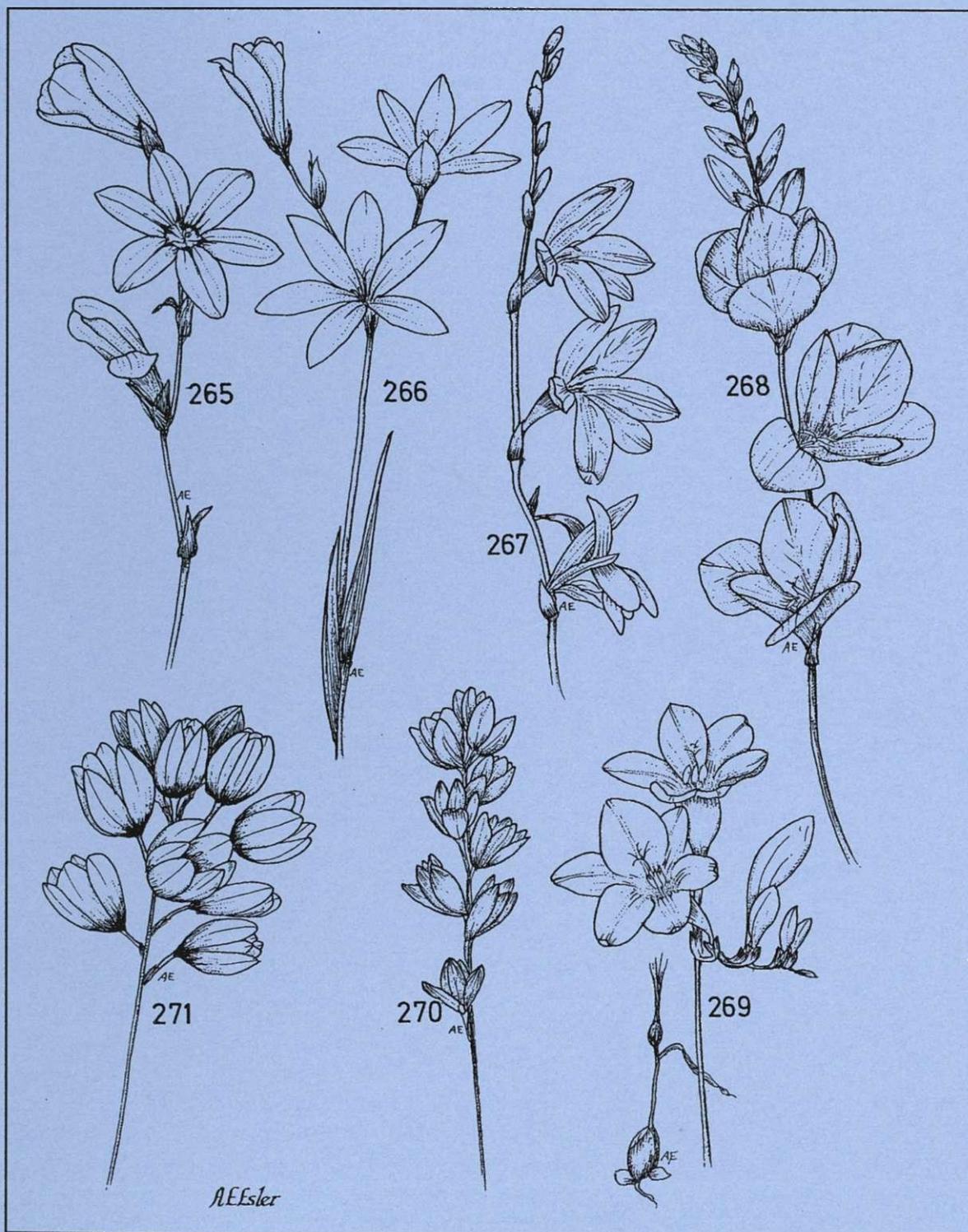


NEW ZEALAND BOTANICAL SOCIETY

NEWSLETTER

NUMBER 78

DECEMBER 2004



New Zealand Botanical Society

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

Address: c/- Canterbury Museum
Rolleston Avenue
CHRISTCHURCH 8001

Subscriptions

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

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

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

Subscriptions are due by 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 2005 issue (79) is 25 February 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 XP or earlier) or saved as RTF or ASCII. Graphics can be sent as Corel 5, TIF JPG, or BMP files. Alternatively photos or line drawings can be posted and will be returned if required. Drawings and photos make an article more readable so please include them if possible. Macintosh files cannot be accepted so text should simply be embedded in the email message.

Cover Illustration

One of the many illustrated pages of a wonderful new book by **Alan Esler: Wild plants in Auckland**. Auckland University Press, Auckland. 2004. 218pp. Paperback. ISBN 1-86940-329-0. Price NZ\$39.99. (With permission from Auckland University Press.)

265 <i>Sparaxis tricolor</i>	269 <i>Freesia refracta</i> freesia
266 <i>Sparaxus bulbifera</i>	270 <i>Ixia polystachya</i>
267 <i>Tritonia lineata</i>	271 <i>Ixia maculata</i>
268 <i>Tritonia crocata</i>	

NEW ZEALAND BOTANICAL SOCIETY
NEWSLETTER
NUMBER 78 DECEMBER 2004

CONTENTS

News

New Zealand Botanical Society News

From the Secretary2

Regional Botanical Society News

Auckland Botanical Society2

Wanganui Museum Botanical Group3

Wellington Botanical Society4

Nelson Botanical Society5

Canterbury Botanical Society7

Botanical Society of Otago8

Botanical Society Contacts9

Obituary

Gilbert Randal Springer (1923-2004), MBE10

Specimen Request

Carex specimens needed to complete nrDNA ITS sequencing
for the New Zealand carices11

Notes and Reports

Report

Indigenous Planting after 50 Years11

Biography/Bibliography

Biographical Notes (56) : Alexander Callender Purdie (1824–1899)
and Alex. Purdie (c. 1861–1905)16

Publications

Journals Received

New Zealand Native Orchid Group Journal No. 9319

NEWS

New Zealand Botanical Society News

■ From the Secretary

Committee election for 2005

Nominations for the positions for President, Secretary/Treasurer and three Committee Members for the New Zealand Botanical Society for 2005 closed on 19 November 2004. As there were no nominations received other than for those already on the committee, the committee remains unchanged for 2005. It consists of Bruce Clarkson, Colin Webb, and Carol West, with Anthony Wright as President and myself as Secretary/Treasurer.

Due to no other offers, Joy Talbot has been reappointed as editor for 2004. **Joy has indicated that she would like a break from this position at least for 2005 while her house is being renovated (and her computer will be in storage). Nominations/volunteers are urgently sought.**

Aaron Wilton, wiltona@landcare.cri.nz c/- Manaaki Whenua - Landcare Research, PO Box 69, Lincoln 8152

Regional Botanical Society News

■ Auckland Botanical Society

September Meeting

Two past recipients of the Lucy Cranwell Fund awards spoke on the subject of their study. First, Jo Meys spoke on the role of introduced mammals in seed predation and dispersal of *Dactyloctenium aegyptium*. This was followed by Rose Thorogood's presentation on the vegetation composition of Tiritiri Matangi and its relationship with stitchbirds.

September Trip

Craig's Bush at Pollock on the Awhitu Peninsula is a small, unfenced bush remnant on steep slopes of consolidated sand. Despite the effects of cattle browsing, many interesting plants have survived, particularly asplenium ferns. These include *Asplenium hookerianum* (not common in the north), both entities that are presently included in *A. gracillimum*, and an amazing hybrid *A. flaccidum x bulbiferum* with fronds nearly a metre long. A surprising find was *Schizolepis trifoliolatum*, quite some distance north of its previous northern record.

October Meeting

The speaker for the Lucy Cranwell Memorial Lecture was Bill Sykes, who spoke on Himalayan alpine plants. Bill has had a long association with Nepal, covering over 50 years, so was well qualified to speak on the dramatically different floras that occur on either side of the main Himalayan Range.

October Trip

The usual day trip was replaced by a weekend at the Hauraki Plains. On Saturday the Kopuatai Peat Dome was visited, with the most spectacular plant seen being the giant bamboo rush, *Sporodanthus ferrugineus*. Later in the day the Howarth Memorial Wetland was explored, with guidance from members of the Te Aroha Fish & Game Assoc. On Sunday an early start saw a leisurely ascent of Mt Te Aroha, with the altitudinal vegetation zones being very noticeable.

November Meeting

Keith Thompson spoke on "A world of wetlands". This slide-illustrated overview of global wetland types used examples taken mainly from Canada, Europe, Africa, Indonesia, Australia and Antarctica. Wetland loss, and its implications, was discussed and management problems highlighted. The Waikato boasts two types of wetlands: the restiad peatlands, with their two species of Restionaceae rushes, and the 30 peat lakes.

November Trip

An area of privately owned bush bordering on Tawharanui Regional Park grades upwards from a raupo wetland to kauri covered ridges, with broadleaf forest in the gullies. On a calm, sunny day, a large group admired glorious views over Kawau Bay and out to Little Barrier, before entering the bush.

Plants of note were *Leionema nudum*, *Schizaea dichotoma*, *Thelymitra aemula*, *Petalochilus (=Caladenia) chlorostylus*, *Syzygium maire*, and *Laurelia novae-zelandiae*.

FORTHCOMING ACTIVITIES

4 December Auckland Regional Botanic Garden. Walk, members' talks and pot-luck dinner
28-31 January Anniversary Weekend Camp at Coromandel Peninsula
19 February Te Muri Regional Park

Maureen Young, 36 Alnwick Street, Warkworth. Email: youngmaureen@xtra.co.nz

■ Wanganui Museum Botanical Group

Castlecliff's wetlands at Kokohuia and Titoki Street - 6 March 2004

Wendy McGhie of the Wanganui District Council guided us around Kokohuia, at the edge of the now-closed and sealed Balgownie rubbish dump. Across a deep pool we saw an area dominated by harakeke and toetoe (*Cortaderia toetoe*), a fragment of the extensive Balgownie Swamp before the dump existed. After viewing progress on the project to create 'natural' areas, we walked a mown pasture track around the sealed dump fringe to see extensive, and very healthy, mixed native shrub plantings on a bank between a drain and housing estate. The small exotic *Gypsophila muralis* was found in bare patches along the track. This rare plant in NZ has previous records from Durie Hill (Wanganui) and Rotorua. We then drove to the council's Titoki Street swamp reserve. It is smaller than Kokohuia but with more extensive natural vegetation, including the district's best population of the native swamp millet (*Isachne globosa*). We wondered whether the dense patches of nutgrass (*Cyperus rotundus*) were out-competing native species.

Colin Ogle

Working Bee, Gordon Park Scenic Reserve, No. 3 Line, Wanganui - 1 May 2004

We entered into the Weedbusters spirit, and mounted a second attack on Jerusalem Cherry (*Solanum pseudocapsicum*). We concentrated on clearing weeds from the forest within the track boundaries (only about 500 m) in the morning session, and tackled some of the denser infestations outside the track after lunch. We'll probably be back next year.

Graeme La Cock

Members' Gardens, 31 July 2004.

This was a mystery tour of members' gardens looking primarily at native plantings. This year was for gardens east and south of Whanganui River. Highlights were a large nikau palm with seedlings along with planted seedlings of Chatham Island nikau; a large flowering red kakabeak, with red beech, tanekaha, tree ferns, and *Jovellana sinclairii*; and in Durie Vale, an established garden, new additions from 2001 included a 5 m specimen of narrow-leaved lacebark (*Hoheria angustifolia*) that was less than 1 m tall when planted 3 years ago. The February storm damaged many plantings on Durie Hill which received the full blast of the winds. Numerous exotic trees were stripped of their leaves and lost limbs but, for the most part, the indigenous flora withstood the ravages of the storm much better. For example, *Metrosideros* species, *Pachystegia* and Chatham Island forget-me-nots were thriving in the chilly exposed areas.

Pat Robinson

Bruce/Silverhope Scenic Reserves and Pryces Rahui Reserve, south of Hunterville, 4 Sept. 2004.

Viv Nicholls of DOC met us at Bruce Reserve on a showery winter's morning, to show us this now-closed section of SH1. Transit NZ had paid for the removal of the seal, scarification of the hard underlying base, initial control of some woody weeds and supply of 15,000 native plants. We were impressed by the amount of growth in 12 months on the planted karamu, koromiko, toetoe (*Cortaderia fulvida*) and harakeke, and by the amount of weed control. When this was SH1, *Acacia dealbata*, suckering elm (*Ulmus Xhollandica*), *Rhododendron ponticum*, privet (*Ligustrum ovalifolium*) and willows (*Salix cinerea* and *S. fragilis*) were common and spreading. The only uncontrolled, invasive, woody weed that we saw was hazel pomaderris (the Australian *P. aspera*). Although controlled since before 1987, Cathedral bells (*Cobaea scandens*), was still present. From there we drove a short way to Rata and Pryces Bush, a reserve being managed by the Rangitikei Branch of F&B. One of our members, John Marsh, explained the reserve's history, including pest control, plantings and the impacts of the February storms. He is a real enthusiast for restoring this reserve, including the introduction of species which might well have been here in the past, most notably northern rata (it still occurs on old river cliffs a couple of km distant and is presumably the reason for the name of the village on SH1). *Ileostylus* mistletoes, first seen here in 1996 on *Coprosma propinqua*, have

flourished with John's possum control. The reserve as a whole was impressive, especially the areas of giant kanuka trees, now barely keeping their crowns in the sun above the younger, dense, vigorous podocarps (rimu, totara, kahikatea, matai). Back at the entrance, John had already dug out the three plants of the invasive exotic tussock, *Carex divulsa* that we'd shown him. However, while we all pulled out hundreds of seedlings of old man's beard nearby, we were defeated by our eventual finding of the adult vine(s).
Colin Ogle

FORTHCOMING EVENTS

MEETINGS (1st Tuesday of each month)

2 Nov 2004 Workshop: 'Family Scrophulariaceae - as it was and never shall be again'
7 December End of year social evening
1 February 2005 Vietnam: Barbara Curtis, DoC, New Plymouth
1 March What's happening with NZ Orchids? Graeme Jane
5 April ERMA and its role in New Zealand today: Neil Walter

TRIPS

31 October 2004 "Paloma" (Higgies' gardens), Fordell
4 December Okehu Stream mouth, west of Mowhanau Beach, to see *Euchiton polylepsis*
29 January 2005 'Ben Moi' farm, Kawhatau Valley, northeast of Mangaweka
27 February Grice's Bush and Lake, No 2 Line, Fordell
2 April Makirikiri Stream, Dalvey Road, just off SH3, south of Turakina

President: Vonnie Cave Seafield Road, R.D.4, Wanganui. (06)345 8326

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

■ Wellington Botanical Society

6 March: Orongorongo Station, Wainuiomata

South of the Wainuiomata Valley, 17 BotSoc members botanised the shrublands on the hill downstream from the bridge to Baring Head Lighthouse, on a strip above the Coast Road and a hillock between the road and river. The main cover on these dry, steep, scree-covered hills was *Coprosma propinqua* var. *latiuscula* smothered with colourful fruit: white, shades of blue and purple or almost black. Other shrubs of interest were *Brachyglottis greyi*, matagouri, *Discaria toumatou*, and *Muehlenbeckia astonii* (uncommon). Lianes included climbing aniseed, *Scandia geniculata*, still common here; and the two leafless lianes *Rubus squarrosus*, and *Clematis afoliata* (uncommon). The fern *Pellaea rotundifolia* was found growing with the two rock ferns *Cheilanthes distans* and *C. sieberi* on sunny sites. Two mistletoes, *Ileostylus micranthus* and *Korthalsella lindsayi*, were also present.
Chris Hopkins

12 June: Mana Island planting

Eight BotSoc members and 18 others planted 600 plants such as ngaio, karamu, koromiko and kanuka, in the rank pasture grass on the summit platform. Elsewhere we were pleased to see several planted rata saplings, and the regionally critically threatened, endemic Cook Strait shrub *Meliclytus* aff. *obovatus* flourishing beside the nationally endangered and regionally critical *Leptinella nana*.
Barbara Mitcalfe

3 July: Kaiwharawhara Valley restoration

This well-organised event of final planting for the year was introduced with Jonathan and Bronwyn's slide show of the history of their restoration team's work in the valley. Our work included bedding in and staking podocarps and other canopy species in bouldery soil. Later Susan Moore and Robyn Smith gave us a guided tour of the Otari rock garden designed and planted many years ago by Walter Brockie.
Barbara Mitcalfe

25 September: Measuring indigenous riparian trial plantings

A team of eleven measured the maximum height and crown spread of the native species at three Hutt River sites, planted in 2002 for this 5-year trial. A condition of the trial is that we must not weed the plantings except where weeds make it impossible to take measurements.

At the Maoribank site the species were successive rows of: *Phormium tenax*, *Phormium cookianum*, *Cortaderia fulvida*, *Podocarpus totara*, and *Plagianthus regius*. The site opposite Manor Park golf course

had rows successive rows of: *Dicksonia squarrosa*, (now all washed away or buried under deep silt), *Pittosporum tenuifolium*, *Pittosporum eugenioides*, *Podocarpus totara* and *Plagianthus regius*. Plant numbers here are all reduced due to several big floods this year. Site 3 at Avalon is in two parts. 3A was destroyed with the loss of 5m of bank during a 2003 flood. At site 3B, the riverside row of *Dicksonia squarrosa* has gone, and the plants in the other 4 rows are much reduced. Barbara Mitcalfe

2 October: Waterfall Road Bush

To avoid a risky rail crossing, 18 BotSoc members approached Peter and Diane Kiernan's Waterfall Road property via Valley Road from Paraparaumu. Peter has clearly marked their tracks. We botanised Totara Ridge Track and Rata Ridge Track seeing northern rata, totara, matai, rewarewa and *Olearia rani* in flower, and three species of maire: *Nestegis cunninghamii*, *N. lanceolata* and *N. montana*. We also saw both the wide-leaved and narrow-leaved forms of the uncommon NZ sandalwood, *Mida salicifolia*. There were several orchids such as *Pterostylis alobula* - some still in flower, *Nematocerus triloba* agg. "Rimutaka", and *Acianthus sinclairii*, and on the dry banks were *Microtis*, *Thelymitra* and even *Pterostylis banksii* in flower. We added *Dicksonia fibrosa* and *Senecio jacobaea* to Pat's species list. Olaf John

11 October: Matiu-Somes Island planting

Four BotSocers joined a group of Lower Hutt Forest and Birders to interplant the shrubland of planted taupata and ngaio in "Lighthouse Valley" with longer-lived species to overtop the early successional. Matiu-Somes together with Mana Island must surely be a Wellington equivalent of Tiritiri Matangi, i.e. the re-vegetation of a pastoral island, using local native species. Barbara Mitcalfe

Three very well attended Working bees were also held in May (Dench's garden), September (exposed cutting at Te Marua Bush on SH2) and October (Tapu Te Ranga Marae).

FIELD TRIP AND EVENING MEETINGS: January - June 2005

22 Jan	Pakuratahi forest, Montane Goblin forest
5/6 Feb	Waiohine Gorge, Private forest, Tararua foothills
12 Feb	Weeding - Dench garden of native alpine plants
21 Feb	Recent Research by Te Papa on New Zealand Ferns Speaker: Leon Perrie, Curator of Botany, Te Papa.
27 Feb	An Interactive Computer Key for NZ Ferns Day workshop. Coordinator: Patrick Brownsey, Curator of Botany, Te Papa.
5 Mar	Lowry-Upper Gollans Riparian forest with Podocarps, East Harbour Regional Park..
12 Mar	Otari-Wiltons Bush Wellington City Council's FEELING GREAT STEPPING OUT! Plant identification for general public.
25-28 Mar	Waerenga Tapokopoko Peak 843m Easter trip. Beech forest, Rimutaka Forest Park.
9 Apr	View Road/South Headland Reserve. Botanise spectacular site on Waitaha Ridge.
17 Apr	Weeding - Druce garden of threatened native plants from around NZ.
18 Apr	Mushrooms and Boletes in New Zealand Speaker Geoff Ridley, ERMA

President: Joyce Stretton (04) 934 2437

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

■ **Nelson Botanical Society**

Fern Workshop, Sunday 15 August

In the morning ten of us lined up at computers, in the DOC Conference room. The workshop was set up to test the newly designed fern key with us as guinea pigs. Leon Perrie, standing in for Patrick Brownsey, explained how the interactive key works. A demonstration was given on the lead computer linked to a datashow projector, taking us through the steps to key out *Microsorium pustulatum*, choosing from photographs the type of sori, lamina, scales or hairs etc. our specimens had. Then people keyed out their own specimens and some of the great selection of ferns collected by Bill Malcolm. In the afternoon a second group arrived to repeat the exercise. Everyone seemed to enjoy using the key. It has a huge number of features and possible interactions, many of which had not previously been tested, and so Leon soon had a list of things requiring attention to take back to Patrick. Bill Malcolm has done a wonderful job of taking the hundreds of clear closeup photos needed.

We look forward to having the completed key available on CD, as it really does make identifying ferns much easier.

Cathy Jones

The Doubles – Sunday 19 September

Our group of 21 assembled at the bottom of the Zig Zag road in Hira forest, and were ferried to the road end. Half a dozen energetic explorers went to the top of the first peak, while the more serious botanisers only got about half way. Under the canopy of huge red and silver beech trees we found a large number of *Hymenophyllum* species, including the tiny *H. rarum*. *Cyathea smithii* was abundant and decorated with *Tmesipteris* sp, and the lovely *Ctenopteris heterophylla*. The predominance of unpalatable *Blechnum discolor* and *Pseudowintera colorata* in the understorey indicates a high deer population in the past. There were many ferns including *Leptopteris hymenophylloides*, and a range of small leaved coprosmas. Beech regeneration is prolific in the gaps where large trees have fallen. Plants of the day were *Lycopodium varium*, hanging daintily off a sloping kamahi trunk, and *Nematoceras (=Corybas) triloba* in flower.

Tim McArthur

September evening talk

Trevor Lewis gave an excellent talk and photo presentation on his recent trip into Northern Pakistan. Sally Warren and Cathy Jones who were also on the tour added comments.

Sherry River Bush remnants – 17 October

Sixteen botsoccers took advantage of a sunny Sunday to botanise two bush remnants on private land. The first stop was Jeff Lukey's beech forest covenant. On the seepages above a stream we encountered our first shrubs of *Olearia polita* with the oldest ones reaching nearly 5 metres. This nationally endangered species is confined to a few sites in the south-eastern part of North-West Nelson. We also spied a few large specimens of the scarlet mistletoe (*Peraxilla colensoi*) perched in silver beeches. There were numerous small leaved shrubs and small trees to fathom including a bewildering array of *Raukaua anomalus* forms. We recorded a staggering total of 13 species of coprosmas within a few hundred metres, including the nationally threatened *Coprosma obconica*.

After lunch we headed off to the Anglesea's forest remnant on the other side of the valley. This was a larger block, also with a good population of *Olearia polita* and *Coprosma obconica*. Their presence in various light regimes allowed us to study their range of variation. An old mining track led us to a high terrace allowing views to the western ranges. Near the top we found a small patch of an infrequently encountered the forget-me-not, *Myosotis venosa*, looking like an overgrown *M. forsteri* with its large bronze leaves. The bidibidi, *Acaena juvenca*, was also a feature as well as what appeared to be a hybrid between hard and black beech. All four species of beech were present as well as both *Podocarpus totara* and *P. hallii*, and miro, rimu, kahikatea and matai. On the way back to the vehicles, impressive populations of scarlet mistletoe were found on the forest margin, and in a small nearby silver beech forest remnant.

Shannel Courtney

Labour Weekend Camp

Based at Red Deer Lodge at Lake Rotoiti, Saturday saw our small group botanising at the Howard Valley river flats. An insignificant looking patch of grey scrub has been fenced off to allow it to revegetate. It is a frost flat, colonized by very hardy slow-growing plants, about 127 species. Most interesting were *Aristotelia fruticosa* in its many forms, and *Coprosma's obconica, rigida, and wallii*. *Olearia virgata*, and the leafless porcupine plant *Melicytus flexuosus* were abundant. Plant of the day though was *Clematis quadribacteolata*, both male and female with masses of flowers growing within a few metres of each other. After lunch we moved on to Porika Road and botanised up an adjacent creek before following the road up to the first saddle. The banks along the roadside were botanically rich, although it was an area of recently logged pine forest. *Pittosporum anomalum* was common with large bushes encroaching onto adjacent farmland.

Sunday dawned inclemently, and we took to the Parachute Rocks track in the rain. Mostly beech forest with an understorey of small leaved shrubs, including patches of bog pine, *Halocarpus bidwillii*, and *Neomyrtus pedunculata*. We failed to find *Pittosporum patulum*, but *Elaeocarpus hookerianus* was quite common in various stages of juvenile to adult foliage, also *Raukaua simplex* with a big variety of leaf shapes and sizes. After arriving back at camp drenched, most chose to leave for home, leaving me to relax in front of a glowing fire.

Tim McArthur

Future trips:

December 17– 19 weekend field trip, Cobb Valley, leader Liselotte Seckler, 545 1413
Sunday January 16, St Arnaud range, leader Cathy Jones, 546 9499
Camp 28 – 31 January, Mt Stokes & Titirangi, leader Rebecca Bowater (bookings) 545 1260
Sunday February 20, Mt Burnett, leader Shannel Courtney, 546 9922

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

■ **Canterbury Botanical Society**

September Meeting

Ryan Young spoke on spring flowers seen on his trip to the Western Himalayan Ranges of the Annapurna Conservation area in Nepal. His trek started and ended in Naya Phul and many of the plants he saw were identifiable because they are popular or spectacular garden plants. Such included *Primula denticulata*, *Arisaema nepenthoides* (Cobra Plant), *Skimmia laureola*, *Rhododendron campanulatum* and *Pinus wallichiana*. He also visited the Royal Botanic Gardens in the subtropical area of the Greater Kathmandu Valley where memorable endemic plants included *Denrocalamus nepalensis*, a bamboo 20-30 m in height, *Rosa webbiana* and *R. brunonii*, and *Taxus wallichiana*.

September Field Trip – Travis Wetlands Heritage Park and Bexley Wetlands

The Travis Wetlands are a fine example of a plains wetland with sand dunes and mineral soils. Thinning out of willows, the replanting of compatible native species and weed eradication is on-going. There is a vegetative cover of *Carex secta*, *C. virgata*, *Baumea rubiginosa*, *Blechnum minus* and the last remaining remnant stand of *Leptospermum scoparium* on the plains. The Bexley Wetlands, in contrast, are a saline/brackish habitat where a range of salt tolerant species abound including *Plagianthus divaricatus*, *Apodasmia similis* (*Leptocarpus similis*), *Apium prostratum* and *Suaeda novae-zelandiae*.

October Meetings – two talks

Jenny Schneiderheinze, a PhD student at Canterbury University investigating photoinhibition and photoprotection in New Zealand shrubs, spoke on one of her research areas. This compared divaricating and non-divaricating shrubs under drought and high light conditions with the hypothesis that under drought conditions the divaricating shrubs would be able to maximise photosynthesis by minimising the damaging effects of high light conditions. Although divaricating shrubs are often found in areas of high irradiance – near the sea and at high altitude – and may be subject to water stress in these areas, results indicated that divaricating shrubs were no better than non-divaricating ones in having reduced rates of photosynthesis under such conditions.

Trevor Partridge (Canterbury Ecological Consulting Services (CECS)), spoke on ecology in the rural environment especially as it relates to the controversies surrounding the implementation of the Resource Management Act by District Councils upon landowners. This Act especially affects those who have "areas of significant indigenous vegetation" (RMA, Section 6(c) which councils are expected to protect. As might be imagined, their ways of achieving protection vary considerably and organisations overseeing the process such as Regional Councils and DoC often see their efforts as inadequate. This is where botanical society's can play a part as both parties require high-quality information supplied in an unbiased manner. Including farmland, with its mixtures of indigenous and exotic plants, in botanical forays would go a long way to providing such information.

October Field Trip – Kaitorete Spit

Pingao clothed the foredunes, and a mixture of exotic and native groundcovers and grasses, including *Austrostipa nodosa*, the sandflats and backdunes. *Muehlenbeckia complexa* dominated the dune tops intertwined with *Einardia triandra* and flowering *Clematis afoliata*, but *Carmichaelia appressa*, *Melycitus alpinus*, *Poa cita* and matagouri abundant. Further along the spit a stand of about 20 bushes of *Muehlenbeckia astonii* were present on the side of the road; plants from this site retain their low stature in cultivation.

November Field Trip

In wind driven mist, members visited a recently registered QEII covenant on the east side of Mt Pearce above Akaroa. That this weather is common was demonstrated by the larger vegetation being festooned in mosses and other epiphytes. Emergent trees included Hall's totara and mountain five-finger and *Olearia ilicifolia* and the mountain tree fern, *Cyathea colensoi* were both common in the

understorey. The variety of ferns and mosses impressed most, with 35 ferns and fern allies recorded. *Blechnum colensoi* was particularly common, and not necessarily confined to watercourses. *Brachyglottis sciadophila* was encountered several times, though none were in flower.

FUTURE EVENTS

28 January Show and Tell evening
Summer Camp 2005 – 6 to 11 February Mt Cook National Park
March 4 Rowan Buxton, Landcare Research – reseeding mine sites
April 1 Dr Brockerhof – rare cultivated plant species
April 2 Field trip to plant species discussed above
May 6 Sue Molloy – early botanists
May 7 Lowry Peaks, North Canterbury
June 11 AGM, St Ninan's Church Hall

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

■ Botanical Society of Otago

16 June. Oregon, Europe & Dunedin: Plants, Gardens and Seeds

Tom Myers, Botanical Services Officer, Dunedin Botanic Garden accompanied his partner, who was working on eel-grass (*Zostera*), to Oregon, USA. He visited lots of sandy and muddy beaches up and down the Oregon coast, and his slides highlighted the similarity of beaches in Oregon and Otago. Exotic plants included broom on cliffs and marram grass on the dunes and the sea rocket (*Cakile edentula*), which occurs on New Zealand beaches. There were also sea-lions. Plants that differed included skunk cabbage (*Lysichyton americanum*, and it does stink), a close relative of the arum lily, *Trillium* spp. and (met while gardening) the invasive horsetail, *Equisetum arvense*. Then across the Atlantic to Portugal, the starting point of a European tour which included many botanic gardens. He was especially intrigued by botanic gardens that grew cultivated crops. Peter Bannister

21 July. Taxonomy of the red algal genus *Pachymenia* in New Zealand

Lisa Russell presented the culmination of her epic attempts to disentangle the taxonomy of an infamously problematic genus. At present three endemic *Pachymenia* species are recognized, though as many as five species have been described in the past. Collectively, the three *Pachymenia* species occur throughout New Zealand, with *P. crassa* found north of Auckland, *P. lusoria* occurring north of Auckland, on the NW coast of the South Island and throughout the southern South Island; *P. laciniata* has only been recorded in the NW of the South Island. Results from a range of analyses were presented, involving morphological, phytochemical and genetic characteristics of specimens collected from around New Zealand. The clearest picture was given by analyses of the ITS regions of nuclear ribosomal DNA. These showed that *Pachymenia* is not a distinct genus, but overlaps with the closely related *Aeodes*. *P. lusoria* appears to separate into distinct northern and southern species. *P. laciniata* and *P. lusoria* appear to be distinct species, with *P. laciniata* also being distinct from morphologically similar South African specimens. However, *P. laciniata* was identical to an *Aeodes* species, suggesting that the morphological boundaries of the two species need reassessing. Lisa has suggested that *P. lusoria* be separated into two species, the southern *P. dichotoma* and the northern *P. lusoria* and it seemed likely that the genera *Aeodes* and *Pachymenia* will be amalgamated into a single genus in the near future. D'Angelo L'Strange

18 August. Growing New Zealand Alpine Plants Allison Knight

Alpine enthusiast David Lyttle informed and entertained an appreciative audience on the finer points of growing alpine plants. Here is my version of some of his tips, which were superbly illustrated by dazzling images of New Zealand alpine plants in the wild.

Seed should be dry and clean and is best sown fresh. Otherwise, store in the fridge in a paper envelope or bag. Sow into commercial seed-raising mix, on the top of potting mix containing fertilizer. Cover with seed-raising mix and top off with a layer of fine chip of the size used as grit on icy roads. Be aware that some seeds take up to 2 years to germinate. *Clematis* can take at least a year.

Cuttings. Semi-hardwood cuttings are best taken late summer – early autumn. Cut below a node, remove flowers and pinch out the growing tip. Make scrapes along the base, moisten, dip into hormone rooting powder, then place firmly in horticultural sand or sharp sand. Keep moist and be patient – rooting may take over a year.

Celmisia. These striking mountain daisies do best on a windy, south-facing slope. They are prone to water stress and fungal attack. Don't let the ground get too dry, nor water overhead on a sunny day, and use Trichopel fungicide. *Celmisia* can be grown from rosettes or seed, but most of the seed is not viable – just pick out the healthiest ones.

Pots. Growing in pots allows the plants to be moved to suit conditions. Mulch with gravel to suppress weeds and top dress with bonedust. Hypertufa pots made of sand, cement and peat are good.

Labels. A 6B pencil, pressed hard on plastic gives a lasting label.

25 July 2004. Tavora Reserve (Bobby's Head)

A group of about twenty headed to Tavora Reserve, purchased in 1993 by the Yellow-Eyed Penguin Trust. While some of the area is still grazed, the Trust has made excellent progress over the past decade in restoration plantings. To date these are concentrated along the stream and on the sand dunes and hill slopes. Plants characteristic of the area have been carefully selected, locally sourced and propagated at the Trust's nursery. The reserve is open to the public, and a walk around the track takes around an hour (at non-botanist pace!). The low dunes bordering the sandy beach (one of few along this stretch of coastline) were resplendent with their restored cover of golden pikao (pingao, *Desmoschoenus spiralis*) and shore spurge (*Euphorbia glauca*). Other dune plantings include *Coprosma acerosa*, *Austrofestuca littoralis*, and Cook's scurvy grass (*Lepidium oleraceum*). Successful use of threatened native plants makes Tavora important both as a restoration model and future seed source. From the beach the walk zig-zags up a hill slope, with the lower, gently-sloping dune faces restored so far. In contrast, the adjacent dune scarp is densely covered with invasive marram grass (*Ammophila arenaria*), which will be progressively replaced. Earlier native plantings are doing well in the hilltop paddock, accompanied by scattered remnant trees which survived grazing. These include *Sophora microphylla*, ngaio (*Myoporum laetum*), *Cordyline australis*, and lowland ribbonwood (*Plagianthus regius*). The deciduous ribbonwood trees were virtually leafless, revealing the hemi-parasitic *Tupea antarctica*. These threatened native plants are protected from possum browse by metal bands encircling the ribbonwood trunks. *Theresa Downs*

3-4 Dec Weekend trip to the fossil forest at Piko Piko, with Geologist Dr Daphne Lee
8 Dec Diane Campbell-Hunt *Developing an urban sanctuary - the Karori Experience*

Chairman: 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**

Manawatu Botanical Society

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

Rotorua Botanical Society

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

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

Secretary: Joan Fitzgerald (07) 347 7917

Wakatipu Botanical Group

Chairman: Neill Simpson (03) 442 2035

Secretary: Lyn Clendon (03) 442 3153

Waikato Botanical Society

President: Joanna McQueen jmcqueen@waikato.ac.nz

Secretary: Liz Grove: egrove@doc.govt.nz

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

OBITUARY

▪ Gilbert Randal Springer (1923-2004), MBE

On 6 May 2004 we lost Randal, a stalwart of our Wanganui Botanical Group. Because broad accounts of Randal's life and wider interests have been published in local newspapers and in the Wanganui Regional Museum's Newsletter of June 2004, this note is to put on record his botanical contributions. His career included war service in the RNZAF, farming, fire control officer and air traffic controller at Wellington then Ohakea. After retiring, Randal and his wife June moved from Bulls to Wanganui in 1987. For our Botanical Group, Randal had been an active committee member, led numerous field trips and gave many short addresses at meetings. His talks were usually on themes that linked botany to one of his other passions, NZ history. Randal's knowledge of people and places in the Rangitikei was unsurpassed, and we had many field trips there on his advice and often under his guidance, to places that we would never have known of otherwise. He recognised much of our region's lowland flora and contributed many species to the plant lists compiled on our trips. He grew eucalypts on his Bulls property and encouraged this author to start recognising the species cultivated around Wanganui.

Randal worked as a volunteer at the Whanganui Regional Museum throughout his time in Wanganui. Here he undertook much local historical research, transcribed letters and diaries and helped catalogue a wide range of artefacts. Of particular interest were the Wanganui missionary, Rev. Richard Taylor, and his family. Randal's findings about the plant most closely associated with the Rev. Taylor, namely *Dactylanthus taylorii*, unravelled a tangle of earlier writings about the first finding of this plant (Springer 1994a). From diaries in the Museum, Randal traced Taylor's day-by-day walking routes and calculated that he had found *Dactylanthus* about 12 km south of Raetihi. This was quite a way from "Wanganui, 4000 feet" as stated in *Flora of NZ* Vol.1. Department of Conservation (DOC) staff contacted the landowner who lived on SH4 (The Parapara) nearest to Randal's theoretical type locality for *Dactylanthus*. It turned out that the owner already knew *Dactylanthus* there, but it was a new location in modern times 'for science'. When DOC staff first visited the site with the landowner, they took Randal to view the species.

Among the items that Randal catalogued were the Museum's pressed plant specimens, a collection little known to the wider botanical community. He wrote a summary of the Museum's holdings (Springer 1994b). Among these was a collection of more than 225 plants that had belonged to E.B. Dickson (Springer 2002). He was working on this collection when St George and Hatch (1994) published an article on a pressed *Pterostylis* specimen in Kew, from Taranaki. E.B. Dickson had collected the plant in 1866 and the specimen had an accompanying longhand letter, transcribed by St George and Hatch. Randal wrote a short note to St George, correcting several points and inferences they had made and expanding on several aspects of Dickson's life. Randal's points were acknowledged in the following NZ Native Orchid Society's Journal (St George 1994, p. 11). The elucidation of E.B. Dickson's life and work was a major project for Randal in the 1990s and his paper (Springer 2002) is a fine example of his wide-ranging research, meticulous cataloguing skills, and logical writing.

Randal's knowledge and friendly and helpful are missed by all of us. With so much of interest in his life, he always seemed so much younger than his calendar years. Our Group's sympathies go out to his wife, June, and family.

Colin Ogle

References

- Springer, G.R. 1994a. *Dactylanthus taylorii*: the early years. *NZ Bot.Soc.Newsletter* 38: 10-12.
Springer, G.R. 1994b. Some interesting plant collections in the Whanganui Regional Museum. *NZ Bot.Soc.Newsletter* 38: 10-12.
Springer, G.R. 2002. The clerical botanist: Edwin Brodie Dickson. *Wellington Bot.Soc.Bull.* 48: 51-68.
St George, I.M. 1994. Notes. *NZ Native Orchid Soc.Jl.* 51: 6-12.
St George, I.M. & Hatch, E.D. 1994. A *Pterostylis* from Taranaki in 1866. *NZ Native Orchid Soc.Jl.* 50: 8-11.

SPECIMEN REQUEST

■ **Carex specimens needed to complete nrDNA ITS sequencing for the New Zealand carices**

As part of a broad based molecular study of the New Zealand Cyperaceae using the nrDNA Internal Transcribed Spacer Region (ITS) we are looking for the following indigenous carices (see list) to complete our sequences for the genus.

We require well labelled (as to locality, collector etc) fresh specimens sent to either of the addresses provided below. Specimens should be sent moist, in a snap-lock bag with sufficient material to make a suitable herbarium specimen (i.e. including seed heads/spikelets and culm bases to enable identification), and if at all possible in sufficient quantity for us to try and grow on the plants.

We are also interested in samples of *Carex dissita* from outside Northland and Auckland, as our preliminary investigations suggest significant ITS variation exists within this species, some of which can be matched to morphology.

The source of any specimens sent will be freely acknowledged in any resulting publication.

We truly appreciate that this is a big ask, especially as carices can be tricky to identify. If you feel you might be able to help but would like further information please don't hesitate to contact us.

Please make sure you have permission to collect before sampling carices (or indeed any native plant) from the wild.

List of carices needed to complete nrDNA ITS sequencing of the genus for the New Zealand indigenous species.

Carex acicularis
Carex allanii
Carex astonii
Carex cockayneana
Carex devia
Carex echinata
Carex enysii
Carex filamentosa

Carex goyenii
Carex kirkii var. *kirkii*
Carex kirkii var. *elatior*
Carex lachenalii subsp. *parkerii*
Carex pleiostachys
Carex pyrenaica var. *cephalotes*
Carex tahoata

Peter J. de Lange, Science & Research Unit, Department of Conservation, Private Bag 68908, Newton, Auckland, pdelange@doc.govt.nz; **D. Jeanette Keeling**, **Richard C. Gardner**, School of Biological Sciences, University of Auckland, Private Bag 92019, Auckland r.gardner@auckland.ac.nz.

NOTES AND REPORTS

Reports

■ **Indigenous Planting after 50 Years**

R.M. Greenwood, 107 Atawhai Road, Palmerston North.

There has been a major increase in indigenous vegetation restorative plantings over the last two decades with corresponding developments in ideas and expertise. This note records the history of one small early stand and indicates some of the changing perceptions and aims of such plantings over the years.

Planting begins

In 1954 a start was made in planting with indigenous woody species about 0.2 hectare of terrace land just south of the Manawatu River at Palmerston North. The area was on a slope facing south-west, and was initially in rough pasture containing scattered low gorse nowhere dense enough to shade out the grass.

The main aim of the planting was to see whether it was possible to create an area of vegetation with a somewhat natural aspect. However no thought was given at that time to restricting the planting to species growing locally. Whatever plants were readily available were planted, and these included plants from higher altitudes in the Ruahine and Tararua Ranges and some from Northland and elsewhere. In fact, a secondary aim of the planting was to see how these species would perform when planted outside their natural ranges. Also a group of red beech trees with some silver and mountain beech were planted to see whether the atmosphere of beech forest could be created to some extent, including the ground cover of beech duff.

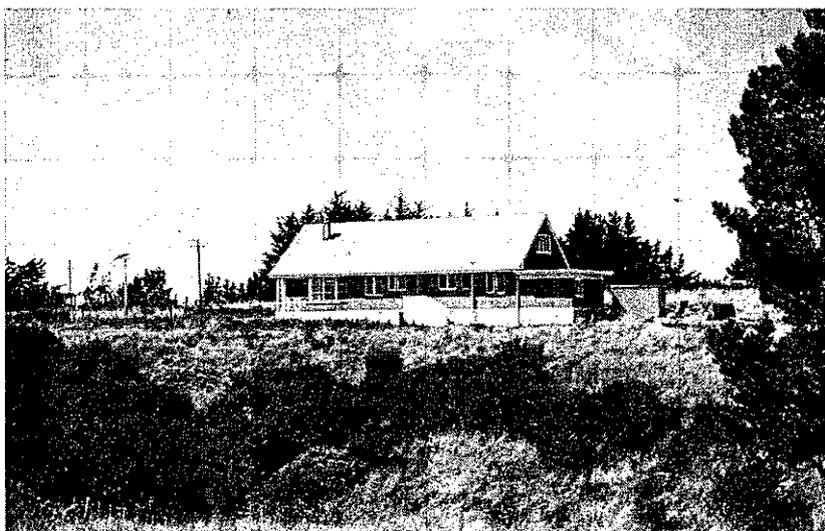


Figure 1: Site of the planting, taken in March 1956, soon after planting had started, showing rank grass and patches of gorse.

Lack of shelter and strong grass growth were the main problems initially, and some plants were cut back by frost - even totara slightly in their first year - and some suffered from lack of moisture. However maximum use was made of the increasing shelter provided by the gorse, together with tree lucerne (*Chamaecytisus palmensis*) and several faster growing indigenous species such as wineberry (*Aristotelia serrata*), lacebark (*Hoheria sexstylosa*) and *Pittosporum* spp. planted in open patches among the gorse. With the growth of these trees shelter improved greatly, and the small amount of summer watering was discontinued. By about 1962 it was possible to plant fruits of karaka (*Corynocarpus laevigatus*) and tawa (*Beilschmiedia tawa*) directly into places where the grass had been shaded out, and by 1966 frost-tender species such as puriri (*Vitex lucens*) were able to survive

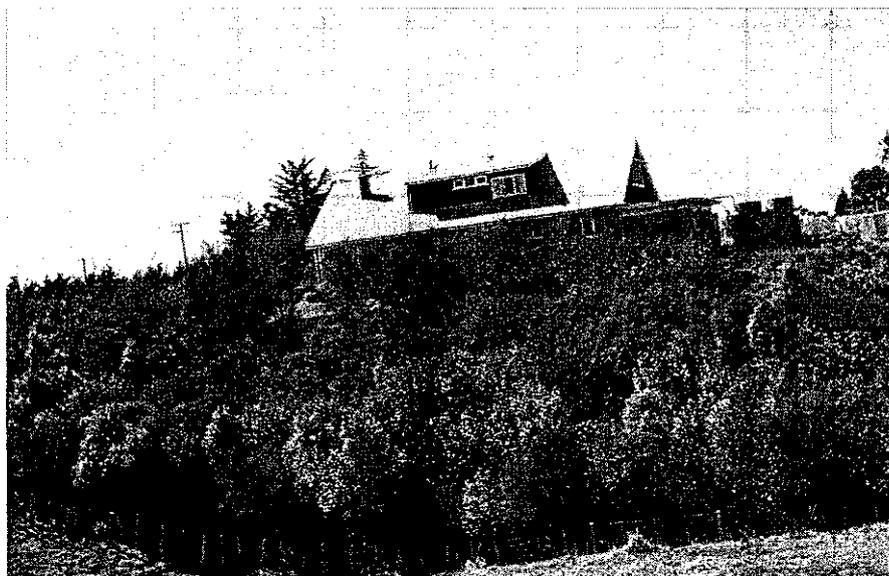


Figure 2: View of the planting taken in April 1962. Grass has largely been replaced by planted tree lucernes, and fast growing indigenous trees, particularly lacebarks, but much gorse is still present.

winters without damage to their leading shoots. As the grass was shaded out indigenous seedlings began to appear; wineberry and *Hebe stricta* were first noted in 1961 (Greenwood 1967). The tree lucerne and gorse were mostly removed when no longer required for shelter, but a small patch of gorse was left to see how it would survive, and this, after growing 3-4m high, was eventually shaded out by naturally established indigenous trees, mainly mahoe (*Melicytus ramiflorus*).

The 1969-70 drought

In 1969-70 there was a severe drought in the Manawatu (Atkinson and Greenwood 1972). It was decided that no watering would be carried out, and only one plant did receive some water - a taraire (*Beilschmiedia tarairi*) 4m high, planted in 1957 at the northern margin of the planting next the garden. The drought caused a number of deaths, including some plants which died the following year presumably from delayed stress. The tallest rimu (*Dacrydium cupressinum*), 5m high planted in 1954

and with its top emergent above the surrounding canopy, died, but three other rimu about 4m high, planted 5-6 years later and still beneath the canopy, survived. Similarly the tallest kauri (*Agathis australis*) 4.2m high planted in 1959 and with its top emergent died, but two others about 3m high planted in 1961 and still beneath the canopy survived. By contrast all but three of 15 emergent red beech (*Nothofagus fusca*) 6-7m high planted in 1954-6 survived, though their tops died back, with two of the three which died being smaller than the rest. A few recently established seedlings also died. Four out of 8 silver beech (*N. menziesii*) died, with two more dying later. A single hard beech (*N. truncata*) died. Several mountain beech (*N. solandri* var. *cliffortioides*), and three black beech (*N. solandri* var. *solandri*) all survived though with some die back of tops. All totara (*Podocarpus totara*), matai (*Prunopitys taxifolia*), miro (*P. ferruginea*) and kahikatea (*Dacrycarpus dacrydioides*) survived, though one miro died later. The kahikatea were however planted at the base of the slope where conditions may have been slightly less dry. One tanekaha (*Phyllocladus trichomanoides*) 2.7m high survived, but a smaller one died. The only *P. alpinus* and several *Halocarpus biformis* all died. Thirteen out of 16 *Libocedrus bidwillii* died, with the remainder dying the following year. All northern rata (*Metrosideros robusta*), pohutukawa (*M. exselsa*), rewarewa (*Knightia exselsa*) and puriri survived, as did three pukatea (*Laurelia novae-zelandiae*) about 4m high, but these last were planted at the base of the slope. The top of one of two hinau (*Elaeocarpus dentatus*) 6m high died, as did the top of one of three taraire about 4m high and still below the canopy; both plants died later. One of two tawhero (*Weinmannia silvicola*) died, as did 5 out of 15 kamahi (*W. racemosa*), with others dying later. No deaths were noted among the shorter-lived trees - tarata (*Pittosporum eugenioides*), kohuhu (*P. tenuifolium*), ngaio (*Myoporum laetum*), lacebark, fivefinger (*Pseudopanax arboreus*), mapou (*Myrsine australis*), and mahoe, although complete records of these were not kept, and it is probable that all the wineberry plants - short lived in lowland Manawatu - would have died out before the drought. Several self-sown mamaku (*Cyathea medullaris*) and a pate (*Scheffera digitata*) died. A horopito (*Pseudowintera colorata*) hedge planted along the lower southwest boundary almost all died, with the remainder dying the following year. Thus overall the species from upland habitats suffered more severely from the drought than did local lowland species or those from northern areas.

Changes in the canopy

Following the drought the canopy gaps created by the drought closed rapidly. The young karaka trees originating from planted fruits grew quickly, and by about 1975 some of them started to produce fruits themselves. The tawa on the other hand, although they germinated satisfactorily from planted fruits, grew slowly and remained beneath the canopy, with the tallest still only 3.15m high in 2004. Recent plantings elsewhere have shown that tawa seedlings given more light can grow much faster than this, - up to 0.5m per year.

Over the years the predominant species in the general canopy have changed. Initially wineberry were prominent among the gorse and tree lucerne, but these soon died out and lacebark became predominant. These lacebarks also proved to be fairly short-lived, possibly owing to root rots, and nearly all of them have now died, though some grew to large size (girth up to 1.1m) before dying. Tarata, kohuhu, karaka, plus a few karo (*Pittosporum crassifolium*), *Pittosporum ralphii*, a small group of manatu (*Plagianthus regius*) and a ngaio then became the main species in the canopy between the emerging long-lived trees, with mahoe where the canopy was lower. In time tarata tended to outgrow the kohuhu, though a few kohuhu remained in the canopy and grew quite large (girth up to 0.88m). The overtopped kohuhu started dying off about 1995, aged about 40 years, followed a few years later by occasional large canopy specimens as well as several large tarata, and recently a couple of large tarata have been blown down. Also four *Pittosporum ralphii* are now dying or have recently died. This species, which may be natural to this area (Esler 1978, p. 139) has been described as a shrub, but here it has grown to be a tree up to 11m high, with a trunk branching low, and up to 1.2m in girth below the branches. These deaths of *Pittosporum* spp. have led to some gaps in the canopy.

The 2003 drought

In the autumn of 2003 there was a further drought in the Manawatu, but the effects were not nearly as severe as the one 33 years earlier. One of the two remaining silver beech and three mountain beech died and also the top of one red beech. Single trees of putaputaweta (*Carpodetus serratus*), fivefinger, tarata and ponga (*Cyathea dealbata*) died. The tarata was growing over the top of a rimu and its death has given the rimu more light and space. One young *Libocedrus plumosa* about 2m high died, as did a young tanekaha, but another one of similar size survived. A few plants of the undergrowth species hangehange (*Geniostoma rupestre*) and *Coprosma grandifolia* died. Several mangeao (*Litsea calicaris*) lost a number of leaves but survived, although the top of one has died back. The three taraire also survived including the one fully exposed on one side, growing at the northern margin of the planting, although it did lose a number of leaves. This tree is now 11.5m tall.

Possibly as a result of the drought stimulus it flowered heavily for the first time in the spring of 2003, and has set a number of fruit which were still green in the winter of 2004.

Growth of canopy tree species

Two of the three black beech, with girths of 0.87-1.18m, and heights of somewhat over 12m, appear healthy although they have grown very little in height in recent years; but the long term future of the other beech species appears less assured. The largest red beech, girth 1.72m and height just under 12m, has part of its top and one major branch dead and considerable borer in its trunk. Three of the other 6 remaining red beech, girths 0.54 - 1.07m, are slightly taller and appear somewhat healthier, but the others have variable amounts of dead crowns and show much sign of borer. The one remaining silver beech, though planted in 1955, is only 9.4m tall (girth 0.65m); it has grown very little in height for a number of years, and has many puriri moth holes in its trunk. One mountain beech planted in 1968 is still actively growing (height 11.2m and girth 0.79m), but shows much sign of borer. Three further mountain beech, though planted earlier are smaller, appear moribund, and are being replaced in the canopy by self-established pittosporums. More light reaches the ground under the beech canopy than elsewhere in the planting giving a different environment, but typical beech undergrowth species did not survive long term, and have been replaced by kawakawa (*Macropiper excelsum*), hangehange, rangiora (*Brachyglottis repanda*), *Coprosma areolata*, *C. rhamnoides* and tree seedlings including karaka. The greater light reaching the ground also allows the troublesome shade-tolerant grass *Ehrharta erecta* to establish.

The podocarps are growing steadily. The tallest totara, planted in 1955, is 13m high, girth 0.83m. Some of the trees in the totara hedge along the south-east boundary have heights slightly less, but girths up to 0.95m. Two self-established totara seedlings under 1m tall are surviving, but not growing under the low light. The tallest kahikatea, planted in 1955 on the south-west edge of the planting at its lowest point, is at least 14m tall with a girth of 0.90m. A few other kahikatea are much smaller and still below the canopy. The tallest rimu, planted in 1960, is about 14m high and with a girth of 0.76m, and another 12m high and with a girth of 0.43m. The taller of two miro is 11.1m high, girth 0.65m. The tallest matai, which has only recently reached the canopy where it is fairly low, is 8.4m high, girth 0.27m. Two small matai planted in 1971 are over 2m high and growing slowly in fairly deep shade. More recent plantings of podocarps elsewhere under very favourable conditions have shown greater growth rates than have occurred here; e.g., kahikatea in the absence of moisture stress grew 10 - 12m after 23 years compared to 6.7m after the same period here.

Of the gymnosperms not natural to the Manawatu one tanekaha planted in 1956 grew up thin and tall at the same rate as the canopy and is now just emergent, height about 14m and girth 0.34m. The taller of two kauri planted in 1961 has had its top at canopy level for several years and is now about 10.5m high and 0.42m girth. It has produced a few cones.

Two northern rata planted in 1956 are now about 13m high and with single trunks 0.72m and 0.75m in girth. Several rewarewa have heights of up to just under 14m and girths of up to 0.66m. One hinau is 12.4m tall and 0.58m in girth. Karaka are numerous. The tallest is over 14m high and girth 0.67m, but a number of others have reached the canopy and are up to a similar girth, and there are very many smaller ones. The tallest pukatea is about 12m high and 0.46m girth. A small group of manatu are up to 12m high, being survivors from a somewhat larger group, some of which died apparently from root rots. The two most plentiful canopy species in lowland Manawatu bush remnants are tawa and titoki (*Alectryon excelsus*), but they are not well represented here. One planted titoki is about 11m high and a few self-established plants are all small, as are all the tawa.

Several northern broadleaved trees have survived successfully, and among these puriri have shown impressive growth. A group of four planted in 1964 now have girths of 1.11 m - 1.23m, and wide crowns which have grown into each other, 14m or more high. They flower and fruit freely. Two other puriri planted in 1964 were beneath pittosporums initially. One emerged through the canopy a few years ago and is now about 14m high and girth 0.88m. The second, still below a large tarata, is growing steadily in spite of many puriri moth holes in its stem; height about 9m, girth 0.22m. A pohutukawa planted in 1962 has grown faster than a northern rata nearby and is now about 14m high and 1.03m in girth. As well as the taraire at the north edge of the planting, there are two others still below the canopy. These have grown steadily although they are in fairly deep shade under tarata trees with karaka nearby, and the taller is now just over 9m high. Several mangeao were planted in 1968-9. Those in well lit sites grew fairly rapidly. The tallest is now just under 12m high, and it has

fruited for several years. Two died possibly from root rots. Others planted in more shaded situations have grown steadily, with two having recently become better lit owing to death of pittosporums. One tawhero has grown steadily to form a round-headed tree about 12m high.



The planting in November 2004, showing the complex canopy cover with some emergents. Along the skyline at left are a group of red beech (fuzzy) with a single mountain beech (darker) showing behind them and several tarata in front. Next along the skyline is a group of puriri, with a northern rata just showing at right. Below this is a miro (dark) and a canopy gap with several mahoe. In front, in the centre of the figure is a rimu emergent, with remnants of a dead tarata in front. A shaggy tarata is on the skyline. Next is a kahikatea with a tarata on each side, and two *Pittosporum ralphii* (blue-green) in front of these. Tops of two rewarewa and a northern rata show along the skyline (around the norfolk pine which is behind the planting), with a totara (darker) in front, and a large black beech on the extreme right. Note the gorse still present in the pasture, and the browse line along the fence. The pair of small trees in the pasture on the right are cherry plums.

Future of the planting

The long-lived trees which are now emergent will continue to grow and mature, and the young tawa and titoki should continue to grow slowly, but changes are likely to occur in the areas now dominated by pittosporums. There are now some 17 tarata in the canopy, 9 kohuhu, 2 karo and 2 *P. ralphii* with other smaller specimens mainly around the margins of the planting. A number of the more mature of these may die within the next few years. Young karaka of all ages are present throughout almost all of the area, and in the absence of any management they are almost certain to dominate the regeneration, but other species may play some part. If young tawa or titoki happen to be present where a canopy gap occurs they may be able to grow up to fill the space. Also 3 northern species puriri, taraire and mangeao appear able in the juvenile stage to grow in deeper shade than either tawa or titoki, and puriri and mangeao seedlings are already present in the area. Whether taraire will also self-establish when the present crop of green fruit matures remains to be seen. Elsewhere in the adjacent garden, where there is greater light and probably less root competition, totara seedlings appear from time to time, and many other indigenous tree seedlings are plentiful, including mahoe, karamu, *Pseudopanax* hybrids, *Pittosporum ralphii* and particularly tarata; but within the indigenous planting low light restricts their presence particularly under karaka.

Weeds are a potential threat to indigenous vegetation in a built up area. *Asparagus scandens* is plentiful on the hillside in Bledisloe Park less than 0.5 km away over the brow of a hill, and seedlings have been found from time to time, and occasionally seedlings of banana passionfruit and old man's beard. *Ehrharta erecta* is present in the red beech area and around the margins of the planting, and is competing with planted *Microlaena polynoda* under the totara hedge, but in the bulk of the area the degree of shading appears too great for it to establish. Another species which can be considered a weed in this planting is karaka, and control of this species will require a greater intensity of management than has been carried out in the past.

Future management is planned along the following lines:

- Some planting of tawa and titoki in places where gaps have occurred in the canopy.
- No further planting of species not naturally present in lowland Manawatu, but monitoring of any already established plants and others that may arise.
- Removal of some adult karaka which are restricting the development of smaller long-lived

trees, and removal of seedling and young karaka plants from at least some parts of the area.

- Removal of any other aggressive weeds that may appear, including *Ehrharta erecta* where it is restricting the development of *Microlaena polynoda*, or the establishment of seedlings under the red beech canopy.
- Removal of dead or dying trees where they are threatening to damage the fence or young developing long-lived trees, and of fallen trees where they are restricting regeneration.

Negotiations are under way with the Q.E. II Trust to covenant the area.

Acknowledgements

Jill Rapson has made many helpful suggestions during the preparation of the manuscript.

References

- Atkinson, I.A.E.; Greenwood, R.M. 1972: Effects of the 1969-70 drought on two remnants of indigenous lowland forest in the Manawatu district. *Proceedings of the New Zealand Ecological Society* 19: 34-42.
- Esler, A.E. 1978: Botany of the Manawatu District New Zealand. Wellington, Government Printer.
- Greenwood, R.M. 1967: Natural seedling establishment in an area planted with native trees. *Wellington Botanical Society Bulletin* 34: 35-39.

BIOGRAPHY/BIBLIOGRAPHY

■ **Biographical Notes (56) : Alexander Callender Purdie (1824–1899) and Alex. Purdie (c. 1861–1905)**

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

In early Dunedin, during the 1870s and 1880s, A.C. Purdie played an important role in encouraging the settlers to take an interest in the native plants of their new home. Among his associates in this good work, whether in the Dunedin Field Naturalists' Club, the Otago Institute, or the Dunedin Horticultural Society, were William Martin Snr, nurseryman at Fairfield; George Matthews, nurseryman at "Hawthorn Hill", Mornington; William Newsham Blair, civil engineer and surveyor; Donald Petrie, Senior Inspector of Schools, Otago Education Board; George Malcolm Thomson, Science Master at the High School; and Peter Thomson (no relation), proof reader at the *Otago Daily Times* and *Otago Witness*, who wrote natural history articles under the pen-name "Pakeha". Note that Scholefield (1) erroneously transfers this pen-name to Purdie.

Alexander Callender Purdie was born on Christmas Day, 1824, in the Parish of Fenwick, Ayrshire, Scotland (2,3). All that we know of his parents is that his father's Christian names were also "Alexander Callender" (2). I mention this to show that A.C. Purdie was not a son of Dr. William Purdie (1797–1876) who arrived as ship's surgeon on the *Mooltan* in 1849 and was a foundation member of the Otago Horticultural Society in 1851 and its first Vice-President (4).

Purdie's early life is described as follows, by his anonymous obituarist (3). "For a short time he resided there [Fenwick] with his parents, and after his schooling was completed he removed to Glasgow, where he acquired a trade as a wire worker, in which occupation he was engaged in various parts of Scotland and England about gentlemen's residences, thus giving him a good opportunity for pursuing his favourite study as naturalist, particularly in the botanical department. He was also favoured in this respect by coming into close communication with some of the leading botanists of that period."

At age 37 (according to his Death Certificate) Purdie married Helen Christie at St Andrews, Scotland. But Purdie's Will and his tombstone give his wife's name as Ellen, and furthermore the age of 37 is probably a year or two out, because, according to his obituarist, Purdie came to Otago on the ship *Pladda* in 1860. Here, "after some vicissitudes connected with his own trade, and trying the diggings, he eventually settled down in connection with the Museum and Exhibition of 1865—" (3).

Purdie's contribution to the New Zealand Exhibition, held in Dunedin in 1865, was placed in Section 9 (Agricultural Implements) and consisted of "Wire Fencing, a Wool-washing Cage, as well as various Flower Stands, etc. all of good manufacture, and especially deserving of notice as being made in the Colony" (5). This exhibit gained Purdie an Honorary Certificate and no doubt helped him gain a job in

connection with the collections and to follow them to the Otago Museum. The following snippets give some idea of his work.

On 12 December, 1868, the *Otago Witness* noted that the Exhibition Collection was stored in the old iron store in the hospital area where "a rather seedy looking penguin (now restored by the hands of Mr Purdie) ----- looked as if it mounted guard over the ruins of the collection." Thompson (6) records that when the collection was transferred to some rooms in the new Post Office building [at the foot of High Street and now replaced by John Wickliffe House] complaints were frequently made of the manner in which the exhibit was being neglected, for the small sum of money (£100) allowed for its maintenance was little more than sufficient to pay the salary of Mr Purdie, the caretaker." In 1871, Buller (7) referred to Purdie as the "Curator of the Otago Museum"; and Peter Thomson stated in 1872 (8): "Two species of seal are represented in the museum, specimens having been beautifully mounted by Mr Purdie."

Purdie was a foundation member of the Otago Institute, which held its first meeting on 20 July, 1869. At three early meetings he communicated the following items arising from his museum work.

1. On a (supposed) new species of Bittern from the Lake District. *Proc. NZI* 3: (1871) 99–100.
2. On a skeleton of a bird (supposed to be a swan) found in Dunedin. *Proc. NZI* 3: (1871) 100.
3. 16 Sept. 1871: On a supposed new species of duck. *TNZI* 4: (1872) 213.
4. 24 Aug. 1873: On the skull of a Grampus killed by the Maoris at the Heads. *TNZI* 6: (1874) 415–416. Perhaps it was this skull which led his obituarist to write that Purdie was "a valued contributor to the great collection in the British Museum, in the form of one of the whale species, which at the time was the only representative there, and for which he received a handsome testimonial." (3)

At the meeting of the Otago Institute held on 11 Feb. 1873 "the Secretary reported the election by Council of Mr Purdie to the office of Curator and Librarian".

Purdie was also a foundation member of the Dunedin Field Naturalists' Club. At the first formal meeting, on 8 October, 1872, he was elected to the Committee, the others being J.S. Webb (president), P. Thomson (secretary), Dr J.G. Black (first Professor of Chemistry, University of Otago), G.M. Thomson, and the entomologist A. Bathgate. On Good Friday, 1874, Sven Berggren, the visiting Swedish botanist went out with the club. Later that year (c. October), Purdie spoke on "The botany of the Catlins District". In Sept. 1876, he spoke on "The Fungus Tribes" and also exhibited a rare fish (9,10).

In 1877, G.M. Thomson published a list of new plant records for Otago (11), supplementing Buchanan's earlier list (12). Of the 45 records, 7 were supplied by Petrie and 7 by Purdie. In W.N. Blair's book on *The building materials of Otago and southern New Zealand generally* (1879) there are two references to Purdie.

1. p.159: "Mr A.C. Purdie kindly collected some valuable information on the subject for me at the Catlins River." [durability of kamahi, *Weinmannia racemosa*].
2. p.175: "Mr A.C. Purdie informs me that there is a variety [of totara] found at the Catlins River not described by any of the botanists; it is of a large size, with a smooth bark and yields very soft ornamental wood suitable for inside work."

At the Field Club meeting on 19 May, 1880, Purdie exhibited a "fine set of Scandinavian plants from Dr. S. Berggren" (10). He was also a regular exhibitor and prize-winner at the Dunedin Horticultural Society, particularly noted for his ferns; and his fernery in Cumberland Street was described as a "wonderland". "At the December 1889 show he attracted attention for exhibiting a native orchid, *Dendrobium cunninghamii*" (4). It is also recorded of him that "he was a continuous contributor to the columns of the *Witness*, any question with regard to botanical matters being referred to him. His services were invaluable in answering questions as to the names and habits of plants, and were freely given without fee or reward." (3)

The Electoral Rolls for Dunedin up to and including 1879–80 simply list A.C. Purdie as having a household in Great King Street. (At that time livelihoods were not given). But in 1880–82 there are two changes. His address becomes Leith Street and he is described as "Janitor". In fact he worked as Janitor at the University of Otago from then until he retired, living in what was clearly a University house in Leith Street nearby. Purdie's transfer from the Museum (which came under the University)

to the University proper was probably related to the appointment of Mr. E. Jennings as taxidermist to the Museum.

In 1893 Mr W.H. Harris succeeded Purdie as Janitor and moved into the Leith Street house (6, 13). Purdie moved to his property in Cumberland Street. His obituarist wrote: "His long connection with our University made him familiar with kindred branches of science, and Professors Black, Ulrich [Geology and Mines], and others will bear testimony to the natural aptness he displayed, as well as his zeal, in rendering valued assistance to them in their labours." (3)

A.C. Purdie died on 24 June, 1899, in Cumberland Street, Dunedin *aet* 75, and was buried in the Northern Cemetery (2). His wife had died about 9 years before (3). At the Otago Institute on 11 July, 1899 the President, F.R. Chapman, "referred to the death of Mr A.E. (sic) Purdie, one of the original members of the Institute." (*TNZI* 32: 438). Purdie's Will shows that he owned 3 houses, a workshop, and a fernery. His books and herbarium were left to his son, Alexander Purdie of Australia, who, with William Martin Snr, was an executor (10, 14).

Alex. Purdie

Ellen and Alexander Purdie had two children: Alexander, born c. 1861, and Ellen, born c. 1866. (They were 38 and 33 years old, respectively, when their father died in 1899 (2). Ellen married a Dunedin tailor, Mr James Hendry (3) while Alexander became a mining-geologist. I will outline his career to prevent confusion with his father. To avoid this he always called himself "Alex".

Alex. Purdie attended Otago Boys High School from 1875 to 1878 and would have been taught Science by his father's friend, G.M. Thomson. In his last year he gained a Provincial Scholarship and a University Junior Scholarship (the latter in English, French, Maths, History, Botany, and Zoology) (15, 16). At the University of Otago he graduated BA (1882) and MA 1st Cl. (1884) (16). His MA thesis, which dealt with the anatomy of 3 species of mussels, was described by the examiner as 'a most admirable research paper, deserving the highest honours'. (17). Alex's ability becomes even more noteworthy when we realise that during his last 3 years at University (1882–84) he published 12 original research notes on Lepidoptera in the *New Zealand Journal of Science* (18). He obtained much new information by rearing the insects himself.

After University Alex moved to Wellington, where he joined the Philosophical Society and published 2 papers on Lepidoptera (his last) in the *Transactions of the New Zealand Institute* in 1886 and 1887 (18). He later returned to Dunedin and in 1891 became the first Associate of the Otago School of Mines to graduate in geology. After a brief period as Lecturer in Geology at the School of Mines, he resigned in 1892 to become, successively, Director of the School of Mines at Sale, Bendigo, and Adelaide. The latter was his position when his father died in 1899. He then became Director of Technical Education in West Australia, where he died at Perth in 1905 (19, 15).

Eponymy

1890: *Helichrysum purdiei* "Hab. Dunedin, at Vauxhall and Black Jack's Point. This plant has been repeatedly gathered by Mr A.C. Purdie in compliment to whom it is named." D. Petrie *TNZI* 22: 440–441.

In 1886 J. Buchanan named and illustrated a fungus, *Cyttaria purdiei* (*TNZI* 18: 317) but did not state to whom the eponym referred. Despite A.C. Purdie's talk on fungi mentioned above I suspect that Buchanan was honouring Dr. William Purdie (see also above), who had been a close friend, as indicated by Adams (20).

Acknowledgments

I am particularly indebted to Ms Beth Bain, historian of the Dunedin Field Naturalists' Club, for assistance with this note. I also thank Tanja Webster (Landcare Research Library, Lincoln) and Hilda Godley (Mosgiel) for help with references; and I thank Wendy Weller (Landcare Research, Lincoln) for her typing.

References

(1) G.H. Scholefield, 1940: Alexander Callender Purdie, 1824–1899. *DNZB* 2: 189; (2) Death Certificate, A.C. Purdie; (3) Anon. 1899: Obituary [A.C. Purdie] *Otago Daily Times* 5 July; (4) Louise Shaw, 2000: *Southern Gardening. A history of the Dunedin Horticultural Society*. University of Otago Press; (5) Anon. 1866: *New Zealand Exhibition, 1865: reports and awards of the jurors: and appendix*. Mills. Dick; (6) G.E. Thompson, 1919: *History of the University of Otago*; (7) W. Buller, 1871: Further notes on the ornithology of New Zealand *TNZI* 3:

37–56; (8) P. Thomson, 1872: Work for field naturalists. *TNZI* 4: 138–141; (9) Beth Bain, 2002: The Dunedin Field Naturalists' Club. The first ten years. *NZ Bot. Soc. Newsletter* 69: 8–10; (10) Beth Bain, pers. comm.; (11) G.M. Thomson, 1877: Notes on some Otago plants. *TNZI* 9: 538–542; (12) J. Buchanan, 1869: Sketch of the botany of Otago. *TNZI* 1: 22–53, 181–212; (13) Stones Directory, 1898; (14) National archives, Dunedin; (15) *Otago High School Old Boys Register*, 1907; (16) *New Zealand University Calendar, 1900–1901*; (17) Anon. 1884: University of New Zealand. Honours in Science. *NZ J. Sci.* 2(3): 122; (18) David Miller, 1956: *Bibliography of New Zealand Entomology, 1775–1952*. DSIR Bulletin 120; (19) A.G. Hocken, 2003: Geology at the University of Otago. The first 100 years. *Geol. Soc. NZ Misc. Publ.* 115.; (20) Nancy M. Adams, 2002: John Buchanan FLS. botanist and artist (1819–1898). *Tuhinga* 13: 71–115.

PUBLICATIONS

Journal Received

New Zealand Native Orchid Group Journal No. 93 – November 2004
Edited by Ian St George [ISSN 1170-4543]

Original paper in this issue is: Tricia Aspin – *Nematoceras*"Pollok" – a new find for Awhitu.

ISSN 0112-6865