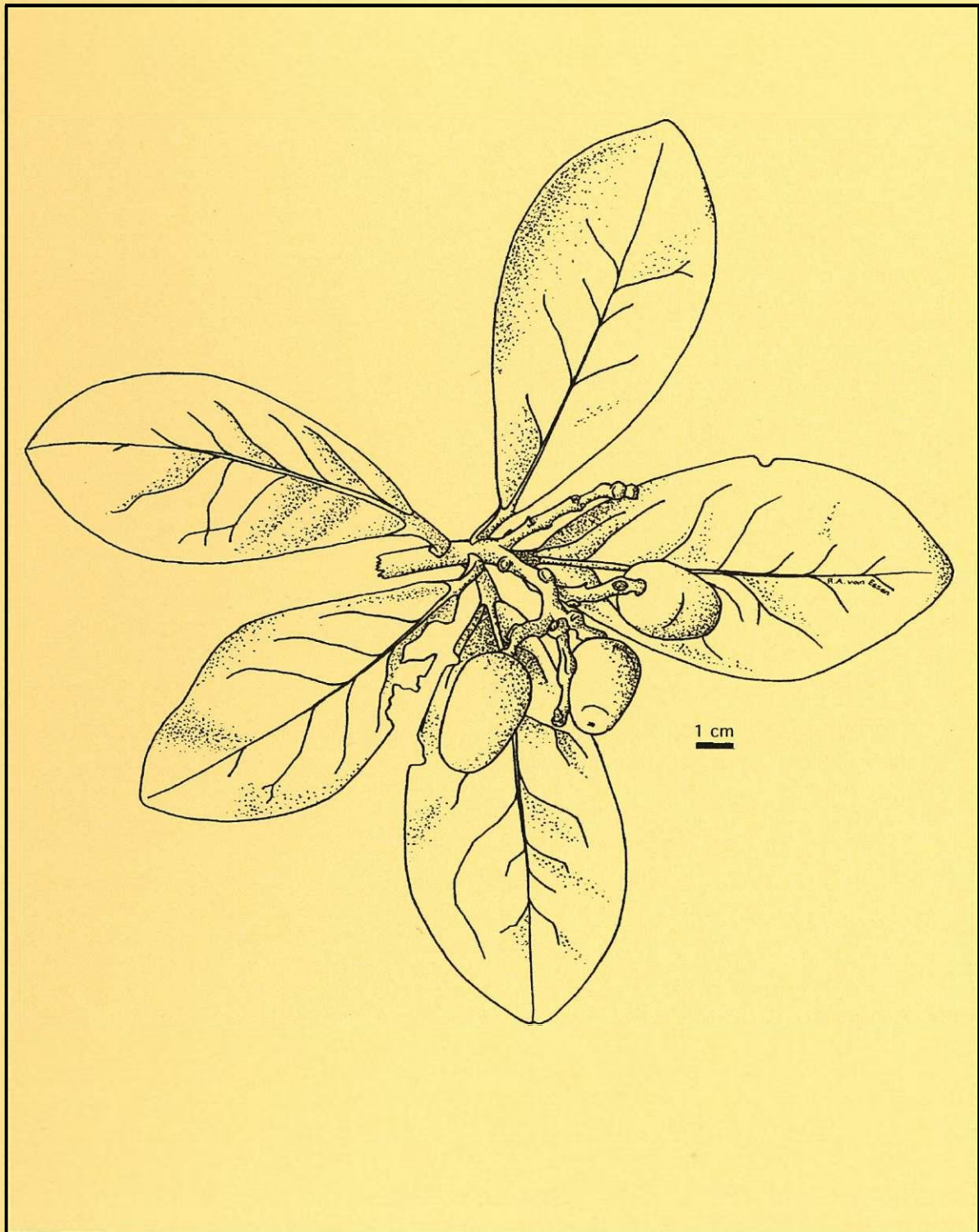


NEW ZEALAND BOTANICAL SOCIETY

NEWSLETTER

NUMBER 81

SEPTEMBER 2005



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

Subscriptions

The 2005 ordinary and institutional subscriptions are \$25 (reduced to \$18 if paid by the due date on the subscription invoice). The 2005 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 December 2005 issue (82) is 25 November 2005.

Please post contributions to: Joy Talbot
17 Ford Road
Christchurch 8002

Send email contributions to joytalbot@free.net.nz or talbotj@cpit.ac.nz. Files are preferably in MS Word (Word 2003 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 requested. 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

Karaka (*Corynocarpus laevigatus*) fruit – Drawn by Rosemary van Essen, from a plant on Massey Campus. It has the larger fruit size associated with Maori settlements (see article p13). It is probably a planting from a tree originally cultivated by the Rangitane, who are linked to the culturally-significant remnant stand called Karaka Grove on the banks of the Manawatu (currently part of Massey University). (They had a nasty fight there, and lots of folk got killed.)

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NEWS

New Zealand Botanical Society News

▪ From the Secretary

Allan Mere Award 2005

The NZBS Committee is pleased to announce that this year's award of the Allan Mere is to Ewen Cameron of Auckland.

Ewen's nomination was strongly supported by letters from a large number of botanists and organisations. The following extracts from the nomination and supporting letters are indicative of this support:

"Ewen was appointed technical officer in the former Botany Department of the University of Auckland, a position which he held until 1993. During that time, in addition to helping run teaching labs, he helped supervise student research programmes and was curator of the University of Auckland Herbarium (AKU). Between 1991 and 1993, Ewen was also acting Curator of Botany at Auckland Museum Herbarium, a position which was made permanent toward the end of 1993."

"While at Auckland University he was able to transform the herbarium into a real working facility - it came to life because he centred his activities around it and emphasised its value to members of staff and students alike."

"Ewen's knowledge and expertise in the area of herbarium curation procedures and practices is of the highest standards"

"Although now working as a full time curator, Ewen continues to provide lectures (mainly at the University of Auckland) on New Zealand native plant ecology, taxonomy, weed naturalisations, and aspects of Pacific Biogeography. He is also a much sought-after, popular speaker at Botanical Society gatherings."

"During his career Ewen has published 28 papers in peer-reviewed journals, three book chapters and one book. ...Aside from scientific papers, book chapters, books and other allied literature, Ewen has published at least 100 original popular articles on New Zealand and Pacific Botany, mainly in the Auckland Botanical Society Journal (and its predecessor, the Newsletter) but also in the Rotorua and New Zealand Botanical Society Newsletters. His articles may be found in Forest & Bird, and he has also freely contributed numerous images and notes toward articles that have appeared in Plant Talk, and Plant & Garden. Ewen's images of New Zealand plants and animals have also appeared in many popular books, Department of Conservation publications and more significantly several weed pamphlets put into circulation by the Auckland, Northland Regional Councils and also Environment Waikato...."

"Ewen Cameron has been a member of the Auckland Botanical Society since 1980, and from 1993 - 2003 he served as that society's President. In 2003 he was elected by that society as Honorary Life Member in recognition of his dedicated service. Ewen is now Vice President and in that capacity continues to play an important role in the functioning of the committee, leading field trips, and assisting with evening talks. In 1988-1991 Ewen was also appointed to the Auckland Conservation Board by the then Minister of Conservation where he served as the inaugural chair. He then served on the board for another three years (1991-1994)."

"..Ewen has been Acting-Editor for the New Zealand Botanical Society Newsletter on three occasions, and he has also helped with the 1991 joint Australian/New Zealand Biosystematics and New Zealand Botanical Society conference, and the 2003 John Child Bryophyte Workshop based at Hunua."

"His passion for botany is unstinting and is recognised widely. His knowledge is held in esteem by tangata whenua who often consult Ewen and involve him in decision-making. He is a true believer in societies that promote botanical knowledge and conservation, as is demonstrated through his long involvement with societies such as the Native Forests Action Council, the Offshore Islands Research Group and the Auckland Botanical Society."

"Ewen was a key member of the organising committee of both the 2004 and 2005 Auckland BioBlitz."

"Ewen has an encyclopaedic knowledge of New Zealand plants encompassing, in particular, vascular plant systematics, introduced and weed species, threatened plants, and conservation in its broadest sense. He is one of a small handful of New Zealand botanists who can accurately identify most species within this range, and who have a sufficiently broad knowledge of the flora to be able to make really well informed decisions about conservation, biosecurity and ecological issues at the species level."

"His encyclopaedic knowledge of New Zealand's vascular flora and his passion to pass this knowledge on inspired many students...."

"As a professional botanist Ewen has contributed over 13 000 herbarium specimens to New Zealand herbaria"

"Ewen is one of the most important collectors of naturalised plants in North Auckland during the last 25 years"

"Ewen is an extremely approachable person who gives very generously of his time and knowledge to anyone that he can help"

The Allan Mere will be presented by the NZBS President to Ewen at the Auckland Botanical Society meeting to be held at Unitec, Carrington Rd, at 7.30 pm on Wednesday 2 November 2005.

Call for Nominations

Nominations are called for the following positions of Officers and Committee of the New Zealand Botanical Society for 2006:

President

Secretary/Treasurer

3 Committee Members

Nominations for all positions opened 1 September 2005 and close on 19 November 2005. 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.

The position of Secretary/Treasurer is vacant for 2006. Please contact Anthony Wright if you are interested or have suggestions of a suitable candidate for this position.

Joy Talbot has indicated that she would really like to step down as Newsletter Editor next year if another candidate can be found. If anyone would like to know more about the position, please contact Joy. Once again, Anthony would be pleased to hear of any offers of service or suggestions as to who would make a suitable editor.

Aaron Wilton, Secretary/Treasurer NZBS wiltona@landcare.cri.nz

Regional Botanical Society News

■ Auckland Botanical Society

June Meeting

Mike Wilcox spoke on the flora of Central Australia, taking the audience on an illustrated tour of some of the diverse habitats occurring there, and showing the plants that have adapted to the different conditions. The arid outback has a surprisingly rich flora and interesting types of vegetation.

June Trip

Those who braved the wet start to the morning at Makarau, had an enjoyable ramble through a covenanted area of regenerating podocarp/broadleaf bush, including a wetland and stream. Scones for afternoon tea set the benchmark for future field trips.

July Meeting

Craig Bishop described the research that he carried out for his PhD on the nature, cause and stability of ecotones between frost flat heathland and forest vegetation. This heathland is a cold adapted vegetation type found in frosty depressions throughout the Central North Island.

July Trip

The privately owned forest of planted trees at Bankside, Silverdale, was originally owned and planted by the grandparents of the late Frank Bartlett. When Frank owned the property it was well known for the orchids, and other "gumland" species, including *Phylloglossum drummondii*, that grew there. This habitat has now disappeared, but under the exotics, mainly *Eucalyptus* species, grow quite an array of native plants.

August Meeting

Cilla McAllum, PhD student at the University of Waikato, presented aspects of harakeke (*Phormium tenax*) ecology in relation to Maori historical management and traditional knowledge. Her research considers cultivation practices from historical literature, and ecological knowledge found in Maori proverbs (whakatauki).

August Trip

On a perfect winter's day a large party enjoyed the varied assemblage of plants that grows at the Auckland Zoo. The Zoo's Horticultural Superintendent, Hugo Baynes, was a knowledgeable guide to the exotic and native species, many of them rarities, that have been planted there over many years. Time even allowed for an occasional glance at the animals.

Forthcoming Activities

7 September	Dr Heidi Meudt, "The genus <i>Ourisia</i> "
17 September	Ian Wells track, Waitakere Ranges
26-29 September	Spring Camp: Eastwoodhill Arboretum, Gisborne
5 October	Lucy Cranwell Lecture: Peter Heenan, "New plant discoveries in the NZ dicot flora"
15 October	Ponui Island
20-23 October	Cuvier Island

President: Mike Wilcox

Secretary: Jenny Lux jlux@kma.co.nz

PO Box 26391, Epsom, Auckland

■ **Waikato Botanical Society**

We are now out there on the web! People looking for botanical information on the Waikato will find our contact details, sample field trip reports, membership forms, and order forms for the Botany of the Waikato (buy one today!). In the future we also hope to have links to recent issues of our newsletter. <http://cber.bio.waikato.ac.nz/Waibotsoc/WaikatoBotSoc.html>

Sedges and Rushes Workshop – 2nd July

Waikato members joined in this informative workshop, put on by Chris Ecroyd and Graeme Jane in Rotorua, with a good turn from Rotorua, Waikato and Auckland Botanical Societies. We started with a brief introduction to distinguishing the sedges (Cyperaceae), rushes (Juncaceae), grasses (Poaceae) and restiads (Restionaceae), the handy quote of the day was - 'Sedges have edges; rushes are round; grasses are hollow right up from the ground'. Then of course we went on to learn about all the exceptions to this rule! We had some example herbarium specimens laid out to look over during the day and a good selection of live specimens to key out, down to family, genus and, if you were really keen, species, while brushing up on terminology such as spikelets, bracts, glumes and bristles. A hand lens and microscope was often essential, especially at species level when looking at tiny, reduced flower structures.

Upcoming Events

Sunday 25th September - Karangahake Gorge, Coromandel

A re-run due to cancellation last year. This trip will follow the Dubbo track in the Karangahake Gorge and explore old mineshaft entrances, a long rock railway tunnel and other restored mining relics. We will follow a loop track back along the Waitawheta River to the starting point, about 4 hours at an easy pace, plus botanising time. Bring torches for tunnel and mine entrances.

Contact: Doug Ashby 07 862 4706 or dj.ashby@xtra.co.nz

Sunday 20th November - Whangamarino Wetland

A re-run due to cancellation last year. Visit the peatbogs of Whangamarino Wetland and learn about conservation issues at the site including water level regulation, pest fish, native fish, invasive weeds, and threatened plant management. Numbers are limited on this trip to minimise damage at the site, please register your intention to attend with Andrea Brandon abrandon@doc.govt.nz or ph 858 1018. Bring gumboots!

President: Liz Grove, eg3@waikato.ac.nz

Secretary: Andrea Brandon, abrandon@doc.govt.nz

General contact: bot_soc@waikato.ac.nz

▪ Rotorua Botanical Society

NEWSLETTER INDEX

A new newsletter index for all the RBS newsletters from No. 1 in 1984 to No. 42 in 2004 has been produced in two versions:

1. Printed hard copy version similar to previous index and newsletter format. Cost \$5
2. Compact Disc (CD) version with hyperlinks to individual articles. Cost \$5 to members, \$25 to non-members.

Please send order stating whether you want printed hard copy or CD version of index and how many required, with payment to:

Rotorua Botanical Society, c/- National Forestry Herbarium, Ensis, Te Papa Tipu Innovation Park.
Private Bag, 3020, Rotorua.

For queries contact: Joan Fitzgerald, ph.07 347 7917, (fitzjk@clear.net.nz)

▪ Nelson Botanical Society

Maitai Cave, Nelson, May 15

Our group of seven met at the Maitai Dam car park, ready to explore this often overlooked patch of bush close to town. We were fortunate to have Geoff Rogers from DoC Dunedin with us to help identify the huge range of botanical treasures present. There are around 60 species of ferns and 30 of grasses/sedges, just for a start.

Where the Dun Mountain ultramafic belt extends down to the valley we found *Olearia serpentina* and *Coprosma obconica*. After crossing Solanders Creek we found *Trichomanes reniforme*, then entered the forest. A patch of the giant moss, *Dawsonia superba* was by the track, and several specimens of a tall slender tree fern which could be *Cyathea cunninghamii* or just *C. medullaris* struggling for light under the tall rimu and matai canopy. We had to start forcing the pace to reach the cave, as we had to return to the security gate by 5pm.

A most enjoyable day, the number of species present was astonishing – 216 on the species list with quite a few more added along the way.

At our May 16 evening meeting, Geoff Rogers gave the Druce Memorial Lecture, an engaging talk using material from Tony's [Druce] articles, and drawing on many personal experiences Geoff had with Tony during field excursions. Geoff concluded by suggesting that Tony was NZ's most prolific

botanical explorer, biogeographic chronicler and taxonomic enquirer, and his contribution to NZ botany has been enormous.

Hoddy's Estuary Park, Appleby, June 19th

On a perfect winter's morning nine members set off to explore this newly established area. Peter Owen, a park board member, walked with us round the 10 acre park pointing out the boundaries. There had been difficulties financing this idyllic place, but now Waimea South garden club is looking after it and a local nursery has offered to donate native plants. At the estuary edge Cathy showed us the different reeds and rushes such as *Juncus kraussii* and *Apodasmia similis*. Also growing on the water edge were *Senecio minima* and bushes of *Plagianthus divaricatus*; *Muehlenbeckia australis* and *M. complexa*. We had lunch in the sun on a dry higher area in the estuary and soon spotted *Suaeda novae-zelandiae*, *Samolus repens*, *Cotula coronopifolia* and *Sarcocornia quinqueflora*. We then walked to the northern side on a newly developed track through recent plantings of hebe, coprosmas, ake ake, flax, cordyline etc.

The speaker at our June 20 evening meeting was Peter Gaze, from DoC, Nelson. He entertained and educated us with two presentations, one on tuatara and the other on rock wren.

Jimmy Lee Creek Reserve, Richmond, July 17

Jimmy Lee Creek is a Tasman District Council reserve. The first part of the track has been looked after by volunteer helpers for some years and quite a number of plants were either garden cultivars or North Island species. We compiled an impressive species list based on our collective knowledge and had an interesting discussion about *Olearia paniculata* -- or was it *O. albida*?

Halfway along the track we were into the forest - *Alectryon excelsus*, *Beilschmiedia tawa*, *Dacrycarpus dacrydioides* canopy and *Macropiper excelsum* as the main understorey. We saw *Asplenium* hybridisation at its best and most tantalising. The thread fern (*Blechnum filiforme*) covered the forest floor and climbed many trees, changing its shape as it did so. On checking later, the *Polystichum* proved to be *neozelandicum* ssp. *zerophyllum*. Retracing our steps, we climbed to the lookout above Reservoir Creek where we had lunch. Descending through the Dellside Reserve, the day ended at Lodestone Crescent with a quick walk back to the cars.

At our July 18 evening meeting, member Sally Warren entertained us with wonderful digital images of her recent trip to Sikkim and Bhutan. The landscapes, culture and botany of both countries proved fascinating and tempting.

Future trips:

October 16th, Kahikatea Track Grampians. Leader Sally warren, Phone 546 6637

Labour Weekend Camp, Oyster Bay Port Underwood. Leader Julie McLintock, Phone 545 0989

November 20th, Mistletoe Bay Anakiwa (orchids). Leader Don Pittham, Phone 545 1985

December 16 – 18th Weekend Camp, Peggioh South Marlborough. Leader Cathy Jones, Phone 546 9499

President: Cathy Jones (03) 546 9499 Flat 2, 5 North Rd, Nelson. Email: cjones@doc.govt.nz

Treasurer: Trevor Lewis (03) 547 2812 22 Coster Street, Nelson. Email: tandjlewis@actrix.co.nz

■ **Canterbury Botanical Society**

June Meeting

Following the AGM, Bill Sykes gave an illustrated talk on the Kermadec Island group, which is especially significant to Bill since he has botanised there since 1964 (resulting in numerous publications on its flora). The group lies at 29 latitude, halfway to Tonga and yet the flora is overwhelmingly New Zealand. Of 116 indigenous vascular taxa, only 22 are endemic. With his increased knowledge of other Pacific Island floras, Bill has recently reduced the number of endemic species even further, absorbing some within species from other islands nearby.

July Field Trip: Trees for Canterbury, Charlesworth Street,

Steve Bush, manager, hosted the group with a demonstration of equipment, composting, glasshouses and a shade house. The garden is about to celebrate its half-millionth tree. It is a project of the Green Effects Trust, with seven very involved trustees. A core of six staff supervises the work of invalid and

sickness beneficiaries in tasks they enjoy and develop through. Plants raised for revegetation projects are sourced from the appropriate ecological district, while the Garden retails natives from elsewhere for home planting. Community volunteers are essential for large-scale planting. A project as far afield as Burkes Pass was described
Bryony Macmillan

August Meeting

Nicholas Head from DoC gave a very informative, illustrated talk about the impact of possum browse on threatened native plants (*Pittosporum patulum* and mistletoe *Peraxilla tetrapetala*) in the Lake Ohau catchment. This research examined the fate of hundreds of individual plants before and after a major possum control operation in the Temple and Huxley river valleys. The adult trees are most at threat as the possum can more readily climb them to browse on the leaves. Consequently, adult *P. patulum* are now absent from most sites (surveyed historic sites throughout the South Island) except for the Ohau catchment. Loss of the adult trees is terminal for the population. There is an abundant supply of *Peraxilla tetrapetala* with less of a threat to extinction.
Margaret Geerkens

August Field Trip: Botanic Gardens.

Max Visch gave 11 members an introduction to the world of palms. This is a very large pan-tropical family of trees with a single growing point in the crown and persistent leaf bases which can sheath the trunk. The petioles can bear spines, the leaf blades are fan or feather shaped. About six species can be grown in the open in Christchurch, especially along riverbanks. We examined those to the left of the foot bridge from North Hagley Park car park. Max explained some of their many uses – fruit, cane, oil, wax, and medicinal products. The cold wind saw us retreating to the glasshouses where we saw several more palms, the tallest being our own nikau.
Bryony Macmillan

FUTURE EVENTS:

October 7 Debra Wotton, our student grant recipient, will give a short report about her work, followed by Anita Spencer, DoC Biodiversity Ranger. Title: to be announced. October 8 Field Trip: Omahu Bush.

November 4 Speaker: David Norton. Title: "Tiromoana Bush". November 5 Field Trip: Vicinity of Kate Valley.

December 2 Speaker: Hugh Wilson. Title: "Unique Stewart Island". December 4-11 Camp: Stewart Island.

December 31 – January 7 2006 Alternative Camp: Awakino Ski Field.

Early Summer Camp in December: Accommodation is fully subscribed. If any New Zealand Botanical Society members want to attend the camp, but have not booked, your name could go on the waiting list or you could find your own accommodation. Contact Margaret Geerkens 352 7922 if you require more information.

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

■ **Botanical Society of Otago**

Obelisk Station field trip, 9 April

A convoy of 4WD vehicles left Dunedin early on Saturday for a planned meeting on the Old Man Range. The turn out was impressive, with around 100 people brought together from across Otago, Southland and even Canterbury. How did this meeting between farmers, scientists from a range of institutions, Forest and Bird representatives, Botanical society and Federated Farmers members, DOC, the odd geologist, MP, and journalist come about? A challenge was issued via the ODT to Prof Mark to prove that burning and grazing had any deleterious effects on native grass species, particularly snow tussock (*Chionochloa*) species.

Prof Mark responded by calling for a meeting of the various interested parties and "stakeholder" groups in high country farming systems, to be hosted at Obelisk Station on the Old Man Range (Roxburgh). One of the main themes of the meeting was how to manage high country land and predictably, an extensive range of opinions were expressed over the course of the day. The meeting was an opportunity for questions – and challenges – to be directly addressed.

What makes this location for such a meeting of diverse perspectives unique is its history both as a high country station and as a long term research site. The enclosure plots were established by Prof. Mark in the early 1960s to examine the growth and flowering of snow tussocks collected from different altitudes along the altitudinal gradient provided on Obelisk Station. Since then a range of studies by Prof. Mark and various students have examined, amongst other things, the effect of burning on growth and the distribution of nutrients in different parts of the tussocks. During the meeting, Prof. Mark explained that burning resulted in a flush of growth, with this growth being high in nutrients and very palatable to grazing animals. Fire also initiated abundant flowering in tussocks for the growing season following burning. However, after this initial burst of flowering, tussocks were incapable of any considerable flower production for up to fifteen years. Prof. Mark further explained that, in the absence of grazing, the nutrient concentrations and carbohydrate reserves of tussocks recovered within one or two growing seasons of burning. However, he cautioned that when burning is closely followed by grazing, the loss of nutrient rich post-burn growth seriously depleted the tussocks' reserves.

The question that rounded up the day was "Shall we have another meeting like this?" That's one point that all parties unanimously agreed on. As one pragmatic farmer put it, "...both sides have to make compromises" and this can only be achieved through keeping quality information moving between all parties.

Monica Peters & Norman Mason

21 April AGM

After the AGM this year Emeritus Professor Alan Mark spoke on 'The World's most beleaguered biome: Temperate grasslands and their conservation status.' Prof Mark discussed and described, with the help of excellent slides, most of the World's temperate grasslands and the conservation status of each, including New Zealand.

Fungal Foray to Knight's Bush, 7 May

The botanical Society visited the Tuapeka West property of John and Allison Knight to investigate the autumn fungi. A mature *Pinus radiata* plantation 300 m above the Clutha Valley was dominated by exotic fungi – the beautiful fly agaric *Amanita muscaria*, and several boletes, particularly *Suillus luteus*, the slippery jack mushroom, and *Chalciporus piperatus*, the peppery bolete. The fly agaric is known for attracting and killing flies, if sprinkled with sugar. Also common were the milk caps, *Lactarius*, *Tricholoma* and *Laccaria* species, many probably exotic to New Zealand.

Mature second-growth kanuka dominates the upper edge of a stand of native forest near the river gorge. This passes downhill into older and more varied forest dominated by beech and podocarps. *Russula*, along with *Mycena* (delicate fluted lampshades) were common, especially in areas of kanuka. Also in the kanuka forest we found the bird nest fungus, *Cyathus novaezelandiae*, on fallen twigs. In the older beech-podocarp forest the saprobic species living on old and dead beech wood included a beautiful icicle fungus, *Hericium coralloides (clathroides)*, while the mycelium of the "Verdigris Stud Fungus", *Chlorociboria aeruginosa (Chlorosplenium aeruginosum)*, had created the appearance of rotten tanalised wood. The greatest diversity appeared to occur in a portion of the forest rich in podocarp trees – kahikatea, totara, and matai.

Chuck and Carol Landis

11 May meeting

Dr Steve Stephenson, University of Arkansas, delighted us yet again with another colourful and informative presentation, this time on 'Mushrooms and other fungi of eastern North America'. Many of the superb slides he showed us were bequeathed to his university by Emily Johnson, an amateur photographer whose incredible photography is also featured on the cover and in the book Steve co-authored with NZ mycologists: *Edible and poisonous mushrooms of the world*.

Allison Knight

8 June meeting

Philip Dunn from Ribbonwood Native Plant Nursery talked on 'Eco-sourcing local plant material for use in restoration projects.' Philip started by showing photos of many successful local revegetation projects that Ribbonwood nursery had supplied the plants for. He showed some examples of very fast growth rates for plants in optimum sites with thorough releasing of young plants. On the topic of eco-sourcing, Philip regards provenance as significant for frost tolerance. However he suggested that the dispersal of large seeds by kereru and the wind dispersal of pollen may both cause genetic material to be more widely distributed than is sometimes thought to be the case.

Maira Parker

Sutton Salt Lake field trip, 18 June

It was the sunniest of days yet here the matagouri and *Muehlenbeckia* had lost nearly all their leaves; a result of or a ploy to withstand the harsh winter. Three grasses – *Dichelachne crinita* (native), *Cynosurus cristatus* (crested dog's tail) and *Bromus "brevis"* (both introduced) and the narrow-leaved woody shrub *Olearia lineata* were added to the reserve species list. The lichen-covered tors fringing the "ephemeral" Sutton Salt Lake were our lunch spot. On the rocks close to the water's edge, an orange, saline-tolerant lichen, which appears similar to one found on the coast, was, like many of the lichens observed on the trip, a mass of fruit-bodies. At this time of the year the lake appears to be 10 cm deep over a muddy bottom, and was largely covered in clear ice; despite being half as salty as sea-water which should depress the freezing temperature.

Toni Atkinson

FUTURE EVENTS

- Wednesday 24 Aug Weeds & I; a weed-led tour of SE Australia, NW Queensland, and Southern New Zealand! A pictorial tour from Ian Radford.
- Saturday 10 Sept Robyn Bridges will lead an expedition to The Crater, a bold ring of basalt in a schist landscape on the side of the Taieri Ridge.
- Wednesday 21 Sept Leaving the white line: A journey in conserving the rainforest of the Adelbert Mountains, Papua New Guinea. Talk by Matt Scott.
- Wednesday 26 Oct 4th Annual Baylis Lecture. Speaker Assoc. Prof Kevin Gould. Plus: Audrey Eagle Botanical Drawing Competition – Display and Prize Giving.
- Sat/Sun 5 – 6 Nov John Barkla will lead a weekend trip to the Catlins Area visiting Purakaunui Bay, Purakaiti Stream and Otanomomo Scientific Reserve, staying at Nugget Point.

More information available on website: <http://www.botany.otago.ac.nz/bsol/>

President: David Orlovich, david.orlovich@botany.otago.ac.nz

Secretary: Robyn Bridges, robyn.bridges@stonebow.otago.ac.nz, ph 479 8244, P O Box 6214, Dunedin North

■ Other Botanic Society Contacts

Wanganui Museum Botanical Group

President: Vonnice Cave, Seafield Road, RD4, Wanganui. Ph. (06) 435 8326; vonnicecave@xtra.co.nz

Secretary: Robyn Ogle, 22 Forres Street, Wanganui. Ph. (06) 347 8547; robcol.ogle@xtra.co.nz

Manawatu Botanical Society

Jill Rapson, Ecology Group, Institute of Natural Resources, Massey University, Palmerston North. Ph (06) 350 5799 Ext 7963; Email: G.Rapson@massey.ac.nz

Wellington Botanical Society

President: Joyce Stretton (04) 934 2437

Secretary: Barbara Clark (04) 233 8202 (h); (04) 233 2222 (fax) PO Box 10 412, Wellington 6036

Wakatipu Botanical Group

Chairman: Neill Simpson (03) 442 2035

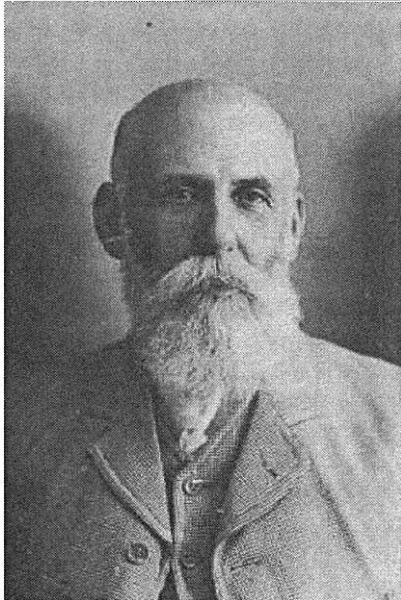
Secretary: Lyn Clendon (03) 442 3153

SYMPOSIUM

- **Cheeseman Symposium November 2006 – a symposium to celebrate the centenary of the first edition of Cheeseman's Manual of the New Zealand Flora (1906)**

FIRST CIRCULAR

The Cheeseman symposium will celebrate the centenary of Thomas F. Cheeseman's *Manual of the New Zealand Flora* (1906). This symposium has arisen from Dr Henry Connor's suggestion at the 2001 AGM of the New Zealand Botanical Society that we should celebrate in 2006 Cheeseman's life and times, his taxonomic work, his flora writing, and the centenary of the 1906 publication of the first full treatment of the New Zealand flora by a resident botanist.



Cheeseman (1845-1923) was the Auckland Institute and Museum botanist and sole curator for 50 years (1874-1923). He was one of New Zealand's greatest botanists, and the first with a New Zealand education. During his career, Cheeseman described over 130 species and three plant genera. Sixteen plant species from New Zealand and Rarotonga are also named after him. He published the *Manual of the New Zealand Flora* (1906, 2nd ed. 1925) and *Illustrations of the New Zealand Flora* (1914), as well as countless scientific articles, primarily on botany, but also including zoology and ethnology. Cheeseman's herbarium numbered some 10,000 specimens. He was elected fellow of the Linnean Society of London and received their prestigious gold medal in 1923. He was president of the New Zealand Institute in 1911 and later became a fellow; in 1918 he was awarded the Hector Memorial Medal and Prize.

When: 20-22 November 2006 (2 days for the conference, 1 day for field trips)

Where: Conference Centre, University of Auckland

Session headings

Early botanists
New Zealand and Pacific Floras
Biodiversity informatics
Plant systematics, plant phylogeny and biogeography
Plant morphology, cytology and function
Pollination and reproductive biology
Science, conservation and conservation management

The New Zealand Plant Conservation Network will also offer a few concurrent sessions and presentations on the implementation of the Global Plant Strategy, Plant Propagation and *ex-situ* conservation.

No financial commitment is needed at this stage. If you are interested in receiving the second circular please post your contact details (where possible please supply an email contact) to:

Cheeseman Symposium 2006

c/- Mei Nee Lee, Botany Department, Auckland Museum, PB 92018, Auckland

or put "Cheeseman Symposium" in the subject line and email your contact details to:

mnlee@aucklandmuseum.com

Organising committee: Ilse Breitwieser, Ewen Cameron, Peter Heenan, Peter de Lange, Mei Nee Lee, Brian Murray, John Sawyer, and Mike Wilcox.

Organised by: Auckland Museum in collaboration with Auckland Botanical Society, Landcare Research, New Zealand Botanical Society, New Zealand Plant Conservation Network and University of Auckland.

SPECIMEN REQUESTS

■ Specimen request for grass genus *Pucinellia*

I would like to get hold of living material of any species (native or introduced) of the grass genus *Pucinellia* for a MSc project that will start in the new year. We are planning to look at chromosome variation and evolution and to see whether we can use genomic in situ hybridization to identify putative parents of the recently identified pentaploid *P. walkeri* ssp. *walkeri*.

We need live plants so small plugs with roots and leaves from known localities, wrapped in wet tissue, placed in a plastic bag and posted to the address below would be gratefully received. Please send to:

Brian Murray, School of Biological Sciences, The University of Auckland, Private Bag 92019, Auckland. B.murray@auckland.ac.nz

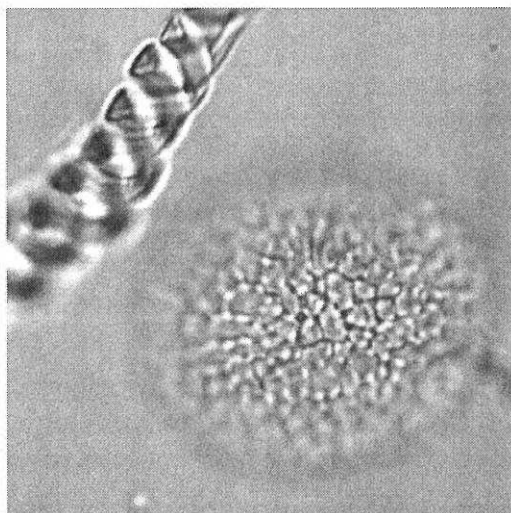
■ New Zealand liverwort material for spore morphology survey

The palynology group at Institute of Geological & Nuclear Sciences in Lower Hutt is seeking to build up its reference collection of bryophyte spores. A long-term aim is a survey of the spore morphology of New Zealand bryophytes. In the short term, we would especially like to obtain material from liverworts of alpine habitats, and also the order Marchantiales generally, for comparison with fossil spores from the Miocene of Antarctica. In contrast to the mosses, liverwort spores tend to be larger, more diversely ornamented and taxonomically distinctive, e.g. the delicately reticulate spores of *Monoclea forsteri* Hook., illustrated here along with a bispiral elater (spore diameter 28 microns).

Spore-bearing material should be dried in a draught-free place, placed in small packets or vials, and posted with collection details to the writer at the address below. It can be freshly collected or even many years old, although herbarium specimens tend to shed spores which are then gradually lost through handling.

It is necessary that the material be critically identified, perhaps by reference to David Glenn's manuscript key, and that as well as the sporophyte, suitable gametophyte material for use as a voucher specimen be provided or separately deposited in a Herbarium.

Ian Raine, Institute of Geological & Nuclear Sciences, P.O. Box 30368 Lower Hutt.



NOTES AND REPORTS

Notes

■ Hailstorms as defoliation forces

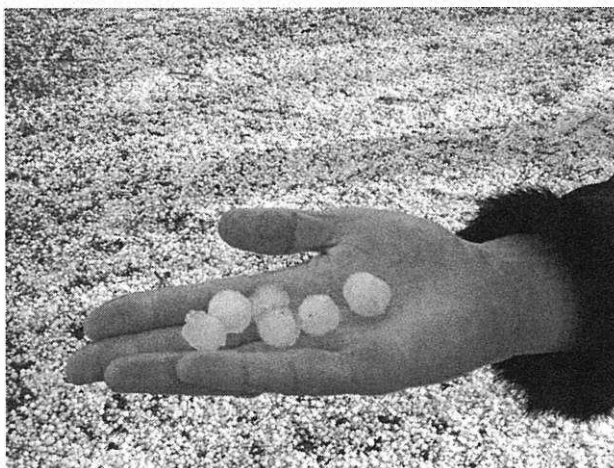
About 7.45 am on Saturday 9 July 2005, a freak hailstorm occurred in the Manawatu, lasting for 10-15 minutes. Part of the storm hit the Summerhill Drive terrace suburb of Palmerston North, as well as the eastern portion of Massey University's Turitea Campus (see photo opposite), where the new created alpine garden in the Ecology Courtyard of the Institute of Natural Resources had its first alpine experience!

The storm was of unusual intensity, with most stones 1-2 cm in diameter, generating a white



landscape wherever it hit, covering roofs, lawns and roads with a coating of 5 cm of hail (see photo below). The hail stones persisted unusually long for Palmerston North, lasting several hours on lawns, and even 3-4 hours on roads, while stones in shady corners persisted for most of the day.

Massey University's campus is home to an extensive flora, including a wide range of native trees, many of which are planted as specimens and so were exposed to the full force of the hailstorm. Some experienced considerable leaf loss, and the opportunity was taken in the days following the storm to record some of its impacts in terms of defoliation, recorded on a categorical scale (Table 1). The heavy damage category means the area beneath a tree was covered with foliage, with virtually no ground visible. A few exotic species of some ecological interest in New Zealand were also recorded (marked in the table with an asterisk).



Several interesting effects of the hail were also noted. Most deciduous species still retaining some dead foliage in mid-winter were effectively stripped. A red beech (*Nothofagus fusca*) tree of about 8 m experienced considerable loss of cupules, leaves and also shoots bearing 3-10 leaves. Specimens of *Podocarpus falcatus*, *Picea pungens*, *Podocarpus totara* and *Casuarina equisetifolia* also lost branchlets of 10-30 leaves, while several broad-leaved *Eucalyptus* species were largely unaffected. Additionally some large-leaved species of *Celmisia* (*C. hookeri* and *C. mackaui*) incurred little damage though 2 or 3 leaves were rather torn.

Table 1: Categorical scale of impacts of hail damage on a range of native and exotic species.

High	Medium	Low	None
<i>Brachyglottis monroi</i>	<i>Brachyglottis repanda</i>	<i>Coriaria cotoneaster</i>	<i>Alectryon excelsus</i>
* <i>Casuarina equisetifolia</i>	<i>Coprosma robusta</i>	* <i>Eucalyptus</i> sp.	<i>Beilschmiedia taraire</i>
* <i>Lagunaria patersonii</i>	<i>Fuchsia excorticata</i>	<i>Hoheria sexstylosa</i>	<i>Corynocarpus laevigatus</i>
<i>Melicope ternata</i>	<i>Griselinia lucida</i>	<i>Meliccytus ramiflorus</i>	<i>Knightia excelsa</i>
	<i>Hebe speciosa</i>	<i>Metrosideros excelsa</i>	
	<i>Myrsine australis</i>	<i>Myoporum laetum</i>	
	<i>Nothofagus fusca</i>	* <i>Picea pungens</i>	
	<i>Pittosporum tenuifolium</i>	<i>Podocarpus totara</i>	
	* <i>Podocarpus falcatus</i>	<i>Sophora microphylla</i>	
	<i>Pseudopanax X arboreus</i>		
	<i>Tecomanthe speciosa</i>		
	<i>Vitex lucens</i>		

While snow damage effects on plants are widely recorded, little consideration has been paid to the impacts of hailstorms on native vegetation, though its horticultural impacts are more widely understood. This record represents very little information on which to base generalisations, but large-leaved species were not especially vulnerable to hail damage, and neither were species indigenous to more northern areas, though the *Tecomanthe speciosa* experienced moderate damage, even in a sheltered corner. Many natives showed very low levels of damage. The actual impact on a tree of removal of a portion of its foliage (10-20% as an estimate), is unknown, but may be minor since most such storms occur in winter when photosynthetic demands are relatively low.

Acknowledgement

Sean & Tarnia Hodges for photography

Jill Rapson, Ecology Group, Institute of Natural Resources, Massey University

- **Corrected name: *Sedum kimmachii* Byalt**

Sedum kimmachii Byalt in Kew Bulletin 54: 458 (1999). This is the correct name for what was described as *Sedum decumbens* Clausen in Flora IV, p.589 and also listed by me as this in N.Z. Bot. Soc. Newsletter 75, p 23 (March 2004). This plant almost certainly originated in Mexico, probably from the montane region in the central plateau of that country. It grows very freely in many parts of New Zealand and is often adventive to a minor degree but never a serious weed. Also, assuming that it really is from Mexico it is noteworthy in that it one of the most cold-tolerant species from that region because I have never seen it harmed by frosts on the Canterbury Plains. Clausen's name is invalid because it is very long predated by *Sedum decumbens* Lucé, a very different and unrelated plant from southern Russia. I have only just been alerted to my mistake by seeing Ewen Cameron's list of new names etc. for New Zealand plants in N.Z. Bot Soc. Newsletter 62, p 15 (2000).

Bill Sykes, SykesB@landcareresearch.co.nz

Research Reports

- **Fruit size of karaka (*Corynocarpus laevigatus*) in relation to potential selection by Maori**

R.A. van Essen and G.L. Rapson, Ecology, INR, Massey University

Introduction

Karaka, *Corynocarpus laevigatus* (Cucurbitales: Corynocarpaceae), is a native tree with characteristic large, elliptical drupes produced from January to April, which turn from green to orange on ripening (Poole and Adams, 1986; Fig. 1). The tree occurs in forest from North Cape to Banks Peninsula, though it is able to grow as far south as Dunedin if planted (Bannister *et al.*, 1996; Fig. 2A). It is primarily coastal, particularly in the frostier South Island. Karaka's purely natural distribution is restricted to the northern North Island (Molloy, 1990), and its range in the lower North Island is anthropic.

Both the dry flesh and the kernel of the fruit were eaten by Maori. While the flesh can be eaten without preparation, the kernel contains a toxin and so must be carefully treated before eating (Molloy, 1990). However a number of species, such as native pigeons, rats, and sheep, appear to be able to eat the whole fruit without ill effect (Platt, 2003), as do pigs (Mitcalfe, 2004). Despite the risk of poisoning, the fruit were frequently used for food and medicine by Maori (MacDonald, 1973), and because of its usefulness karaka was often planted near settlements and campsites to ensure a supply (Molloy, 1990).

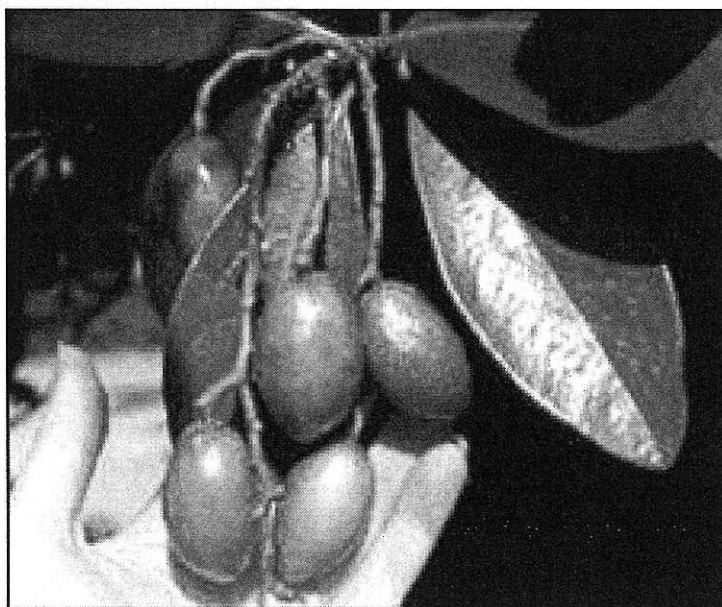


Fig. 1. Karaka drupes.

As the trees were often deliberately planted and not simply harvested from where ever they might be encountered, it is possible that they underwent some degree of selective breeding in those areas where they were consistently utilised (Platt, 2003). There are several characteristics that might have been selected for, including better flavour, increased productivity, and increased fruit size (Platt, 2003).

We examined whether selective breeding may have been occurring, using fruit size as an indicator. Fruit from near old Maori settlements (assumed to come from planted trees) was compared to fruit from nearby areas that probably originated from discarded anthropic fruits or natural dispersal from plantings.

Method

Three lower North Island locations were used: Massey University, Palmerston North; Miramar, on Wellington Harbour; and Lake Papaitonga, near Levin (Fig. 2B; Table 1). At each location two sites were chosen, one by a settlement (or in a cultivated area at Massey University), and the other 50 - 200m away. At each site three trees were selected haphazardly, and five fresh, whole fruit collected from the base of each tree, giving fifteen fruit per site. It was assumed that the fruit at the base of a tree came from that tree. At Miramar the fruit weren't sufficiently available for three trees to be chosen, and instead fifteen fruits were collected from the forest floor.

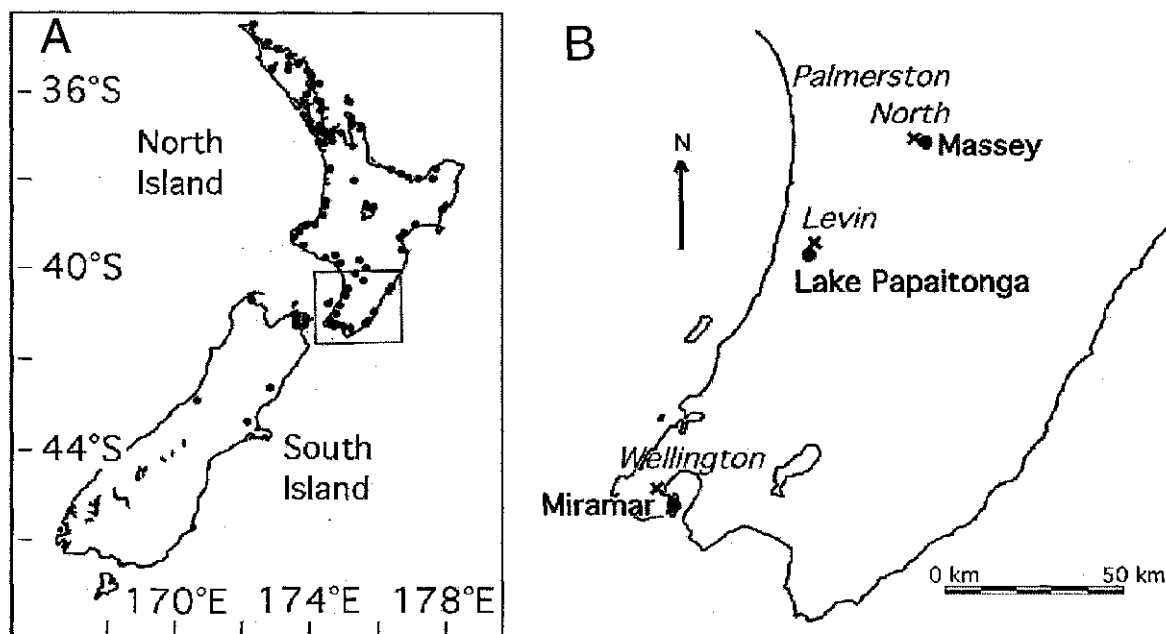


Fig. 2. A. Map showing the distribution of karaka in New Zealand (from Sawyer *et al.*, 2003), with locations of karaka shown as black dots. B. Map of the locations used this study.

Measurements on each fruit were length of whole fruit along the longest axis, greatest width (perpendicular to length), weight of whole fresh fruit, weight of fresh kernel (minus flesh), and weight of dry kernel dried for two weeks at 98°C.

MINITAB's one-way ANOVA command was used to test significance between the pair of sites at each location. Pearson's correlation was determined between weights.

Results

Fruit were smallest at Miramar. Settlement and non-settlement pairs were significantly different for most variates (Table 1; Fig. 3), the settlement site having the greater average. At Massey all measurements were significantly different between sites. At Papaitonga only fresh and dry kernel weights were not significantly different. At Miramar only the whole fruit width and the whole fruit fresh weight were significantly different.

There is a strong correlation between whole fruit fresh weight and kernel fresh weight ($r=0.8325$) and a weaker one between whole fruit fresh weight and kernel dry weight ($r=0.6830$).

Conclusion

Karaka drupes average 35.1mm by 20.8mm in size, with an average fresh weight of 8.3 g and an average fresh kernel weight of 3.5g. The overall kernel dry weight of 1.8g is similar to Moles and Drake's (1999) result of 1.98g. Our results show drupes tend to be significantly larger if taken from near an old Maori settlement, in agreement with Platt's (2003) observations. This supports Platt's (2003) hypothesis that the trees were bred for fruit size by Maori. Simpson (1994) reports that at one pa site there are several trees planted "long ago" with very large fruits. The largest fruit in our study was 48.2mm in length (found at the Massey settlement site), though Platt (2003) found some fruit at a Taranaki pa over 60mm in length. It's possible that there was selection for overall fruit size rather than kernel size, given that two of the three locations don't show significant site differences for either kernel

fresh weight or kernel dry weight. What difference there is may be due to a correlation with overall fruit size rather than being bred for, since there are strong correlations between whole fruit fresh weight and either kernel fresh weight or kernel dry weight.

Table 1. Average length and width (\pm standard errors) of fifteen karaka fruit from each site. Pairs from a single location in bold are significantly different using one-way ANOVA, with the settlement site having the greater measurement.

Location	Site	Description of site	Length (mm)	Width (mm)
Massey	Settlement	Planted on campus grounds	41.4 \pm 1.0	25.5 \pm 0.4
	Non-settlement	Feral in nearby Bledisloe Park	30.0 \pm 1.0	19.7 \pm 0.4
Miramar	Settlement	Probable kainga site	34.4 \pm 0.8	20.7 \pm 0.6
	Non-settlement	Nearby on rocky slope	33.9 \pm 0.9	17.6 \pm 0.5
Papaitonga	Settlement	Probable kainga site	39.1 \pm 1.1	22.8 \pm 0.6
	Non-settlement	Terrace nearby	32.9 \pm 1.0	19.0 \pm 0.5
Pooled data	Settlement		38.3 \pm 0.7	23.0 \pm 0.4
	Non-settlement		32.3 \pm 0.6	18.8 \pm 0.3

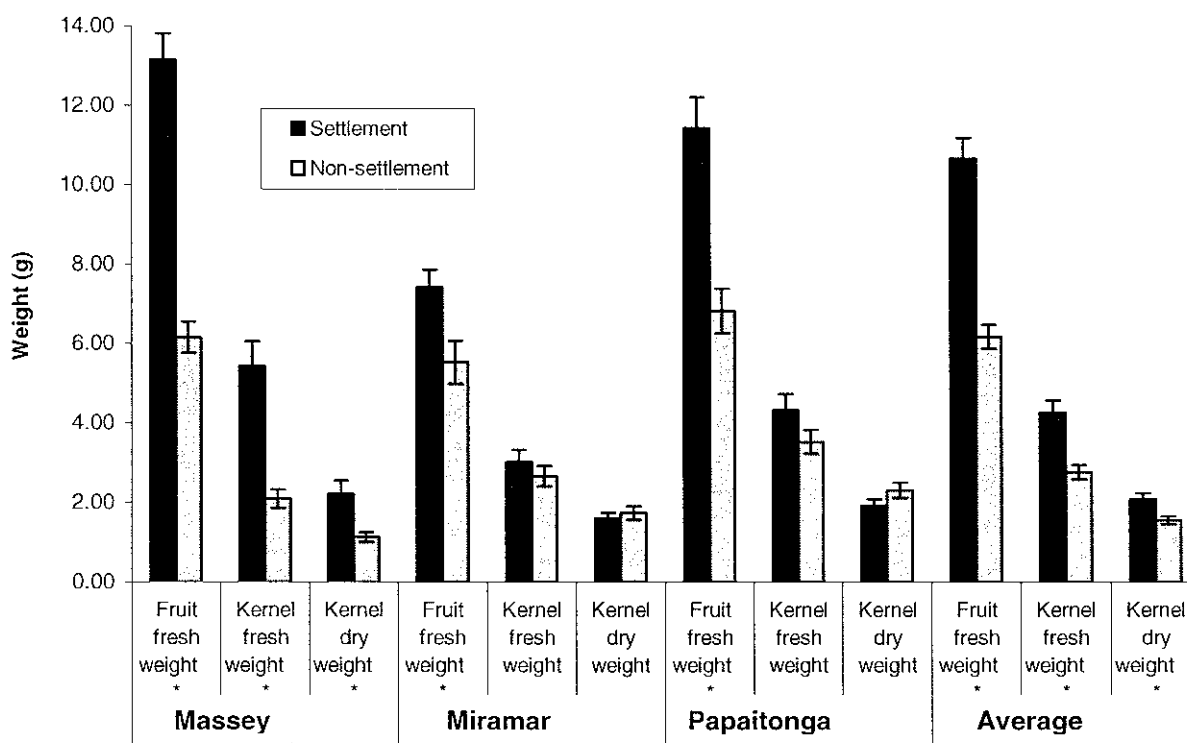


Fig. 3. Average weights (\pm standard errors) of karaka whole fresh fruit, and fresh and dry kernels, from three different locations. A star (*) indicates that the settlement and non-settlement sites have significantly different averages from one-way ANOVA.

Because in the lower North Island karaka is entirely anthropic in distribution, the non-settlement trees are likely to be progeny of selected stock. Younger and presumably naturally grown karaka trees at one pa site also showed reversion from large-fruited planted trees to a more usual fruit size indicating that large fruit size was selected for (Simpson, 1994). Preliminary tests indicate no germination after immersion in fresh or salt water. Since the only extant natural dispersal agent for karaka is woodpigeon or kereru (*Hemiphaga novaeseelandiae*), this bird must be responsible for the dispersal of all non-planted trees. Locally around Massey University, kereru have been observed feeding on non-settlement trees but not on planted trees. Kereru themselves probably select for smaller sized karaka fruit to accommodate their restricted gape and therefore the non-planted stock is likely to have smaller drupes. In Otari-Wilton's Bush in Wellington we found a wood-pigeon scat on a kohekohe leaf containing a kernel approximately 23 mm in length, so kereru are capable of dispersing kernels of at

least this size. This is a small kernel compared to the others in our study, and unlikely to have come from a "settlement" tree.

A more comprehensive survey of settlement versus non-settlement locations is required, but the data presented here support Platt's (2003) hypothesis.

Acknowledgement

Rosemary Booth for getting scratched in the pursuit of karaka berries.

References

- Bannister, P., Bibby, T., Jameson, P.E. 1996. An investigation of recalcitrance in seeds of three native New Zealand tree species. *New Zealand Journal of Botany*, 34: 583-590.
- MacDonald, C. 1973. *Medicines of the Maori from their trees, shrubs and other plants, together with food from the same sources*. Collins, Auckland.
- Mitcalfe, B. 2004. Trip report, 6 November 2004: Gibbs Covenant and Butterfly Creek. *Wellington Botanical Society Newsletter, December 2004*: 11.
- Moles, A.T., Drake, D.R. 1999. Post-dispersal seed predation on eleven large-seeded species from the New Zealand flora: a preliminary study in secondary forest. *New Zealand Journal of Botany*, 37: 679-685.
- Molloy, B.J.P. 1990. The origin, relationships, and use of karaka or kopi (*Corynocarpus laevigatus*). In: Harris, W., Kapoor, P. (eds) *Nga Mahi Maori o te Wao Nui a Tane: Contributions to an international workshop on ethnobotany, te Rehua Marae, Christchurch, New Zealand*. pp. 48-53. Botany Division, DSIR, Christchurch.
- Platt, G. 2003. Observations on karaka (*Corynocarpus laevigatus*) and its fruit. *Auckland Botanical Society Journal*, 58: 29-31.
- Poole, A.L., Adams, N.M. 1986. *Trees and shrubs of New Zealand*. Government Printing Office Publishing, Wellington.
- Sawyer, S. McFagden, B.; Hughes, P. 2003. Karaka (*Corynocarpus laevigatus* J.R. et G.Forst.) in Wellington Conservancy (excluding Chatham Islands). *DoC Science Internal Series 101*. Department of Conservation, Wellington.
- Simpson, P. 1994. Cabbage trees on pa: Interim report: Taranaki-Wanganui. *Archaeology in New Zealand* 37: 13-22.

■ Recent and current research on New Zealand's *Asplenium* ferns

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The spleenwort genus *Asplenium* is a prominent, and sometimes taxonomically-troublesome, component of New Zealand's fern flora. Researchers at Te Papa are actively investigating the taxonomy and evolutionary history of this group.

Many of us will have experienced considerable difficulty with the identification of *Asplenium* plants in the field. Underlying this problem is the presence of hybrids, which blur the morphological distinctiveness of their parents (Brownsey, 1977a). However, these hybrids are sterile, and their abnormally-formed spores can be readily identified with the aid of a microscope (although this is not especially useful in the field!).

Interestingly, not all of the *Asplenium* species hybridise in New Zealand: *A. flabellifolium*, *A. pauperequitum*, *A. polyodon*, and *A. trichomanes* do not. DNA research has shown that these species are only distantly related to the other New Zealand species and to each other (Perrie & Brownsey, 2005a). The fourteen species that do hybridise in New Zealand comprise a closely related group, which also occurs in Australia and the south Pacific. Surprisingly, amongst the closest relatives of this 'austral' group are the birds' nest ferns (e.g., the commonly cultivated *A. australasicum*, which is usually sold in New Zealand as "*A. nidus*"). Further, it seems that none of the indigenous New Zealand *Asplenium* species have been present here since New Zealand became isolated from Australia and the other southern hemisphere land-masses some 80 million years ago. Rather, their origins trace to ancestors who must have immigrated by long-distance dispersal across the surrounding seas.

DNA evidence has also helped untangle the taxonomic dilemma in *Asplenium hookerianum*. Should narrow-pinnuled plants be treated as a distinct species, *A. colensoi*? DNA data indicate an unequivocal "no" (Perrie & Brownsey, 2005b). Plants of *A. hookerianum* can have either broad or

narrow pinnules (leaf segments), but this variation should be considered analogous to hair or eye colour in humans in that it is diversity within a species.

Our research has a special focus on the hen and chickens fern, *Asplenium bulbiferum*, and its allies. It has long been known that some plants have twice as many chromosomes as others (Brownsey, 1977b). These also have bigger spores, more open and rhombic-shaped fronds, produce fewer bulbils, and tend to occur in drier sites. It has now been revealed that they have the maternally-inherited chloroplast DNA of *A. hookerianum* (Perrie & Brownsey, 2005a). It seems that these hen and chickens ferns with higher chromosome numbers are allopolyploids, resulting from hybridisation followed by doubling of the chromosome number. The parent species are *A. hookerianum* (cf. the chloroplast DNA) as the mother, and *A. bulbiferum* (cf. the morphological similarity) as the father. This allopolyploid is probably best treated as a distinct species, *A. gracillimum*, which was suggested by Ogle (1987; cf. other evidence). Unfortunately, it is not always easy to identify *A. gracillimum* in the field, because it hybridises promiscuously with *A. bulbiferum*, *A. hookerianum*, and several other species. These hybrids obscure the morphological boundaries, but they are sterile with abnormal spores.

We intend investigating further the origin of *Asplenium gracillimum*. We are particularly interested in plants that have been known as *A. bulbiferum* var. *tripinnatum* (Crookes 1963; Figure 1), albeit incorrectly in that these plants bear no resemblance to the type specimen for that name. These plants are allied to *A. gracillimum*, but appear similar to narrow-pinnuled forms of *A. hookerianum*, from which they can usually be distinguished by their production of bulbils, bigger frond size, and larger spores. We know of these “*tripinnatum*” plants from near Warkworth, Wellsford, Puhoi, Gordonton, Lake Rotopounamu, Kuripapango, Puketitiri, Hunterville, Masterton, Wellington, and Hokitikia. If anyone is aware of additional sites where similar plants occur, we would be extremely grateful for information.

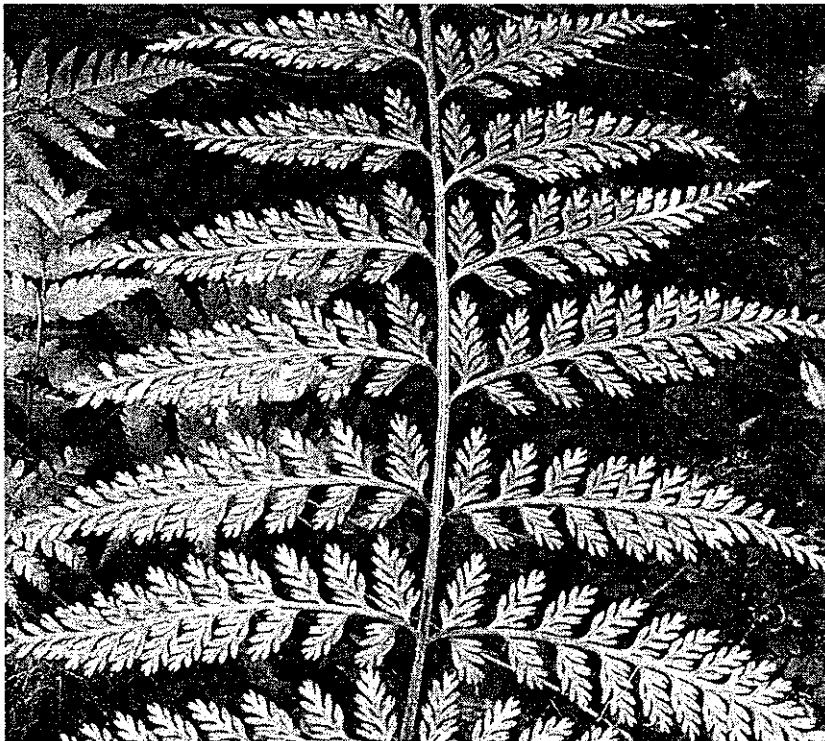


Figure 1. Mid-frond of a narrow-pinnuled plant allied to *Asplenium gracillimum*, sometimes incorrectly called *A. bulbiferum* var. *tripinnatum*.

Many of us grow a hen and chickens fern at home. If so, does your plant produce two different kinds of fronds, with the fertile (spore-producing) fronds having narrow pinnules and the sterile fronds having broad pinnules? (Figure 2) If the answer is “yes”, then your plant is **not** *Asplenium bulbiferum* (or *A. gracillimum*, or any of its allies), whose pinnules do not differ markedly depending on whether they are sterile or fertile. Instead, you have an imposter, whose origin we have only recently

deduced (Perrie et al., 2005): a sterile hybrid between *A. bulbiferum*, which is endemic to New Zealand, and *A. dimorphum*, which is endemic to Norfolk Island and produces markedly different fertile and sterile fronds. Virtually all of the hen and chickens fern in cultivation is this hybrid, which can, despite its sterility, be easily propagated via its bulbils. Because we believe it important to distinguish this hybrid from genuine *A. bulbiferum*, we have taken the slightly unusual step of giving it a name as one would for a species: *Asplenium* × *lucrosum* (the ‘×’ indicates it is a hybrid). The name “*lucrosum*” reflects the profitability of this fern for horticulturalists. We hope this name is adopted by commercial plant resellers, but in the meantime be wary if choosing hen and chickens ferns for revegetation projects. It is worth noting that *A.* × *lucrosum* has become a minor weed in a few places.



Its origin is still shrouded in mystery, but the available evidence suggests *A. × lucrosum* probably formed in a garden somewhere in Britain in the nineteenth century! It is now grown (as "*A. bulbiferum*") around the world.

Figure 2. A fertile (left) and sterile (right) frond from the same individual of *Asplenium × lucrosum*, the false hen and chickens fern.

If anyone is interested in more details, we have copies available of the following three papers.

- Perrie L.R., & Brownsey P.J. 2005a. Insights into the biogeography and polyploid evolution of New Zealand *Asplenium* from chloroplast DNA sequence data. *American Fern Journal* 95: 1-21.
- Perrie L.R., & Brownsey P.J. 2005b. Genetic variation is not concordant with morphological variation in the fern *Asplenium hookerianum* sensu lato (Aspleniaceae). *American Journal of Botany* 92 [September issue]
- Perrie L.R., Shepherd L.D., & Brownsey P.J. 2005. *Asplenium × lucrosum* nothosp. nov.: a sterile hybrid widely and erroneously cultivated as "*Asplenium bulbiferum*". *Plant Systematics and Evolution* 250: 243-257.

Additional References

- Brownsey P.J. 1977a. *Asplenium* hybrids in the New Zealand flora. *New Zealand Journal of Botany* 15: 601-637.
- Brownsey P.J. 1977b. A taxonomic revision of the New Zealand species of *Asplenium*. *New Zealand Journal of Botany* 15: 39-86.
- Crookes M. 1963. *New Zealand ferns*, ed. 6. Incorporating illustrations and original work of H. B. Dobbie, Whitcombe and Tombs, Christchurch.
- Ogle C.C. 1987. Taxonomic changes in *Asplenium* (Aspleniaceae; Filicales) in New Zealand. *New Zealand Journal of Botany* 25: 591-593.

Herbarium Report

■ Auckland Museum Herbarium (AK) report: 1 July 2004 to 30 June 2005

The \$63 million Museum redevelopment 'Grand Atrium' project that began in September 2003 continues at pace filling in the old courtyard outside the inner herbarium windows – completion date is December 2006. Apart from adding a fascinating distraction, a few minor leaks, and the odd shaking and drilling, the progressing building has had little impact on the herbarium.

A highlight for the year was attending the Council Heads of Australian Herbaria (CHAH) meeting in Lincoln, the first time they had met outside of Australia. CHAH passed a motion accepting a NZ National Herbarium Network representative as an official member of CHAH, rather than as an observer as it has been up to now, and to change the name to Council Heads of Australasian Herbaria.

Public Programmes

Some 1000 enquiries were answered by the herbarium staff (many involving database searches), 5 field trips were led and 7 lectures given. Spiny plants and nettles were prominently featured in the Museum's summer natural history exhibition *Ouch*. We were grateful to the following nurseries for the loan of living specimens: Auckland Botanic Gardens, Auckland Domain, Oratia Native Plants, Otari-Wilton's Bush and University of Auckland. The second Auckland BioBlitz was centred on the Auckland Domain in March 2005, the herbarium staff, with help from Auckland Bot Soc members, coordinated the vascular plants which totalled 752 species of which 27% were wild and 21% were native. The grand biotic total for the 24 hour period was 1779 taxa!

Caring for the collection

Acid-free flimsies were sourced for the larger Cheeseman sheets, and this historical collection will be progressively flimsied. The gifted 53,000-strong AKU collection is still held separately awaiting funding to integrate. However, 21799 AKU records (41%) are on the AK database, and where AKU specimens are referred to or sent out on loan they are databased (where required) and filed back in the main AK run (1697 specimens). The Vernon upgrade to automatically generate latitudes and longitudes from map references has meant a great saving of time when databasing new records. This was a feature in AREV that wasn't initially available in Vernon. The Vernon feature of easily attaching images to the database records has added a wonderful new dimension to the database. We can now add digital images of the specimen *in situ* before pressing it. With time this will build up a large image database of wild plants which will keep current with the plant names that they are linked to. Already 1870 records have images attached.

Contract workers

Frances Duff, funded by Terrestrial & Freshwater Biodiversity Information System (TFBIS) Programme for 6 months, digitally photographed all the primary vascular type specimens, edited the label information and where required updated their type status. This resulted in 1543 specimens available on line (7% lack images because they are out on loan): go to <http://www.aucklandmuseum.com/?t=264> and follow the link to see Botany native vascular type collection. The Biosecurity section of the Auckland Regional Council has provided 4 months of funding for Frances Duff to complete the databasing of all the naturalised New Zealand specimens in the herbarium. When this grant is completed all New Zealand specimens (native, cultivated & naturalised) will be databased.

Fieldwork/Research

Fieldwork for Ewen Cameron included trips to Oakura and Waikawau Bay and one-day visits with Landcare Research ecologists in February to Aiguilles, Karamarama, Motueka, Oruhi, Rakitu and Tapere Islands. Rhys Gardner spent 2.5 weeks in Niue (May-June), partly funded by the Pacific Development and Conservation Trust, collecting herbarium specimens of forest trees towards an illustrated account of the Woody plants of Niue. Mei Nee Lee attended a 3-day workshop on the taxonomy of the coralline red algae at Kaikoura run by two Australian phycologists. Herbarium staff published 21 articles, including new records of native and naturalised species, additions to the Norfolk Island flora, and new *Radula* (Hepaticae) records for New Zealand and Tasmania. External loans were organised for Barbara Parris (Fern Research Foundation) and Peter de Lange (Department of Conservation). A successful focus for the year has been the return of all completed incoming loans.

The new biosecurity restrictions and charges have hampered all material coming into the herbarium from overseas. The herbarium was inspected and gained a 152.04.03F quarantine standard from MAF Quarantine so that it can temporarily hold foreign plant specimens on loan that don't comply with the present quarantine standards. This is a temporary situation while the NZ National Herbarium Network's joint application to be 'Containment facilities' is processed by ERMA. It is a sad reflection that one of Australia's oldest and largest herbaria, MEL, has had to restrict overseas loans because of increased costs by AQIS (MAF equivalent).

Acquisition and donated specimens

Staff collections numbers included: 693 by Ewen Cameron, 454 mainly liverworts by John Braggins and 130 by Rhys Gardner. Specimens were also received from: Tricia Aspin, Jessica and Ross Beaver, Steve Benham, Jonathan Boow, Paul Champion, Pat Enright, Alan Esler, Graeme Jane, Peter de Lange (873 specimens!), Lisa Forester, Colin Ogle, Barbara Parris, Graeme Platt, Matt Renner, Nick Singers, Bruce Salmon, Bec Stanley, F.J. (John) Taylor, 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	Ewen K Cameron
Honorary Research Associate	John E Braggins, Rhys O Gardner
Technician	Mei Nee Lee
Contract staff	Frances Duff

Volunteers

Chris Ashton, Joan Dow, Frances Duff (between contracts), Kay Haslett and Meryl Wright worked another year, Wyne Jones (Jul-Nov), and Pat Jenner (Aug-) and Naomi Lorimer (April-) joined during the year, all contributing a total of over 1100 hours. Rhys Gardner, Peter de Lange, John Braggins, Jessica Beever and Wendy Nelson greatly assisted with difficult identifications.

Visitors

There were 47 visiting researchers, including interesting visits from Anya Hinkle (Berkeley, California, studying ti pore), Gerald McCormick (Cook Islands studying Rarotonga specimens), Richard Pankhurst (Edinburgh, studying Rosaceae); 12 interest groups visited (209 people), including 46 Auckland University Pacific Biogeography students mapping mistletoe distributions as a lab exercise.

Statistics

New accessions:		(2003-04)
30 June 2005	290,743	
30 June 2004	<u>287,329</u>	
	3,414	(3,750)
Records on Vernon database:		
30 June 2005	199,522	
30 June 2004	<u>194,796</u>	
	4,726	(5,091)
Loans of specimens		
Inwards:	16[1274 spec.] from 10 institutions	(8[226] from 7)
Outwards:	43[814 spec.] to 13	(46[656] to 13)
Exchange specimens		
Inwards	368 specimens from 7 institutions	(338 from 7)
Outwards	385 specimens to 6 institutions	(656 to 13)
Total number of specimens out on loan:	6,691 to 36 institutions	(7,489 to 34)

E.K. Cameron, Botany Department, Auckland Museum, Private Bag 92018, Auckland

BIOGRAPHY / BIBLIOGRAPHY

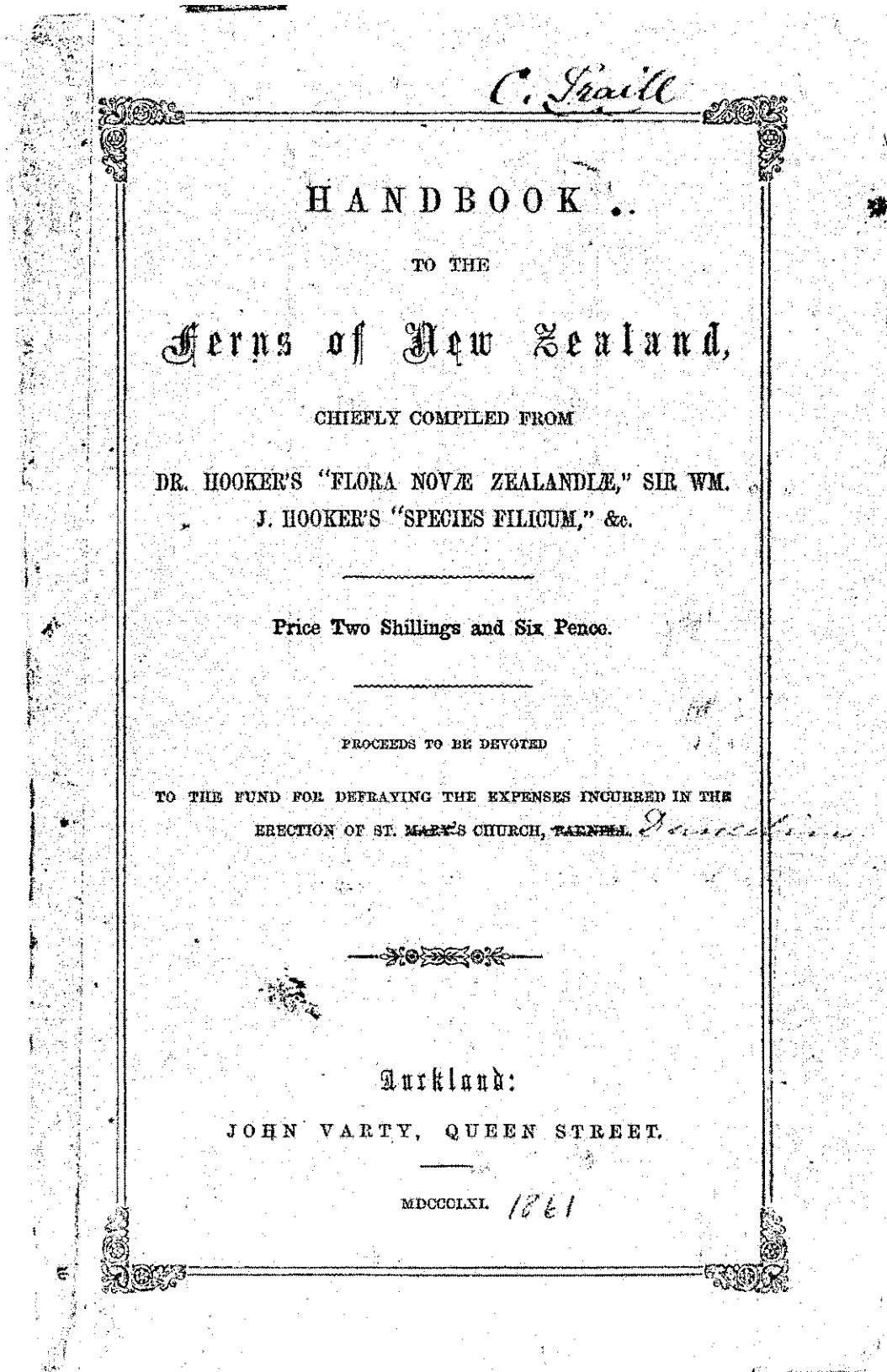
■ Biographical Notes (59) : Emma Jones (born Buchanan c. 1835)

E.J. Godley, Research Associate, Landcare Research, P.O. Box 69, Lincoln.

In 2002, when writing about the brothers Traill of Stewart Island (1), I received from Mrs Sheila Natusch of Wellington, grand-daughter of Arthur William Traill (1852–1936) an anonymous pamphlet on New Zealand ferns published in 1861. It had belonged to her great-uncle, Charles Traill (1826–1891), and bore his signature on the cover. The title page announced (see also photocopy, next page): *Handbook of the Ferns of New Zealand, chiefly compiled from Dr Hooker's "Flora Novae Zelandiae", Sir Wm. J. Hooker's "Species Filicum", etc. Price Two Shillings and Six Pence. Proceeds to be devoted to the expenses incurred in the Erection of St. Mary's Church, Parnell, Auckland : John Varty, Queen Street. MDCCCLXI.*

The copy of this publication held by Auckland City Libraries has a pencilled note by Sir George Grey saying that it was authored by Mrs Jones, wife of the Commissary General (2); and in A.G. Bagnall's New Zealand National Bibliography (where it is No. 2457) it is described as "a systematic outline

borrowed for a worthy purpose, prepared by Mrs Jones, wife of the Commissary General (Stanley Jones)."



Mrs Jones had come to New Zealand as Emma Buchanan when her parents brought their family to Auckland on the "Dinapore" arriving on 5 August, 1857. Also on board was a widower, Humphrey

Stanley Jones, accompanied by his sister Eliza Jones (3). Four months later Emma and Stanley were married, as reported in the "New Zealander" on 5 December, 1857 (2).

Married

"On the 1st instant, at St. Stephen's Chapel, near Auckland, by the Right-Reverend the Bishop of New Zealand, Humphrey Stanley Jones Esq., of Llynnon, Anglesey, Assistant Commissary-General, to Emma, eldest daughter of Andrew Buchanan Esq., M.D., of Auckland, and formerly of the Commercial Road, London."

At the same ceremony Dr Buchanan's third daughter, Edith Mary, was married to Alexander Clerk, the Deputy Assistant Commissary-General.

On their wedding day, Emma was 22 years of age and Stanley 40 (4). It is hard to know where they made their home because Stanley is not in the Electoral Rolls, presumably because he was not a permanent settler. But when they arrived, Stanley and his sister Eliza went to live in St. George's Bay (next to Mechanic's Bay), where they were neighbours of the Buchanans (3); and Stanley and Emma may have used this home. Eliza lived in Carlton Gore Road until her marriage to the Rev. James Stack in 1861 (3).

Mrs Jones's account of the ferns of New Zealand, which appeared when she was still only about 26, could be fairly described as the first Flora published in this country. Within its pale-green paper cover the 32 pages of the Jones *Handbook* are presented as follows:

- Title page and blank (1–2)
- Chapter 1. Explanatory (3–5)
- Chapter 2. Of tribes (6–7)
- Chapter 3. Of Genera (8–14)
- Chapter 4. Of species (15–32)

Thus, whereas the tribal and generic descriptions in J.D. Hooker's treatment of the ferns are scattered through his text, Mrs Jones brings them together, making them easier to compare and forming synopses. As for her descriptions of the tribes and genera she often copies Hooker almost word for word. The Ophioglosseae, for example, are as follows:

J.D. Hooker (*Flora Novae-Zelandiae*): "Sori in stalked spikes or panicles. Capsules sessile, without a ring, globose, coriaceous, bursting transversely into two valves."

E. Jones (*Handbook etc.*): "Sori in stalked spikes, distinct from the frond, without a ring, globose, bursting transversely into two valves."

A good deal of the species descriptions are also taken from Hooker; and were it not for Mrs Jones's Chapter 1 and her briefer introductions to the other chapters we would have to agree with Bagnall that her handbook was "borrowed". But these sections are her own work and show her to be no mean botanist.

In her first chapter she explains that her pamphlet has "been written with the desire, in some measure, to supply the means by which those who at present collect ferns without any knowledge of their botanical names may add to the pleasure of their pursuit by systematic arrangement of their acquisitions." She then explains the position of ferns in the Vegetable Kingdom according to the system of De Candolle, and mentions the recent discovery of fossil ferns near Port Waikato by Hochstetter. This is followed by a paragraph on the distribution of species and then by an account of the various parts of ferns and of "a few botanical terms, the use of which we have been unable altogether to avoid." The chapter ends with comments on variability in ferns and the difficulty this presents to the student. In her introductions to the remaining chapters Mrs Jones discusses in turn those parts of a fern used to differentiate tribes, genera, and species.

Mrs Jones's pamphlet must have been a boon in the colony, where most of the settlers would not have access to the two sumptuous volumes of Joseph Dalton Hooker's *Flora Novae-Zelandiae* (1853, 1855). It helped hold the fort until J.D. Hooker's *Handbook of the New Zealand Flora* appeared in 1864 and 1867. Indeed it may have influenced the choice of a title for that work. In his account of the genesis of Hooker's *Handbook*, Galloway (5) noted that in October, 1863, Charles Knight, the Auditor-General, wrote to Hooker telling him that the new work, formerly loosely discussed as a manual of the

New Zealand Flora must now be termed a handbook, and that the word “handbook” had been chosen by Monro [Dr David Monro, Speaker of the House of Representatives]. It is not improbable that Monro had been influenced by Mrs Jones’s use of this word 2–3 years earlier.

Emma’s later life can only be guessed at from the few items recorded about her husband. He is said to have retired in 1869 (6) but whether they returned to England then is not clear. An S. Jones is listed as a member of the Auckland Institute from 1868 (the second published list) to 1877–8; and in 1882 Humphrey Stanley Herbert Jones is listed as owning land on the Coromandel Peninsula, and in Nelson and at Waitaki (7). However, neither of these items need mean that he and Emma were still in New Zealand. In fact, he is listed in the 1881 England Census as Humphrey S. Jones, married, Comy General retired, C.B. and J.P., and staying at the Mounts Bay Hotel, Promenade, Madron-Penzance, Cornwall. He died in October, 1902, at Bordighera on the Italian Riviera.

Information about the life of Emma Jones’s father, Dr Alexander Buchanan, can be found in (8) and (9). In New Zealand he remained in Auckland until 1862 when he moved his remaining family south to Dunedin, where he had purchased the Patearoa run of some 75,000 acres extending from the Lammerlaws to Sowburn Point. He built a house in Northeast Valley, which he called “Chingford” after the locality in Essex where he had owned a small property. His eldest son, Noel Lee Buchanan attended Otago Boys’ High School from 1863 to 1865 and was the first dux (10).

From 1862 to 1874 Buchanan represented Dunedin on the Legislative Council, and fostered many good works such as the Vaccination Bill and the Lunacy Act. He is described as “the one mainly responsible for the wiping out in New Zealand of the old abominable system of “madhouses”, of the grossly wicked entrusting of our diseased fellow creatures to the tender mercies of ignorant, brutal, and often drunken officials.” (11) Another strong advocate of asylum reform was Dr Lauder Lindsay, the physician-naturalist who visited New Zealand in 1861–62 and whose writings in Edinburgh led to a letter from Buchanan to the Otago Daily Times (12). In 1874 Buchanan returned to England and died there in 1877.

Acknowledgments

I am particularly grateful to Mrs Sheila Natusch (Wellington) for introducing me to Emma Jones’s pamphlet; and to David Verran (local History Librarian, Auckland City Libraries), Hilda Godley (Mosgiel) and Elizabeth Jensen (Christchurch) for help with references, as well as Wendy Weller (Landcare Research, Lincoln) for her typing.

References

(1) E.J. Godley (2002): Biographical Notes (45): Charles Traill etc. *NZ Bot. Soc. Newsletter* 69: 15–20; (2) David Verran, Auckland City Libraries *in litt* 25 Jan. 2005; (3) Una Platts (1971): *The lively capital. Auckland, 1840–1865*; (4) NZ Marriage Certificate; (5) D.J. Galloway (1998): Joseph Hooker, Charles Knight, and the commissioning of New Zealand’s first popular flora: Hooker’s Handbook of the New Zealand Flora (1864–1867). *Tuhinga* 10: 31–62; (6) County families of Anglesey; (7) Return of the freeholders of New Zealand, October 1882; (8) Gary Blackman (1998): in *Southern People. A dictionary of Otago Southland biography*; (9) G.H. Scholefield (1940): *Dictionary of New Zealand biography*; (10) Otago High School Old Boys’ Register (1907); (11) R.V. Fulton (1922): *Medical practice in Otago and Southland in the early days*. Dunedin. ODT and Witness Newspapers; (12) A. Buchanan, MD & MLC (1872): Lauder Lindsay and colonial Lunacy Boards. *ODT* June 27.

PUBLICATIONS

Journal Received

New Zealand Native Orchid Group Journal No. 96 – Aug 2005
Edited by Ian St George [ISSN 1170-4543]

Original papers in this issue are: Max Gibbs – White balance; Gordon Sylvester – A couple of Caladenias

