Bentzelweg 9b, 55099 Mainz, Germany

In the previous issue, Rhys Gardner (2007) criticised our paper (Garnock-Jones et al. 2007) that transferred *Hebe* and its relatives *Parahebe*, *Chionohebe*, *Heliohebe*, and *Leonohebe*, along with Australian *Derwentia* and New Guinean *Detzneria*, back to *Veronica*. Here we explain the thinking behind our paper and then respond to Gardner's specific criticisms of it.

Natural classification. Biologists have been seeking a natural system of classification since the time of Linnaeus (1738) or even before, but it was not until Darwin (1859) that we began to understand the natural processes that produce biodiversity patterns. If taxonomy is to be considered a science, one that's involved with explanations rather than just descriptions, and not simply a service industry that identifies organisms for other users, then its findings must be subject to falsification. So, how does one falsify a classification?

Taxonomists who accept evolution aim to align the groups they recognise and name (such as genera and families) with the natural groups that are the result of evolutionary processes. Among such taxonomists, cladists hold that a taxonomic hypothesis (e.g., a particular circumscription of a genus) can be falsified by showing that it doesn't align with groups that have evolved. Evolved groups in nature are all clades (or *monophyletic groups*), that is, they comprise all the descendants of a single ancestral species. Clades have the following property: *every* clade member is related more closely to *every other* clade member than *any* member is to *any* non-member (where relationship is relative and means recency of common ancestry). Although all the groups that nature produces are clades, often the groups taxonomists have recognised are found not to be clades, and thus the naturalness of such groups is falsified. Such unnatural or artificial groups come in two kinds.

First, *polyphyletic groups* are groups of similar species whose similarity arises from parallel or convergent evolution in unrelated ancestors. Typically, whenever established taxa are found to be polyphyletic, they are quickly and uncontroversially reorganised into two or more monophyletic groups.

Secondly, *grades* (or *paraphyletic groups*) arise when some members of a clade have been artificially excluded, usually because they have diverged morphologically from their nearest relatives. Grades can be reorganised into classifications where every group is a clade, but this can be controversial if familiar groups are affected, as in *Veronica*. In a grade group, some members are *more closely related to non-members* than they are to other members of their own group. The common weed *Veronica arvensis* is more closely related to New Zealand hebes than it is to most other members of northern *Veronica* (e.g., Albach & Chase 2001). Thus the concept of *Veronica* in its former circumscription is falsified.

Cladistic taxonomy in New Zealand. Cladistic systematics was first proposed over 50 years ago (Hennig 1950). Gardner (2007) suggests that our paper brings it to New Zealand for the first time, but we are hardly pioneers in this. Many unnatural New Zealand groups have already been sensibly and uncontroversially reclassified using cladistic principles and (usually) molecular data, e.g., *Corallospartium*, *Notospartium*, and *Chordospartium* returned to *Carmichaelia*, which would otherwise be a grade (Heenan 1998); *Haastia* moved to *Senecioneae*, which would otherwise be a grade (Wagstaff & Breitwieser 2004); *Ischnocarpus* and *Cheesemania* united with *Pachycladon*, which would otherwise be a grade (so different morphologically that they had been classified in separate tribes; Heenan et al. 2002); *Iti* submerged into *Cardamine*, which would otherwise be a grade (even though *Iti* lacks the characteristic explosive fruit valves of *Cardamine*; Mitchell & Heenan 2000). The idea that the *Hebe* complex evolved within *Veronica* is nothing new (Raven 1973, Garnock-Jones 1975) and although *Hebe* was described in 1789, New Zealand plants were treated as *Veronica* until Oliver (1925).

Veronica. Some botanists would wish to retain *Hebe* separate from *Veronica* not because they're *unrelated* (they're not) but because they're *different* (or, at least, many of them are). The problem with this way of thinking is there are no objective and testable criteria for how different a grade group should be to deserve separate recognition. If such classifications can't be falsified, they're outside Popper's definition of science (Popper 1959). Even so, our paper (Garnock-Jones et al. 2007) looked at whether the *Hebe* complex could be shown to be different enough from *Veronica* that a simple set of characters could be used in a key to clearly distinguish the two genera. True enough, most hebes are different from most veronicas, but a large group of over 30 *Veronica*-like relatives remains and has always been hard to classify (Oliver 1944). *Veronica lilliputiana* (*Parahebe canescens*) is a good example. It's herbaceous, has short-tubed blue flowers with nectar-guides, attenuate stamen filaments, and an angustiseptate capsule, all characteristic of *Veronica*.

Alternative monophyletic classifications. Gardner (2007) has rightly noted that instead of uniting *Veronica* and the *Hebe* complex, we could have divided *Veronica* into smaller genera, many of them new and all of them clades, working up the tree until we got to *Hebe*. However, many of these groups are not recognisable on morphological grounds, but only by their DNA sequences (Albach et al. 2004). New Zealand field botanists, ecologists, and conservation biologists have repeatedly stated that they want groups to be recognisable in the field, and some seem suspicious of DNA as a source of taxonomic data. Further, splitting *Veronica* would have brought much more disruption to familiar names worldwide than we have done; however it's true that fewer New Zealand names at least would have been affected. But even in New Zealand, the divisive option would change names of between 3 and 33 indigenous and 16 naturalised species.

As Gardner (2007) points out, nearly all hebes and related New Zealand plants have kept the same epithet in *Veronica*, with only 16 needing new epithets. These are mostly local and/or rare, and many botanists will never encounter them. Additionally, *Hebe* can be used at sectional rank within *Veronica* (e.g., *Veronica* (sect. *Hebe*) *speciosa*) and as a common name (with lower case "h"), including in cultivar names (hebe 'Wiri Spears').

We finish by briefly responding to some of Gardner's smaller points:

- The basic haploid chromosome number of the *Hebe* clade is not $n=10/20$ (Gardner 2007), but $n=20/21$; and is the same in some northern veronicas (*V. campylopoda* for instance has $n=21$; Albach et al., 2008).
- Gardner (2007) argues that the "connection between the names and the literature" is a reason to maintain established nomenclature. We believe the connection is maintained by synonymies and voucher specimens, not by dogmatic resistance to change. In any case splitting *Veronica* would change more names than enlarging it has done.
- Finally, doing hard time annotating specimens among the herbarium cupboards is suggested (Gardner 2007) as a punishment for those of us who have the temerity to suggest taxonomists could do better. But without making practical changes as knowledge improves we'd still classify liverworts among the algae, and *Lycopodium* among the mosses (Forster 1786).

Our thanks to Bill Malcolm and Heidi Meudt for comments on the manuscript.

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BIOGRAPHY/BIBLIOGRAPHY

■ **Biographical Notes (68) : John Stuart Yeates. The early years (1900–1927)**

E.J. Godley, Research Associate, Landcare Research, P.O. Box 40, Lincoln.

When Massey Agricultural College, Palmerston North, was officially opened on 20 March, 1928, one of the foundation staff was the 27-year-old Dr J.S. Yeates. Appointed as lecturer in Agricultural Botany and Field Husbandry (1), he was to serve the College for 37 years, retiring as Senior Lecturer and Head of the Agricultural Botany Department in 1965. During this time he saw the College struggle through the Depression of 1930–36 and the war years of 1939–45; but a year before he retired he saw Massey Agricultural College become Massey University of the Manawatu, and during his retirement he saw his achievements in horticultural plant breeding honoured internationally.

John Stuart Yeates was born on 11 July, 1900, at Waitara, a small town on the north Taranaki coast, just east of New Plymouth (2,3). He was to retain his first name, John, for official pronouncements, but signed himself “Jack” in letters to his mother, and was called “Jack” by his friends at University in Wellington. Later, at Massey, he was called “Jackie” Yeates, perhaps because the Registrar was Charlie Yates (sic); and, 60 years later, early students still recall him as “Jackie”.

Jack was the second child in a family of 6 boys and a girl (the eldest) born to A.W. (Fred) and Edith Yeates who, for 15 years, farmed a Taranaki bush farm at the foot of “Punga Hill” in Lincoln Road, some seven miles from Inglewood. Fred Yeates made his own cheeses and his principal income was an annual payment after they had been sold in London. The children gathered the Jew’s-ear fungus to make pocket money, and walked, or rode their horses, the two miles to the Lincoln Road School (4).

In 1912 the family sold the farm and purchased another at Halcombe, near Feilding. But the drier country there was more suited to sheep than dairy farming and at the end of June, 1914, they returned to farm at Windsor Road, Inglewood. These two years, however, were not wasted. The Halcombe School was very active and successful in garden and horticultural competitions in both Palmerston North and Feilding; and the headmaster, Mr W.F. Stansell, was probably the single most important individual to recognise Jack's ability and persuade his family to advance his education (4).

In July 1914 Jack enrolled at Stratford District High School, travelling the 14 miles to school by train. During the next 4½ years he studied Latin, French, English, Trigonometry, Euclid, Algebra, Arithmetic, Botany, and Physics (4). There is a photograph of the 1918 SDHS Football Team with the caption "Absent J.S. Yeates" (5); and in later life Yeates commented that he missed out on several things like this as he had to get the train home to Inglewood to milk the cows. During the influenza epidemic (when the school was closed from 6 November 1918), he also had to milk for an uncle when that family was ill (4). But his final report on 27 November 1918, stated that "John Yeates has an enviable school record" and notes that his English composition showed "exceptional merit" and that in Botany he was a "practical enthusiast" (4). And he won a University Entrance (Taranaki) Scholarship which took him to Victoria University College (2,3).

Victoria University College, Wellington (1919–1925)

Jack Yeates entered Victoria College in 1919 and in the next 3 years (1919–21) took Physics, Geology, advanced Chemistry and advanced Botany, graduating B.Sc in 1922 (4). Although he made his career as a botanist, he never lost his interest in chemistry whether it be experimenting with stains and fixatives, or using chemicals to preserve timber or kill weeds. In 1922 he studied for his M.Sc., preparing a thesis on "Root-nodules of New Zealand pines" under the supervision of the Professor of Biology, Harry Borrer Kirk. This kind of research was not new in Kirk's department. A decade earlier one of Kirk's students, T.L. Lancaster (later Associate-Professor of Botany at Auckland University College), had published a "Preliminary note on the fungi of the New Zealand epiphytic orchids" (6).

Yeates's research involved culturing bacteria and fungi, the preparation and examination of microscope slides, and considerable field work (7). He reported (8): "Out of several hundreds of nodules examined, representing about 20 species and a range of territory from Hokitika to Ruapehu, only one nodule could definitely be said to contain bacteria—. In the vast majority of cases a non-septate fungus was present." And he suggested that the nodules were beneficial to the host not only as a source of organic material through digestion of the fungus, but also for water absorption and storage. He also produced some interesting ideas concerning the relation between the root-fungus and the juvenile form in these plants. He wrote: "It is found that, as a whole, the species in which water tissue is least developed in the nodules are the species in which the change from juvenile to adult leaf is most striking. In other words, absence of sufficient water-tissue on their roots has compelled these species to reduce their leaf-surface and so to economise their water-supply (*D. biforme*, *D. colensoi*)" and: "The brown-leaved, divaricating stage of the matai (*Podocarpus spicatus*) is a close approach to the chlorophyll-less state of many advanced saprophytic phanerogams. Moreover the nodules of such a tree of *P. spicatus* contain what is perhaps the most dense mycorrhiza found in any species so far examined." (8)



J S Yeates - MSc, 1922 (courtesy of Dr Gregor Yeates)

Yeates did not pursue these ideas any further, but it is clear that he was no ordinary student. In 1923 he graduated M.Sc with First Class Honours in Botany, and in 1923 and 1924, as National Research Scholar and Jacob Joseph Scholar, he carried out post-graduate research. He had noticed "in some slides from young synangia of *Tmesipteris tannensis* prepared from curiosity regarding this unique plant, that during mitosis there were present, in addition to the chromosomes, several rounded bodies similar to the nucleoli of resting cells" (9). His detailed study of these bodies – their genesis, number, persistence and relation to the chromosomes – earned him the degree of Doctor of Philosophy, conferred in May 1925. This was a new degree in the University of New Zealand's calendar and Yeates was the first to receive it. His account of the nucleoli of *Tmesipteris* was communicated to the Royal Society of London by Dr Leonard Cockayne FRS of Wellington, and was published in the Society's Proceedings in 1925 (9).

A noteworthy feature of Yeates's work was his determination of the haploid chromosome number of this native *Tmesipteris*. He wrote: "The number of bivalents on the equatorial plate is very high, and crowding makes them difficult to count. Six plates carefully outlined under camera lucida ($\times 3,000$) gave the numbers 90, 96, 101, 104, 94, 93 — an average of 97. The plates with 101 and 104 were the best for counting, so that an estimate of 100 bivalents seems reasonable"; and he concluded that "the chromosome number (diploid) of *Tmesipteris* is approximately 200". This was a remarkably accurate count considering that it was made from microtome sections. Thirty years later, using more sophisticated methods, Barber published a number of 204–210 for *Tmesipteris fowerakeri* (now *T. tannensis*). Allan quoted this in his Flora (1961), but did not mention Yeates's count; nor did Chinnock mention it in his study of the New Zealand species (10). This was not the only pioneer count by Yeates to be overlooked.

While working on *Tmesipteris* Yeates undertook laboratory investigations for the State Forest Service on the prevention of sap-stain in the sap-wood of white pine (*Dacrycarpus dacrydioides*). This timber was widely used for butter boxes. His report (11) recommended borax as a fungicide for sap-stain, and subsequent commercial experiments "proved very satisfactory" (12). He also described sap-stain in the timber of *Pinus radiata* and discussed its cause and the chemical treatment used overseas (13). In addition to all this research Yeates gave short courses of lectures to Professor Kirk's advanced students (6).

Yeates's work in cytology, mycology, and on the gymnosperms brought him into contact with several of the small groups of plant scientists then working in 1920's Wellington and elsewhere. As well as Kirk and Cockayne it included Professor Charles Chilton (Canterbury University College), Rev. J.E. Holloway (lecturer-in-charge, Botany Dept. University of Otago), Captain Mackintosh Ellis (Director, State Forest Service, Wellington), Mr G.H. Cunningham (Government Mycologist, Biological Laboratory, Dept. of Agriculture, Wellington), and Mr V.C. Davies, the botanist and horticulturist of the firm of Duncan and Davies, New Plymouth (8). Indeed, Kirk and Cockayne adopted Yeates as a favourite son with Cockayne fostering him as one of those with whom the future of New Zealand botany lay, just as he had fostered the High School teacher, H.H. Allan (b. 1882) and C.E. Foweraker (b. 1886) then lecturer-in-charge of Forestry, Canterbury University College.

At weekends Yeates relaxed in the Tararua Ranges (often collecting plants), with fellow members of the University Tramping Club, one of whom was J.C. Beaglehole (14). Both were to undertake post-graduate studies overseas, with Yeates leaving first. On 20 May 1925 he was awarded a University of New Zealand Post-Graduate Scholarship in Science with a free passage to Europe, and this was soon reinforced by a Research Studentship at Trinity College, Cambridge (only one of these was offered each year throughout the Empire). In early October, he sailed from Wellington on the RMS *Arawa* bound for England, via Panama; and on 26 November 1925 he arrived at Southampton (4).

Trinity College, Cambridge (1925–1927)

When Jack Yeates went up to Trinity in the Michaelmas term of 1925 he clearly intended to make the most of his time. But his time was limited. Cockayne suggested in a letter dated 28 March 1926 that July 1927 was too early to return to New Zealand (15). Despite this, as Yeates later wrote (7), "in addition to my research work there, I studied mycology and plant pathology under Mr F.T. Brooks, a world-wide authority [later Professor of Botany, Cambridge], and plant breeding under Mr Engledow of the Plant-breeding Institute of the Cambridge University School of Agriculture." He also "taught

practical Botany for two terms as an assistant in Prof. Seward's Botany course, and in the Elementary Biology course for medical students."

Yeates called his research topic "Some problems in the comparison of chromosomes". Hitherto cytologists had distinguished the chromosome complements of many species by their numbers, or by the occasional recognisable chromosome with a non-staining gap or a satellite. But they were now trying to find better methods for comparing chromosomes.

Yeates first investigated the spiral structure in the chromosomes of such genera as *Tradescantia* and *Vicia*, but found this of no use for comparisons. He then switched to measuring the length of the short segment on one limb of the *m*-chromosome in the broadbean (*Vicia faba*) (16).

This work seems very difficult to me; and Yeates himself soon became worried about it. Whereas he could write to Cockayne on 28 February 1926, 3 months after his arrival, that he was enjoying life and keeping his eyes open (15), he felt differently some 7 months later when he went up to London on 3 October 1926 to meet Beaglehole, just arrived from New Zealand. Beaglehole noted Yeates's "flow of invective and vituperation" and that "Yeates was full of doubts about ever getting his Cambridge thesis finished, forthright on what a failure he was and generally down on the country and the climate. He could not wait to get back to New Zealand" (14). Whatever Yeates said, he certainly had reasons to be pessimistic. As well as being time-consuming and uninteresting, his research was probably made more difficult by the poor state of cytology at Cambridge in the 1920s. We do not know who suggested the subject; nor do we know whether or not Yeates had a supervisor. Indeed it was not until 1937, when D.G. Catcheside was appointed to lecture in cytology and genetics that there was anyone at Cambridge qualified to supervise such work (17), and I doubt whether Catcheside would have recommended such an unfriendly topic.

Yeates met Beaglehole again, with another New Zealander, Lorrie Richardson, at Cambridge, soon after Easter, 1927, and Beaglehole recalled that "we did our best to convince him that he was committing intellectual suicide [in returning to New Zealand] but in vain" (14). As a help in countering this gloomy advice Yeates would have known that, during his absence, there had been a major advance in the organisation of New Zealand science. On 31 August 1926, the Scientific and Industrial Research Act, setting up a new Government department had been passed in Parliament (18). And Cockayne, at least, was looking forward to his return. On 29 March 1927 he had written: "No space for discussing those deep questions your zeal propounds, but will have a go when we meet once more in this favoured land. Nor will it be favoured the less by the return of one of its sons fired with holy enthusiasm to devote his days to the study of the many problems that land perhaps above all others offers for the expenditure of such splendid zeal." (15)

Before he came home Yeates wrote a progress report on his research. His main conclusion was that "the mean value for the length of a certain chromosome may vary considerably within a single species." He added that "it remains to be decided whether or not mean chromosome length is inherited, and if it has the same value for all the individuals of a pure line". (16). To test the latter point he had reared 32 broad bean plants and, after collecting root tips from them, had planted them out in the University Botanic Gardens in the spring of 1927. Before flowering they were covered with muslin bags and he arranged for a colleague to send the selfed seed on to him in New Zealand (19).

In mid-June 1927, after some 18 months at Cambridge, Yeates sailed for home on the S.S. *Tamara* via Panama. He arrived in Wellington on 25 July 1927 (4) to find that the new DSIR was already making its mark under the enthusiastic leadership of Dr Ernest Marsden who had been his Physics Professor at Victoria University College.

[to be continued]

Acknowledgements

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PUBLICATIONS

■ Hattori Prize to New Zealanders

At the recent 'World Conference of Bryology' in Kuala Lumpur, the 2007 recipients of the prestigious Hattori Prize were announced. Bill and Nancy Malcolm, of Micro-Optics Press, in Nelson, received the award for their very fine book 'Mosses and Other Bryophytes – an Illustrated Glossary (Second Edition)'. This prize is given biennially by the International Association of Bryologists for the best bryological publication in the preceding 2 years. Previous recipients have included such eminent bryologists as William Steere, Riclef Grolle and Lewis Anderson. The award was received by Alison Downing of Macquarie University, on Bill and Nancy's behalf, from the President of the International Association of Bryologists, Prof. Janice Glime.

New Zealand botanists will already be aware of the significant contributions Bill and Nancy are making to disseminating botanical knowledge. Their superb photographic skills are evident in their earlier books, which include: 'New Zealand Alpine Plants Inside and Out', 'The Forest Carpet', 'New Zealand Lichens'. In addition they have made substantial photographic contributions to other works, such as 'Key to the Genera of Australian Mosses', 'An Illustrated Guide to New Zealand Hebes' and 'Fungal Families of the World'. For myself, having the Malcolms as collaborators has been a great pleasure. At the specialist end we have worked together on 'The Moss Genus *Fissidens* in New Zealand – an Illustrated Key', and, for the more general reader, chapters on mosses in 'Waitakere Ranges – Ranges of Inspiration', and most recently in 'Natural History of Rangitoto Island'. It is good to know that their talents are appreciated internationally.

Like the first edition of the Glossary, this greatly enlarged 2nd Edition is a very useful reference work, not only for bryologists, but for botanists of any ilk. Copies are available within New Zealand from Manaaki Whenua Press for \$110.25 plus \$5.00 delivery. A discount of 10% applies for N.Z. Botanical Society Members. For further information see www.mwpress.co.nz or email Manaaki Whenua Press at mwpress@landcareresearch.co.nz

Jessica Beever

■ Book review

A Botanist's Notebook. By Eric Godley. Manuka Press 2006. [ISBN 0-9583299-4-X]

At a time when New Zealand plants were of much less interest to gardeners than they are today, Dr Eric Godley brought the beauty and interest of the New Zealand flora to the general reader through his regular column in the New Zealand Gardener Magazine. Sixty three of the articles written for this

column, as well as other articles from various sources, have now been published together in "A Botanist's Notebook".

Appropriately, the book begins with "When Joseph Banks was learning his craft", while the final article, written especially for the book, is on the use of the Māori language in the scientific names of New Zealand plants. In between, topics range from the cotyledons of parapara to the fruiting behaviour of *Tecomanthe speciosa*, and from *Fuchsia procumbens* in Northland to *Pleurophyllum speciosum* on Adams Island. The articles, most about 2 pages long including a photo or two, have been grouped into themes, including "Flowers and Pollination", "Fruits and Seeds", "Far South", "Tropical Outliers", and "Kowhai" and "Fuchsia".

The focus is primarily native plants, but introduced and overseas species are also discussed. The inclusion of a long article on an expedition to Southern Chile in the late 1950s makes a good contrast to the much shorter New Zealand Gardener articles. I was particularly interested to see a photo of *Gunnera tinctoria* on a beach on Chiloé Island, growing only about knee high, as well as the discussion on chewing the leaf stalks as a refreshing snack on hot days in the field.

Given that most of the content of this book was written about 25 years ago, there may be concern that some of it is out-of-date. While Botany has moved on and a few names have changed, the articles are still relevant. In some cases, footnotes provide updated information, as for *Sophora* "Gnome". In others, the fact that they are somewhat out of date is the reason for their significance. For example the article "Does planting achieve its purpose?" explains, among other things, why the native species used in restoration plantings should be local species, planted in the appropriate habitat and from locally-collected material. This approach is widely implemented today, but when the article was published in 1972 it was perhaps the first time such recommendations were brought to public attention.

Personally, I found the very short New Zealand Gardener articles just a bit too short and, at times, a little unsatisfying. I would sometimes reach the end and feel that I had read a good introduction to a more detailed discussion, not the complete article. But a good writer writes for their audience and within the constraints set by their editor, and the author has achieved exactly what he intended, which was to give gardeners "background knowledge which could make your plants and your 'outdoor living' more interesting". The writing style is a successful combination of botanical accuracy and readability, not easy to do in my experience.

The absorbing and readable nature of this book is perhaps best illustrated by my own experience reading it. I took this book when I was going overseas (for work), thinking that a few chapters each evening would be a nice way to relax at the end of the day. My plan went somewhat astray, as I decided to read a little of it on the plane flight. Each time I finished one of the short chapters, I thought "just one more", and before I reached my destination, I had read the whole book. I'm sure it would be a good book to read a bit at a time, as I planned, but if you intend to do this, you will need a bit more self-discipline than me!

Melanie Newfield

"A Botanist's Notebook" is available to *New Zealand Botanical Society Newsletter* readers at a discounted price of \$22 including postage and packaging. Contact Manuka Press, PO Box 245, Cromwell, Central Otago, email: richard@manukapress.co.nz

Journals Received

New Zealand Native Orchid Group Journal No. 105 – November 2007; 32 pp.
Edited by Ian St George [ISSN 1177-4401]

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