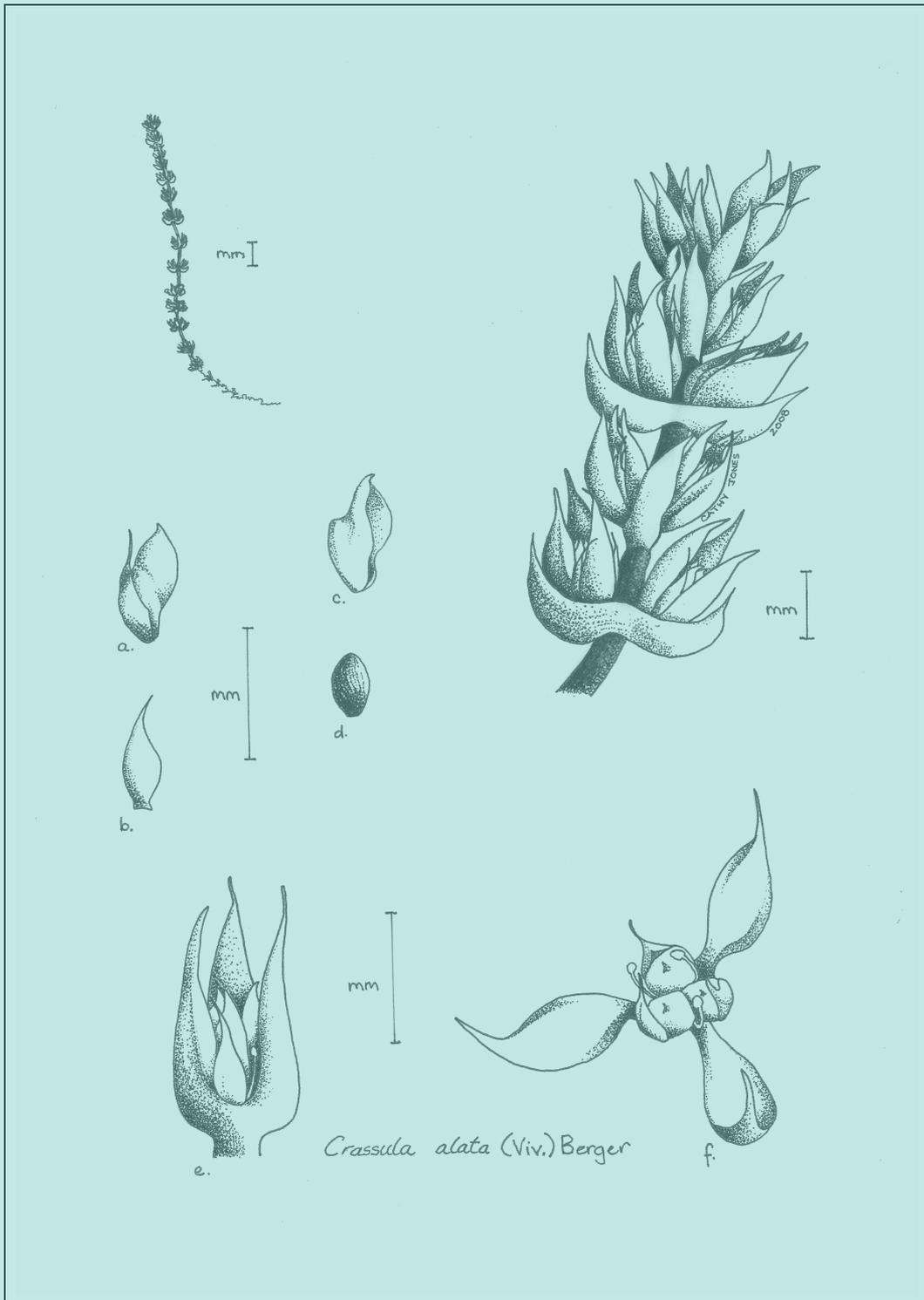


NEW ZEALAND BOTANICAL SOCIETY

NEWSLETTER

NUMBER 94

December 2008



New Zealand Botanical Society

President: Anthony Wright
Secretary/Treasurer: Ewen Cameron
Committee: Bruce Clarkson, Colin Webb, Carol West

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Subscriptions

The 2009 ordinary and institutional subscriptions are \$25 (reduced to \$18 if paid by the due date on the subscription invoice). The 2009 student subscription, available to full-time students, is \$12 (reduced to \$9 if paid by the due date on the subscription invoice).

Back issues of the *Newsletter* are available at \$7.00 each. Since 1986 the Newsletter has appeared quarterly in March, June, September and December.

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

Subscriptions are due by 28 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 2009 issue is 25 February 2008.

Please post contributions to:

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Khandallah
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Send email contributions to atropa@actrix.co.nz. Files are preferably in MS Word (with the suffix ".doc" but not ".docx"), as an open text document (Open Office document with suffix ".odt") or saved as RTF or ASCII. Graphics can be sent as TIF JPG, or BMP files. Alternatively photos or line drawings can be posted and will be returned if required. Drawings and photos make an article more readable so please include them if possible. Macintosh files cannot be accepted so text should simply be embedded in the email message.

Cover Illustration

Crassula alata (Viv.) Berger collected by Colin Ogle in Bulls on 4 November 2008 (see article p 14).
Drawn by Cathy Jones.

(a) carpel (in petal) containing 2 seeds; (b) petal; (c) dehisced follicle; (d) seed;
(e) flower; (f) flower with calyx opened out to show structure.

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N E W S L E T T E R

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NEWS

New Zealand Botanical Society News

■ Committee for 2009

Nominations for positions of President, Secretary/Treasurer and three committee members for the New Zealand Botanical Society closed on 19 November 2008.

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

We are pleased to announce that Melanie Newfield has agreed to continue as Editor for 2009.

Ewen Cameron, Secretary/Treasurer NZBS

Regional Botanical Society News

■ Auckland Botanical Society

September Meeting

Two Environment Waikato staff members presented the results of the research carried out for their PhD studies.

First Yanbin Deng spoke of her work on the transition from estuary to fresh water swamp in the Whangapoua Estuary, Great Barrier Island. Soil cores, with traces of charcoal and pollen, identified pre-impact vegetation, the Polynesian impact and European impact. Sedimentation was fastest after European settlement, and resulted in the infilling of the originally more extensive estuary.

Catherine Beard's research into aspects of the biology, ecology and management of our mangrove, *Avicennia marina* subsp. *australasica*, was discussed. But first she outlined the extent of mangrove coverage in tropical, subtropical and warm temperate countries worldwide, and then described the range of special adaptations that allow these wonder plants to thrive in environments too harsh for many other plants.

September Trip

As a change from exploring wild places, this month's trip was to Ayrli's Garden, Whitford. Bev McConnell kindly guided us around her beautifully landscaped 4.5 ha. grounds, which boast lakes, plantations and garden sculptures. Many native plants were mixed with exotic plants from exotic places. An attempt to make a species list overwhelmed our abilities, though a fair list was completed.

October Meeting, the Lucy Cranwell Lecture

George Gibbs, author of the recently published book "Ghosts of Gondwana" was the Lucy Cranwell Lecturer for this year. The subject of the book is historical biogeography, and evidence such as that provided by Lucy Cranwell's pollen studies helps re-construct the past. The puzzle is, what heritage remains from Gondwana, and what was lost during the Oligocene drowning? This can be summarized as vicariance (biota that travelled here with the land) versus dispersal. The vicariants are the "Ghosts of Gondwana", and there is evidence that there was not a total disruption during the drowning.

October Trip

This year our annual Hauraki Gulf island visit was to the 114 ha Pakihi Island, only 3.5 km from Kawakawa Bay. A couple of crossings by the DoC boat *Taikehu* ferried the party across to the island, which is partly farmed, part in exotic forestry and part in bush. There was no mistaking that we were in northern coastal forest, containing as it did, pohutukawa (*Metrosideros excelsa*), *Coprosma macrocarpa* subsp. *minor*, tawapou (*Planchonella costata*), a huge mangaeo (*Litsea calicaris*), and

tawaroa (*Beilschmiedia tawaroa*). Special plants for this part of the gulf were *Hebe pubescens* and *Pomaderris rugosa*, and a late finding of the nationally endangered *Senecio scaberulus* made the day.

Labour Weekend camp

Otakawhe Lodge, Orapiu, at the less civilised end of Waiheke Island, was a good base for botanising the forest remnants and coastal habitats on that part of the island. Visits were made to DoC Reserves, Forest & Bird Reserves, private land and Stony Batter. It was a good time for orchids, and 16 species were seen in the F & B Goodwin Reserve. Weeds and planted revegetation areas were both prominent features of the island.

November Meeting

We travelled vicariously to two very different parts of the world: to Italy with Mike Wilcox and to the Galapagos Islands with Alison Wesley. Mike showed us some of the flora of the southern coastal area and also the Dolomite Mountains, while Alison gave an overview of the islands and some of the plants, but also of the birds and reptiles.

November Trip

Tricia Aspin, our Awhitu expert, led us through the unpromising looking Waiuku Pine Forest and managed to show us several unusual and unexpected plants. First was a swamp containing both the introduced and native *Azolla*, and also *Sparganium subglobosum* in early flower. A surprise find was *Blechnum penna-marina* – this a more northerly site than was expected. Near the coast were good populations of the fern *Pellaea falcata*. *P. rotundifolia* grew there too, and allowed a comparison to be made. A calm, sunny day ensured ideal conditions for the sun orchids to reveal open flowers. *Olearia albida*, and *Lagenifera stipitata* in flower, completed the day's finds.

FUTURE EVENTS

6 December	End-of-year potluck dinner. Workshop on wetland plants, Paul Champion.
3 - 10 January 2009	Chathams Island trip
16 - 20 January	Ruahine camp
5 - 9 February	Waitangi Weekend camp at Great Barrier
21 February	Goldies Bush, Waitakere Ranges
4 March	AGM and student talk. Ecology of <i>Eleocharis sphacelata</i> . Mieke Kapa
21 March	Alice Eaves Bush & Wenderholm Regional Park

Auckland Botanical Society, PO Box 26391, Epsom, Auckland 1344

President: Mike Wilcox

Secretary: Leslie Haines lhaines@unitec.ac.nz

▪ **Wanganui Museum Botanical Group**

Saturday 20 May 2006: Christies Lake, Wanganui

On a beautiful, crisp, sunny day five of us headed east from Upokongaro to a farm where we were ferried on two quad bikes. These took us up a steep farm track to a lake that had formed behind an ancient land slump. At the western end, we overlooked the site and got an appreciation of its size (9ha). Here we discussed the soon-to-be-erected fence-line and possible incorporation of a stand of kanuka on the hillslope above the site. We ventured on foot over a 'bridge' to an old maimai, through a manuka/sphagnum community. On the inland edge of this, Colin added the nationally 'threatened' buttercup *Ranunculus macropus* to the plant list. From the maimai, a band of *Eleocharis sphacelata* (kuta or bamboo spike sedge) was quite distinct and ran parallel to the lake edge. After lunch in the sun, the group travelled on quad bikes around the eastern end of the wetland before heading back on a different track, alongside the outflow stream of the lake. The gully had remnant native trees on it and we stopped to collect fluffy 'seed' from a stunning pukatea (the seeds are being propagated for later planting at the wetland). *Clare Ridler*

Saturday 1 July 2006: Rick Rudd's coastal garden, Castlecliff.

Ten members arrived at the home and dune garden of Rick Rudd, well known sculptor of Wanganui, on a perfect but chill winter morning. The area facing the road was in sunshine and there we saw many different corokias, a mixture of species and cultivars with very different foliage and growth styles. *Hebe chathamica*, *H. stricta* and *H. elliptica* lined the western boundary fence with several ground covers in other areas. Beside a shaded path towards the seaward side of the property,

several astelias, including *Astelia banksii*, *A. nervosa*, *A. fragrans* and even the usually swamp-dwelling *A. grandis*, were flourishing and some smaller species and cultivars were on level ground below the house. Different forms of *Coprosma* and *Pachystegia* were interesting as we made our way very slowly down steep steps on the almost vertical south-facing area of the sand hill towards the sea. Several plants of a Stephens Island form of *Pittosporum tenuifolium* looked very happy in the coastal conditions, more handsome than *P. crassifolium* which is common in the area. Usually an epiphyte, *P. kirkii* grew in one hillside pocket. There were *Olearia*, kanuka, *Muehlenbeckia* and *Melicytus*, with different species or forms of each - a bewildering array of natives brought into this coastal cliff face and all apparently happy. On a lower level Rick has established many small matt plants giving the appearance of an alpine garden with *Raoulia*, *Helichrysum*, *Myosotis*, *Pimelea*, *Gunnera* and others in the wetter spots - quite an astonishing collection and all looking very happy. Growing near each other and looking identical were the endangered *Pimelea actea* (as it is called now) from a nearby cliff face and from the Manawatu dunes. Even a plant of *Tecomanthe* has grown well and flowered near this area. Rick's ambition has been to establish species rather than cultivars and, if it is rare, he is even keener to try and grow it. All this is rather amazing for an English-born person to have such enthusiasm for our natives. A rather quirky collection of flotsam and jetsam from the beach on the lower edge of the property brings humour into his garden which is a labour of love in making the paths alone on such a steep face. *Vonnie Cave*

Sun 23 July 2006: Denis Hocking's farm, Bulls.

It was 1998 when our Group was last privileged to tour Dennis's dune-country farm forestry set-up near Bulls and this time we had a number with us who had not been here before. Dennis was an excellent guide, telling us not only about recognising his many eucalypts, acacias, conifers and other trees, but also their growth rates, site preferences, growing problems and eventual uses. A number of acacias were flowering, including *A. mucronata*, *A. fimbriata* and *A. boormanii*. Among the many intriguing eucalypts were an ironbark, *Eucalyptus crebra*, three species of tingle from West Australia (red - *E. jacksonii*; Rate's - *E. brevistylis*; and the unrelated yellow tingle - *E. guilfoylei*), the tough-looking moort (*E. platypus*), one named in honour of NZ botanist Mike Wilcox (*E. wilcoxii*); the distinctively crenated-edged leaves of *E. crenulata*; some strikingly flowering ones like Woila gum (*E. olsenii*) and *E. cordata*. In all, far too much to absorb for one day, but all of us gained a lot, no matter how little or much we knew when we arrived. *Colin Ogle*

14 October 2006: 'Bridge to Nowhere', Whanganui River.

Jim Campbell of DOC and staff from the Pipiriki Field Base organised a brilliant trip for a boat-load of us from Pipiriki to the Mangapurua Landing with a walk into the 'Bridge to Nowhere' for lunch. For DOC, we listed plants of the Mangapurua Track, from the landing to the Bridge. Some highlights:

1. abundant healthy *Pseudopanax laetus* where goats and possums couldn't get it, compared to the possum damage on one hanging over the track, just beyond the Bridge;
2. abundant gully tree fern (*Cyathea cunninghamii*) as an emergent from the secondary forest canopy along the river, in the understorey and also as common trunkless plants along the track, with young mamaku, katote (*C. smithii*), ponga, wheki and wheki-ponga. The amount of gully tree fern was a revelation to us all, including local DOC staff;
3. the diverse native herbs of the river cliffs, including the very narrow-leaved *Parahebe*, *P. lanceolata*. This is what Garnock-Jones and Lloyd (*NZJBot* 42: 181-232, but espec. pp.203-210) called *P. lanceolata* 'North Taranaki/Whanganui mudstone race'. (In 1870, Thomas Kirk called it *Veronica irrigans*.) *Lindsaea viridis* is part of this plant community - it might be quite common if one could get to the right vegetation zone. Others that impressed were *Brachyglottis turneri* (also out of goat reach), abundant wharariki (*Phormium cookianum*), tuhara (*Machaerina sinclairii*), *Anaphalioides trinervis*, and *Ourisia macrophylla* ssp. *robusta*;
4. plants of dry cliffs around the Bridge to Nowhere and elsewhere, especially the large flowering bushes of *Gaultheria paniculata*, *Dracophyllum strictum* (with young ones locally common on tree ferns), and an everlasting daisy, *Anaphalioides subrigida*;
5. a pleasing general lack of weeds on river cliffs and along Mangapurua Track. Obvious exceptions are a few crack willows and Japanese walnut, and locally abundant Mexican daisy in places along the main river; pasture grasses and weeds along track, mostly in gaps; obvious escapes from old homes - *Elaeagnus*, *Acacia dealbata*, *Aquilegia vulgaris*, pines - plus a few non-spreading relicts like *Liquidamber*, chestnut, redwoods, and a couple with limited vegetative spread - fig and *Buddleja salvifolia*. On the way home, the boat paused at the Mangatiti confluence to show us a colony of Chinese feather grass (*Pennisetum setaceum*). *Colin Ogle*

Saturday 4 November 2006: Gordon Park.

Our group was part of a public day workday to launch the Friends of Gordon Park (FOGP) Scenic Reserve, largely organised by staff from DOC's Whanganui Area Office. DOC staff prepared morning tea and a barbecue lunch. Over 100 people attended, including a dozen children who did learning activities with several adults. Our roles were to help any of the public with identification or other information about the plants of the reserve and we led a guided walk of the track. A notable new find for the reserve was a plant of gully tree fern (*Cyathea cunninghamii*) [another one has been found since]. The main activity of the day was weed control. Jerusalem cherry (*Solanum pseudocapsicum*), stinking iris (*Iris foetidissima*) and karaka seedlings were the main targets. In the centre of the forest, several of us spent ½ hour removing a large clump of the so-called arum lily, *Zantedeschia* 'Green Goddess' (said to be a cultivar of *Z. aethiopica*, but it is larger and seems to use different habitats from 'normal arum lilies' on the forest margin). The FOGP have settled into two regular workdays per month, on mornings of the 2nd Tuesdays and afternoons of the 4th Saturdays. Our Botanical Group members are continuing to be a significant part of this work. To date, we've concentrated on weeding, adding a robust soft sedge, *Cyperus eragrostis*, to the list of regular targets. DOC staff have sprayed patches of *Selaginella* and *Tradescantia*. Other plants removed whenever we find them include hawthorn, barberry, Chinese windmill palm (*Trachycarpus fortunei*), monkey apple (*Acmena smithii*), loquat, plum and ivy. In addition to karaka, regenerating NZ natives from outside this district are removed: karo, puriri, houpara (*Pseudopanax lessonii*) and its hybrids with lancewood. During weeding, unrecorded species have been added to the plant list by FOGP, including the nationally threatened *Gratiola nana* (which should probably be called *G. concinna*, Colenso's name for it, since *G. nana* is named from Australian material that seems to differ from NZ's). *Carex ochrosaccus* is generally regarded as a very sparse or rare forest tussock in the southern North Island but, now some of us know it, we find it is not uncommon at Gordon Park and may be the source of earlier records of *C. dissita*. Colin Ogle

Saturday 2 December 2006: Rangitawa Stream, Kakariki.

We first visited this area in 2003 and were particularly impressed by the large area of mature kanuka and dimensions of many of the trees. Six of us travelled from Wanganui, to be met near the forest by the landowner, Tony, and local members Diana and Jim Howard. A plant we wanted to see again was *Carex raoulii*, now regarded as a possibly threatened species with a status of 'indeterminate'. We know it for certain in only two places in land covered by DOC's Wanganui Conservancy. We found it further down the stream catchment than we'd been before, with more than 50 plants on a steep dry bank under kanuka. Other regionally uncommon species here include bamboo ricegrass (*Microlaena polynoda*) and an unnamed *Pellaea* fern; several others have a rather patchy or local distribution in the region, including ribbonwood, *Libertia ixioides*, *Parietaria debilis*, leafless lawyer, rasp fern (*Doodia australis*), *Carex testacea* and *Australina pusilla*. It was pleasing to see that two large vines of *Clematis vitalba*, seen in 2003, had been cut and killed, but we found a slender live plant into the canopy and numerous seedlings nearby. *Tradescantia* had spread in the past 3 years. Colin Ogle

2007 and 2008 trip reports for Wanganui Museum Botanical Group will appear in the next issue.

FUTURE EVENTS:

- Tuesday 4 November: Leon Perrie, Te Papa Museum, Wellington. Hybridisation in the New Zealand flora: ferns and *Pseudopanax*.
Saturday 8 November: Ototoka Beach. Jim Campbell
Saturday 29 November: Virginia Lake, tree assessment (Part 2)
Tuesday 2 December: Christmas Social.
Saturday 28 February: Taonui Stream wetland NW of Ohakune. Nick Singers
Tuesday 3 March: Developments in environmental education. Keith Beautrais.
Saturday 4 April: Town eucalypts and Kowhai Park bush, Feilding
Saturday 2 May: Whanganui River bank (east side). Ormond Torr
Tuesday 5 May: Plant-spotting between the west and east coasts of northern Australia. Colin Ogle.

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■ Wellington Botanical Society

October Field trip. Rocky Bay-Whitireia Peninsula

Twenty five members braved coastal gales to follow Robyn Smith down to a bay immediately west of Rocky Bay where there were a variety of mainly small coastal natives such as *Apium prostratum*, *Raoulia hookeri* var *hookeri*, *Linum monogynum*, *Peperomia urvilleana*, *Einadia triandra* and the region's only population of *Hebe elliptica* (syn. *H. elliptica* var *crassifolia*). Many plants are being out-competed by karo and taupata but there are still a good number clinging onto the mudstone cliffs. A new discovery was *Sonchus kirkii* (gradual decline).

The coastal turf fields of Rocky Bay with large open holes were dominated by *Lobelia anceps*, *Samolus repens*, and *Isolepis cernua* with an area of *Apodasmia similis*. Drier areas are now infested with karo which is now also germinating on the cliffs where there is more *Hebe elliptica*. We chose not to brave the frothy surf and wind on a coastal walk and instead immediately drove to Onehunga Bay to botanise the only remaining fragment of bush just up the valley using a 2001 species list compiled by Pat Enright and Olaf John. We noted damage caused by cattle break-ins the previous summer. Open areas are infested with mature boneseed, *Chrysanthemoides monilifera* and *Senecio glastifolius*. The only known population of *Doodia australis*, a scarce species south of Waikato, had been trampled but some of it was still alive. We found the only noted plant of *Streblus banksii*, or is it *Streblus heterophylla*? Jonathan Anderson, a local expert on *Streblus* is unsure if *S. banksii* and *S. heterophylla* are two species or just merge into one species with a wide leaf variation. Close by was the one mature *Lophomyrtus obcordata* which again is an uncommon or possibly unknown species in Wellington. *Lophomyrtus bullata* is common in the Wellington area and *L. obcordata* more common in the Wairarapa. Overshadowing them both were large karaka, *Corynocarpus laevigatus*, not native to Wellington. An addition to the species list was *Oplismenus hirtellus* subsp. *imbecillus*.

October Meeting.

The opportunity was taken at this meeting for NZBS president, Anthony Wright, to present Patrick Brownsey with the 2008 Allan Mere Award. The 2007 recipient, Peter Johnson then, with the aid of a 'mere' of his own making and photographs, delivered an often moving and highly informative address exploring a multitude of threads—trees and timbers, flowers and fossils that were parts of his botanical life.

November: extra field trip. Makara foreshore reserve

In the 1940s the Home Guard bulldozed the 2 m-high dunes at Makara Beach, in case an invading, enemy force landed and hid there. In the 1970s WBS was one of several science-based groups that convinced Wellington City Council to designate a flat 300m² area as a reserve, because of its locally very uncommon community of indigenous, mat and sand-binding plants. After much careful restoration by the intrepid Chris Horne and Barbara Mitcalfe, its survival now is critically threatened by weeds such as allseed, *Polycarpon tetraphyllum*, Cape crassula, *Crassula decumbens*, mouse-eared chickweed, veld grass and bur medick.

At short notice a work bee was arranged, and 23 volunteers worked methodically on hands and knees, for several hours joined by three local residents and the duty ranger, with light refreshments provided by WCC. An area of only c. 50m² was cleared of weeds, and eliminating weeds from the remaining, worst-infested area is likely to require another 300 hours, quite beyond the WCC budget allocated for the reserve. WCC has now called in a contractor to advise urgently on the situation.

November Meeting.

Two of Professor Phil Garnock-Jones's research students who are recipients of Botanical Society student grants gave us an update of their work. Mei lin tay described her work in the evolution and biogeography of *Plantago* (Plantaginaceae) in NZ. Phylogenetic trees, constructed using DNA sequences, indicate that *Plantago* has invaded NZ three times from Australia, and the immigrants have speciated here. Long-distance dispersal might be aided by their mucilaginous seeds. Molecular data have been less useful in untangling several species complexes in the genus.

Gesine Pufal presented the first results of dispersal experiments conducted with selected alpine *Veronica* (Plantaginaceae), showing the tight relationship between rain-operated capsule opening, short- distance dispersal, and its potential influence on the plant's distribution.

November working bee: Dench Garden collection.

Twelve members accumulated a trailer load of fine weeds from among the treasures in this garden recently featured in the November issue of *BBC Gardens Illustrated* magazine. The generous Forest & Bird funding of regular garden help is still not enough to keep pace with the spring flush of weeds. The morning tea provided by Arnold and a chance to see some of our national treasures in this setting was a great reward for a good morning's work.

FUTURE EVENTS

December 6th and 7th: Field trip to Eastern Tararua Range. Leader Tony Silbery (06) 372 5620.
December 13th: Annual Rata walk, Petone. Leader Dave Holey (04) 566 4124.
January 16th to 26th: Field trip to Buller region. Contact: Mick Parsons (04) 972 1148.

President: Carol West (04) 387 3396 cwest@doc.govt.nz

Secretary: Barbara Clark (04)233 8202 bj_clark@xtra.co.nz PO Box 10412, Wellington 6143
<http://wellingtonbotsoc.wellington.net.nz/>.

■ **Nelson Botanical Society**

August Field Trip: Fernglen, 88 Valley, a QE2 Covenant (owners: Greg and Linda Brown)

Registered as a QE2 covenant in the late 1990s, this property consists of about 4 acres and epitomises the challenge a small covenant provides, including restoration after a history of stock grazing. Beneath large podocarps and a few black beech (*Nothofagus solandri*), much effort has gone into weed removal and planting of suitable species, such as the once-plentiful *Nestegis montana*. Although *Teucrium parvifolium* had also been planted, we found several growing naturally, as was a solitary plant of *Anemanthele lessoniana* (gossamer grass). *Korthalsella clavata* was found camouflaged on *Melicope simplex*. The enthusiastic owner had provided plant labels for the group to complete as we walked along for his future reference and he was given a species list for the property.

August Meeting: A visit to the Nelson DOC Conservancy Herbarium

Four cabinets hold nearly 5000 pressed specimens collected in the Nelson–Marlborough Conservancy; the aim is for the herbarium to have at least one sample of every plant species occurring naturally in the Conservancy (200 species are needed to complete the northern South Island collection). Shannel Courtney, assisted by Fini Shaw, briefed the large group on what goes on behind the scenes and members saw first-hand how herbarium specimens readily give immediate information about scale and plant architecture.

September Field Trip: Atua Stream Reserve, Riwaka–Sandy Bay Road

This little-known reserve is described as an area of coastal forest. Some *Cyathea smithii* supported *Tmesipteris tannensis*, and of three *Nothofagus* species present – hard beech (*N. truncata*); black beech; and silver beech (*N. menziesii*) – one tree supported an impressive *Peraxilla colensoi*. *Coprosma lucida*, *C. robusta* and *C. grandifolia* gave the group a chance to examine stipules as *Coprosma* identification features. Highlights included finding a couple of species that had not been previously recorded here: *Gahnia pauciflora* and *Lindsaea trichomanoides*. Members were also fortunate to see *Pittosporum crassicaule* bearing last season's seed capsules and this season's small dark flowers. And we found *Coprosma rhamnoides* in flower, one male and some distance away one female. Young plants of *Hebe leiophylla* were noted, apparently a fairly recent arrival in the reserve.

September Meeting: A trip to Far East Russia – Lawrie and Lena Metcalf

The Metcalfs told a large audience of their time on a Heritage Expedition cruise around the Kamchatka Peninsula and the Kuril Islands. The cruise started at Petropavlovsk (Kamchatka Peninsula) in a wintry climate with little plant life evident and gradually proceeded south. As diversity increased, Siberian pine, Siberian alder and tundra vegetation gave way to *Pinus pumila* and herbaceous flowering plants, like *Potentilla* sp., an orchid (*Dactylorhiza aristata*), *Viola selkirki* and *Corydalis ambigua*. As the tour approached northern Japan, the vegetation became quite lush, and the group had to push through megaherbs, some at shoulder height!

October Field Trip: Pupu Walkway

The old gold mining water race, now used for electricity generation, is surrounded by luxuriant bush that prompted energetic discussions on the differences between similar-looking plants: *Tmesipteris*

elongata and *T. tannensis*; *Griselinia lucida* and *G. littoralis*; *Lycopodium volubile* and *L. scariosum*; *Libertia micrantha* and *Arthropodium candidum*; and hutu (*Ascarina lucida*) and pukatea (*Laurelia novae-zelandiae*). *Alseuosmia macrophylla* in flower was a delight. Other highlights were *Quintinia serrata* in flower; the orchids *Earina mucronata* and *E. autumnalis*, *Winika cunninghamii* and *Pterostylis* spp.; *Blechnum fraseri*; the beautiful red and soft green colours of emerging *Blechnum novae-zelandiae* and *Coriaria arborea*; freshwater crayfish; and a fernbird.

October Labour Weekend Camp: Punakaiki

Pororari River–Inland Pack Track, Saturday 25 October

This must be one of New Zealand's prettiest easy-to-reach walks, passing through lush sub-tropical to temperate podocarp forest. *Clematis paniculata* was evident throughout; both male and female flowers were spotted. The most common tree was *Rhopalostylis sapida* (nikau), with *Macropiper excelsum* (kawakawa) filling in many spaces. Toro (*Myrsine salicina*), hutu, pigeonwood (*Hedycarya arborea*) and wineberry (*Aristolelia serrata*) were also prominent. Orchid enthusiasts spotted the tree orchids *Earina mucronata*, *E. autumnalis* and *Winika cunninghamii*, and different groups of walkers found some of *Nematoceras rivularis*, *N. trilobum* and *N. acuminatum* – the spider orchids. Some also saw *Pterostylis cardiostigma* that was just about flowering. We also found four rata species in profusion. The amount of *Freycinetia banksii* was almost unbelievable.

Fox River, Bullock Creek Road, Cave Creek, Sunday 26 October

Our first sight was a pond full of Cape pondweed (*Aponogeton distachyus*), an invasive species, at the mouth of the Fox River. In addition to Saturday's species, we saw *Rubus cissoides* and *Anaphalioides trinervis* in full flower; rusty-looking *Hymenophyllum ferrugineum*; and very hairy *Nertera villosa* berries. Fox River Cave, the area's oldest tourist attraction, proved to be a delight, with stalactites and stalagmites in abundance, and cave weta. Along Bullock Creek Road were *Brachyglottis hectorii* and flowers of *Quintinia serrata*, and a metres-long mat of *Gunnera dentata* (bearing male and female flowers). The walk to Cave Creek through tea tree scrub soon became a steep descent to the creek itself, dark and sombre with memories of its past tragedy. On the return trip, *Chiloglottis cornuta* in bud and a circling kaka revived our spirits.

Punakaiki Blowholes Track and Truman Track, Sunday 27 October

These two short tracks provided very enjoyable diversions amid healthy coastal vegetation, the Blowhole Track revealing a magnificent kiekie (*Freycinetia banksii*) female inflorescence displaying the edible bracts (tawhara) and the spadices (ureure). Other special plants observed there were *Parsonsia heterophylla* in flower and a hybrid *Fuchsia perscandens* x *F. excorticata*. Under the canopy on the Truman Track were delicate *Nematoceras rivularis* in full flower. Other forest plants of interest were the very tall *Gahnia rigida* (3 m) and *Raukaua edgerleyi*. And then there were the salt meadows of *Samolus repens* and *Selliera radicans* perched on the high rock platforms.

Bird encounters over the weekend: In addition to seeing and hearing some of the more common bush birds (grey warblers, bellbirds, robins, pigeons, kaka, fantails), the group had the opportunity to watch the nocturnal return of adult Westland black petrels to their burrows from the sea and the antics of near-fully grown chicks at the burrows. The colony is high on bushed hillside on private property and visits require bookings.

FUTURE EVENTS

Dec 19–21: December camp, Canaan Downs. Leader Shannel Courtney (03) 546 9922

Jan 18: Wairoa Gorge. Leader Shannel Courtney (03) 546 9922

Jan 30–Feb 2: Camp, Arthur's Pass. Leader Shannel Courtney; Contact Don Pittham (03) 545 1985

Feb 15: Mt Arthur, Kahurangi National Park. Leader Rebecca Bowater (03) 545 1260

April 5: Nelson BotSoc 20th Anniversary special field trip. Contact Jocelyn Lewis (03) 547 2812

April 6: Nelson BotSoc 20th Anniversary Dinner and speaker, Graeme Jane. Contact Jocelyn Lewis (03) 547 2812

President: Cathy Jones (03) 546 9499. Flat 1 47A Washington Rd. Email: cjones@doc.govt.nz

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

■ Canterbury Botanical Society

August Meeting

Dr. David Norton (School of Forestry, University of Canterbury) spoke on managing biodiversity values on high country farms. He began with a pictorial overview of the scenic and biological values of the high country east of the Main Divide, then outlined the phases of modification that have occurred during pastoral use, particularly invasion by briar, *Hieracium* and wilding conifers that are becoming increasingly evident. He then went on to outline the process of tenure review, whereby some 40% (anticipated to rise to 60%) of pastoral lease has been returned to public ownership, with management by DOC, the balance becomes freehold. Two unwelcome consequences are that many introduced species are benefiting from the removal of grazing (notably briar and pines), at the expense of native plants and that some freehold land is being used for purposes that totally destroy native biodiversity, notably intensive dairying and subdivision for holiday settlements. David raised the idea that in many situations biological conservation may be better served by leaving high country runs intact as economically productive units, but subject to management plans so that areas with biodiversity values are recognized and subjected to site-specific, appropriate management. Examples were given.

Peter Wardle

September meeting – Anthony Wright “the Three Kings Islands”

Anthony Wright has made four study trips to the Three Kings Islands, found 60 km northwest of Cape Reinga and isolated for 2 million years. The largest island is about 4 square km and very steep sided. Maori were seen living on the islands in 1643 by Abel Tasman, but they had left by 1840. Goats released in 1889 were not eliminated until 1946. The Maori occupation, and later the goats significantly modified the vegetation. The islands' isolation and their two periods of deforestation and recovery make them an interesting site to study plant dispersal and succession. The patterns of regeneration differed following the two major disturbance events. Introduced birds present in the second regeneration period may have contributed to different dispersal patterns. Widespread regeneration of *Meryta sinclairii* (Puka) occurred in the second regeneration period only. *Kunzea ericoides* (Kanuka) provides the dominant canopy with emergent *Metrosideros excelsa* (Pohutukawa) in places. There are 13 named endemic plants, with *Tecomanthe speciosa* and *Elingamita johnsonii* being well known.

Gillian Giller

October Meeting

Roland Dale took us on a wonderful trip through the Dusky Sound area. Roland has done many off-track tramps for up to a month at a time, using tents and coordinated food drops (helicopters and GPS have helped considerably). Images are from where no others have been. He carried 2 camera bodies, for slide and print, and a tripod, to shoot in low light and close up flower photography. His images were stunning. He gave us some tips on how to get good floral images. Margaret Geerkens

Field trip to Oashore, Banks Peninsula (the range on far side of Lake Forsyth/Wairewa)

Early spring is a fabulous time for spring flowering natives in this area. Species in flower included *Clematis foetida*, *C. afoliata* and *C. paniculata*, the bush lawyers *Rubus cissoides* and *R. schmidelioides*, and the leafless *R. squarrosus* on a rocky cliff. The two native jasmines, *Parsonsia heterophylla* and *P. capsularis* were just beginning to flower making it easier to tell them apart. The one naturally occurring plant of *Olearia fragrantissima* on Oashore and the fragile looking *Scandia geniculata* were in flower also. Muehlenbeckias seen were *M. complexa*, common amongst the grass and shrubs, *M. ephedroides*, flat on the shingle of Kaitorete with its tiny flowers on show, and a lone shrub of *M. astonii*, at the base of the cliff above the lake. Two new records for Oashore are *Myrsine divaricata*, discovered along the road margin, half hidden amongst *Coprosma crassifolia*, and *Hypolepis ambigua*. *Festuca actae* was spotted on the grassy bank, and the native thistle *Eryngium vesiculosum*, not yet in flower, rose above *Selliera radicans*, *Lilaeopsis novae-zelandiae*, *Cotula dioica*, and the European buck's horn plantain in silty ground along the edge of L. Forsyth/Wairewa.

Kate Whyte

September Field Trip to Lyttelton Area Reserves – rare & unexpected species

Well supplied with a comprehensive species list for rock outcrops of the eastern reserves of the Port Hills (including Peter de Lange's (2006) risk rankings for threatened species), provided by Di Carter, Port Hills Ranger and our guide, and a copy of the "Olearia survey and Site Assessment for Banks Peninsula" (and Tasman Valley), authored by Geoff Walls and supplied by Ian Hankin of DOC, we

started our day at the bottom of the Major Hornbrook track. Here about 25 of the largest remaining *O. fragrantissima* occur. We then drove up to the saddle between Mt. Cavendish and Mt. Pleasant. From there, we explored in two directions, firstly descending to the bluffs above Heathcote Valley, where we looked, with Di's guidance, for some of the more unusual ferns among the rocky bluffs. We soon located *Cheilanthes sieberi*, *C. distans* and *Pellaea calidrupium* but locating *Pleurosorus rutifolius* (threat level "sparse") was a different matter. The one small specimen that we saw was protected by a small rock overhang. Native herbs of note were *Lagenifera pumila* and *Leptinella nana* ("nationally endangered"). Locally much rarer was *Carex inopinata* (also "nationally endangered"), a cryptic sedge, and the fragment we saw seems very vulnerable to grazing. After lunch we walked east along the Mt. Pleasant bluffs track, where we found the filmy-fern *Hymenophyllum rarum*, quite a lot of *Blechnum vulcanicum* and a fragment of *Rumohra adiantiformis*. We also saw *Leptinella minor* ("range restricted").

Trevor Blogg.

November Meeting

Amber Sciligo, who received a study grant this year, spoke about her research on *Drosera*. Of the 7 species of *Drosera* Amber has located 5, two in Northland. *Drosera peltata* grows on banks amongst grasses at Kai Iwi Lakes and *D. auriculata* is found in the Waipou Forest. The other three, *D. arcturi*, *D. stenopetala* and *D. spathulata* are alpine. Amber is trying to determine how the plants are fertilised - selfing or by insect. One experiment in "Kea country" was destroyed. Amber was presented with the Junior Bledisloe Trophy.

Graeme Worner, a Royal Society scholarship recipient outlined the year's work he had done at Brooklands Lagoon. Graeme marked out areas and recorded the species found. These including sea rush, remuremu, oioi, sea primrose, native musk and marsh ribbonwood.

Margaret Geerkens

November Field Trip

The highlights of the visit to Ruth and Paul Maurice's covenant on the Western Valley Rd near the Port Levy Saddle were *Pterostylis graminea* in flower; a shade form of the porcupine *Melicytus*; a totara hybrid *T. hallii* x *nivalis*; and *Lycopodium australianum*. Hugh Wilson was very excited about these latter two; especially the totara hybrids which are rare on Banks Peninsula. Margaret Geerkens

FUTURE EVENTS:

November 13th - 16	Show weekend camp: Kaikoura
December 5	Phillip Grove – subject to be confirmed
December 6 or 7	Field trip to Mt Hutt
January 9 – 16	Summer Camp at Totaranui Homestead
February 6 – 8	Waitangi Weekend Field Trip to Craigieburn

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■ **Botanical Society of Otago**

June Meeting: Dr Lisa Russell talk on the expanding range of *Undaria* in Southern NZ

Lisa began by describing the process and consequences of invasion in the marine environment and then described the main lines of biosecurity work aimed at dealing with these problems. We then learned about one particular marine invader, the seaweed *Undaria pinnatifida*, native to Japan, Korea and China, but now established in temperate coastal regions of the northern and southern hemispheres. Various control measures have been used and have included manual eradication, hot water treatment, and the use of polythene coverings. It was successfully eradicated from a vessel that sank off the Chatham Islands. Lisa then discussed the spread of *Undaria* in New Zealand since its introduction to Wellington in 1987. It has spread through the South Island and as far south as the Snares Island and there is evidence of northwards spread in the North Island. The only good news is that it is not yet present in the Catlins or in Fiordland. In conclusion Lisa reiterated that *Undaria* is escaping from initial founding sites, has a broader niche than native kelp, can establish reproductive populations in locations subjected to significant wave action, and is likely to have profound effects on marine communities. John Barkla

July Field Trip: Flax collection at Dunedin Botanic Gardens

Following the powhiri, Rua McCallum and Debra Carr from Clothing and Textile Sciences at University of Otago gave us a brief history of the Rene Orchiston collection. Rene Orchiston of Gisborne started a collection of harakeke/flax in the 1950s after recognizing that many of the selected cultivars used by Maori craftspeople throughout the North Island were being lost. A partial replicate of the collection is planted near the Otago Polytechnic Centre at the Botanic Gardens. Rua introduced us to weaving properties of the fronds. She demonstrated how to get the whitau/fibre from the fronds. We then moved on to the main feature of the day, the Dunedin Botanic Garden harakeke and wharariki project which started in April 2007 and is funded by a Foundation for Research, Science and Technology Te Tipu Puutaiao post-doctoral fellowship. The research is based on a flax collection donated to the Dunedin Botanic gardens about 1909 by Mr Matthews, a Dunedin horticulturalist. The collection is considered to be valuable as it may contain unique Te Waipounamu /South Island cultivars. There are presently 109 plants from his collection in about a two-metre wide strip on the south edge of the Botanical Gardens. With our new skills and knowledge we "cleaned" many of the plants to help in the preparation for their moving. Most of the undamaged fronds were destined for weavers in the city but a few of us learnt how to make a putiputi or flax flower from a frond. And we left the day feeling we had helped a little with an important project. Helen Clarke.

July Meeting: Lorna Little talk on The Flora of the Forties and Fifties

Lorna was one of five Enderby Scholarship students to visit the Subantarctic with Heritage Expeditions this year. The 72 m ship carried 48 passengers and 27 Russian crew on an 8 day voyage to Campbell, Auckland, Enderby and the Snares Islands. The first port of call was Campbell Island, and a walk in the glacial valleys to see the colourful megaherbs, including the endemic daisies of the *Pleurophyllum* genus and the gentian *Gentianella antarctica*. As well as the numerous sea lions, there were giant petrels and the glorious pink flowers of *Anisotome latifolia*. Auckland Island, the largest of the Subantarctic islands, has forests of Southern rata, *Metrosideros umbellata*. Enderby Island, a small island north of the main Auckland Island, looked magnificent with a veil of red rata flowers covering the forest canopy. As well as the magnificent *Stilbocarpa polaris* with its huge rhubarb like leaves, there were a few parakeets to be seen. The next stop was the Snares Islands, where landing is not permitted. The thick leaved tree daisy *Olearia lyallii* was seen along the shoreline. Bird life was abundant, as the islands are a breeding ground for the sooty shearwater and home to the Buller's mollymawk and the comical looking Snares crested penguin. Moira Parker

August Field Trip: Bull Creek, South Otago coast

On a brilliant winters day we wandered up Bull Creek encountering some awesome *Podocarpus totara* clinging to a bank with *Linum monogynum* below. The trees many of us came to admire were the southern rata which must look superb when the red flowers are in bloom. Heading up the waterfall track it felt more like a damp West Coast forest than a dry east coast, due to the recent rains. We saw cool *Pseudowintera colorata* flowers and many juvenile matai and miro. Back along the coast we lunched overlooking the waves crashing into rocks with bull kelp dancing in the waves. The botanical find of the day was a tiny forget-me-not *Myosotis pygmaea* var. *pygmaea*, which calls the top of the rocks home. Bradley Curnow

September Field Trip Report: Berwick Bogs and Bits of Forest

John Steel led an extraordinary trip to hidden gems not normally accessible. First up was a podocarp forest remnant above a picnic area that was once a public Forest Service amenity area. Discovery of a rare photosymbiodeme of the foliose lichen *Pseudocyphellaria rufovirescens*, with lobes containing green algae projecting from the grey cyanobacterial lobes, encouraged me to start adding more lichens to John's species list. Others marvelled over the mix of mature podocarps, and debated the finer points of distinguishing matai from miro. Lunch in the sun was followed by a drive onward and upward to a boggy basin with a scruffy-looking area that John regards as the greatest botanical treasure of the Berwick Forest Wenita estate. Once he enlightened us, we could see that laid out before us were fine examples of three different raised bog communities, slowly built up over centuries. After jumping the deeply cut perimeter stream and negotiating our way through lumpy *Carex* spp sedges we came to the raised *Empodisma minus*/*Sphagnum cristatum* community, continually growing upwards on its own detritus. A little further in was a spectacular lichen bog community. Allison Knight

FUTURE EVENTS

13-14 Dec Weekend trip to St Marys Range
6 March Free BSO BBQ

Chairman: John Barkla, jbarkla@doc.govt.nz

Secretary: Allison Knight, P O Box 6214, Dunedin North.

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

■ Other Botanical Society Contacts

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

Rotorua Botanical Society

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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

Wakatipu Botanical Group

Chairman: Neill Simpson (03) 442 2035

Secretary: Lyn Clendon (03) 442 3153

ANNOUNCEMENTS

■ Images wanted for new Threatened Plant book

Peter J. de Lange, Ecosystems & Species Unit, Department of Conservation, Private Bag 68908, Newton, Auckland

A threatened plant book sponsored by MWH and prepared under the auspices of the New Zealand Plant Conservation Network (NZPCN www.nzpcn.org.nz) is now in the advanced stages of preparation. The book written for the NZPCN by Peter J. de Lange, Peter B. Heenan, David A. Norton and John W. D. Sawyer will discuss and depict those plants that are regarded as "Threatened" by the New Zealand Vascular Plant Panel using the New Zealand Threat Classification Scheme (de Lange et al. *in press*; Townsend et al. 2008).

The authors are currently looking for images of the following 176 taxa (see table overleaf). We are keen for images that show the plant in a diagnostic but attractive manner, as well as any showing the habitat that the plant grows in.

The book has been prepared voluntarily and the NZPCN is unable to pay for image use. However, full acknowledgement for images used will be given. If you have images of any of the taxa listed and are happy for the NZPCN to use these for the book, please send your images to John Sawyer (jsawyer@doc.govt.nz) before the end of January 2009.

Acaena rorida
Aciphylla dieffenbachii
Ackama nubicola
Alectryon excelsus subsp. *grandis*
Amphibromus fluitans
Anogramma leptophylla
Anzybas carsei
Asplenium pauperequitum
Atriplex cinerea
Atriplex hollowayi
Australopyrum calcis subsp. *calcis*
Australopyrum calcis subsp. *optatum*
Baumea complanata
Brachyglottis huntii
Brachyscome pinnata
Calochilus herbaceus
Carex dolomitica
Carex cirrhosa
Carex inopinata
Carex rubicunda
Carex unciifolia
Carmichaelia astonii
Carmichaelia carmichaeliae
Carmichaelia crassicaulis subsp. *racemosa*
Carmichaelia curta
Carmichaelia hollowayi
Carmichaelia juncea
Carmichaelia muritai
Carmichaelia stevensonii
Carmichaelia torulosa
Centipeda minima subsp. *minima*
Ceratocephala pungens
Chaerophyllum basicola
Chenopodium detestans
Christella dentata
Clematis marmoraria
Clianthus maximus
Clianthus puniceus
Coprosma talbrockiei
Coprosma waima
Cortaderia tarbaria
Crassula manaia
Crassula multicaulis
Crassula peduncularis
Dactylanthus taylorii
Daucus glochidiatus
Davallia tasmanii subsp. *cristata*
Deyeuxia lacustris
Dichelachne lautumia
Dichelachne micrantha
Drosera pygmaea
Epilobium hirtigerum
Epilobium pictum
Gentianella calcis subsp. *calcis*
Gentianella calcis subsp. *manahune*
Gentianella calcis subsp. *taiko*
Gentianella calcis subsp. *waipara*
Gentianella scopulorum
Geranium retrorsum
Gnaphalium luteoalbum var. *compactum*
Gratiola concinna
Gunnera hamiltonii
Gunnera densiflora
Hebe adamsii
Hebe arganthera
Hebe armstrongii
Hebe barkeri
Hebe bishopiana
Hebe breviracemosa
Hebe perbella
Hebe salicornioides
Hebe rigidula var. *sulcata*
Hebe societatis
Hebe speciosa
Heliohebe raoulii subsp. *maccaskillii*
Hibiscus diversifolius
Hibiscus richardsonii
Isolepis basilaris
Isolepis fluitans var. *fluitans*
Iphigenia novae-zelandiae
Kirkianella novae-zelandiae
Juncus holoschoenus var. *holoschoenus*
Lagenifera montana
Leonohebe cupressoides
Lepidium banksii
Lepidium flexicaule
Lepidium kirkii
Lepidium naufragorum
Lepidium oleraceum
Lepidium sisymbrioides
Lepidium solandri
Leptinella filliformis
Leptinella nana
Leptinella rotundata
Leucogenes tarahaoa
Libertia cranwelliae
Libertia peregrinans
Linguella puberula
Lobelia carens
Lobelia fugax
Lycopodiella serpentina
Mazus novaezeelandiae subsp. *impolitus* f. *hirtus*
Mazus novaezeelandiae subsp. *impolitus* f. *impolitus*
Metrosideros bartlettii
Montia drucei
Muehlenbeckia astonii
Myosotis albosericea
Myosotis angustata
Myosotis australis var. *lytteltonensis*
Myosotis cheesemanii
Myosotis colensoi
Myosotis laeta
Myosotis matthewsii
Myosotis petiolata var. *pansa*
Myosotis petiolata var. *petiolata*
Myosotis petiolata var. *pottsiana*
Myosotis pygmaea var. *glauca*
Myosotis pygmaea var. *minutiflora*
Myosotis saxosa
Myosotidium hortensia
Myosurus minimus subsp. *novae-zelandiae*
Myrsine umbricola
Olearia adenocarpa
Olearia crebra
Olearia fimbriata
Olearia gardneri
Olearia hectorii
Olearia pachyphylla
Olearia polita
Olearia traversiorum
Ophioglossum petiolatum
Ourisia modesta
Pachycladon cheesemanii
Pachycladon exilis
Pachycladon stellata
Pennantia baylisiana
Phylloglossum drummondii
Picris burbridgeae
Pimelea actea
Pimelea tomentosa
Pittosporum dallii
Pittosporum obcordatum
Pittosporum patulum
Pittosporum serpentinum
Pittosporum turneri
Plumatochilos tasmanicum
Poa aucklandica subsp. *rakiura*
Poa spania
Pomaderris apetala subsp. *maritima*
Pomaderris phyllicifolia
Pseudowintera insperata
Pterostylis irwinii
Pterostylis micromega
Puccinellia raroflorens
Ranunculus acraeus
Ranunculus paucifolius
Ranunculus viridis
Rorippa divaricata
Rytidosperma telmaticum
Schoenus carsei
Scutellaria novae-zelandiae
Sebaea ovata
Senecio kermadecensis
Senecio lautus var. *esperensis*
Senecio scaberulus
Simplicia buchananii
Simplicia laxa
Spiranthes novae-zelandiae
Sullivania minor
Tecomanthe speciosa
Thelymitra matthewsii
Thelymitra sanscilia
Todea barbara
Triglochin palustris
Uncinia perplexa
Trithuria inconspicua
Uncinia perplexa
Utricularia australis
Uncinia strictissima

References

de Lange, P.J.; Norton, D.A.; Courtney, S.P.; Heenan, P.B.; Barkla, J.W.; Cameron, E.K.; Hitchmough, R.; Townsend, A.J. *in press*. New Zealand Extinct, Threatened and At Risk Vascular Plant List. *New Zealand Journal of Botany* 47(1): March 2009.

Townsend AJ, de Lange PJ, Norton DA, Molloy J, Miskelly C, Duffy C 2008. The New Zealand Threat Classification System manual. Wellington, Department of Conservation. 30 p.

NOTES AND REPORTS

■ Research report: *Crassula alata* is a fully naturalised species in New Zealand

C. Ogle, 22 Forres St, Wanganui 4500

Introduction

The tiny annual herb, *Crassula alata*, was first recognised in New Zealand from material sent live by me in November 2003 to Dr Peter de Lange in Auckland, who lodged it in the herbarium at the Auckland Museum (AK), as AK 284862. This came from Santoft Road, near Bulls in the Rangitikei District, where the species grew as a narrow strip of tiny succulent plants in a vehicle track beside a sealed road. The track was depressed into peaty sand and held water at times. Peter de Lange and Rhys Gardner identified the *Crassula* as *C. alata*, a European species, and this identification was confirmed soon after by Dr H R Tolken at Adelaide Herbarium (AD), South Australia. On 15 November 2004, I returned to Santoft and rediscovered *C. alata* growing on the road verge and also among moss cushions on the concrete slabs from which forestry buildings had been removed some years earlier. Some I sent live to Bill Sykes who was then compiling a revised key to wild *Crassula* in New Zealand and, from this material, he compiled a 'diagnostic description' of *C. alata* as well as including it in the key (Sykes 2005).

Recognition of *Crassula alata*

C. alata can be recognised in the field by its diminutive stature (up to 25 mm, but usually much less) erect and generally unbranched growth form¹ in New Zealand collections (compared with *C. decumbens* which has decumbent branching stems); often red stems and leaves; the leaves and floral bracts have mucronate tips. In the field, confusion is most likely between *C. alata* and the indigenous species, *C. sieberiana* and *C. colligata* (P de Lange, pers. comm.). Features of the latter two species are given by de Lange (2003) and their separation from *C. alata* is in the key to adventive *Crassula* taxa in Sykes (2005). Confirmation of the species is best made under a dissecting microscope, where the flowers of *C. alata*, almost hidden among the sub-floral bracts, can be seen to have 3 sepals, 3 petals and 3 free carpels that ripen to become follicles. *C. decumbens*, *C. sieberiana* and *C. colligata* have 4-merous flowers. In *C. alata*, *C. sieberiana* and *C. colligata* there are 2 seeds/follicle; *C. decumbens* has 4-10 seeds/follicle (Sykes 2005). Mention is made by Sykes (2005) of flattened stems that appear winged when dry. Fresh material has smooth, terete stems. Fresh vegetative material of *C. decumbens* has terete stems also, but each internode has two longitudinal rows of minute papillae, opposite each other.

Records of *C. alata*

The 2003 collection from Santoft was published as a new record for New Zealand by Heenan et al. (2004), where it was allotted the status of a casual record. However, a *Crassula* specimen (AK 2546660), collected at Taupo by Rhys Gardner in 2000, had been consigned to a folder of indeterminate *Crassula* specimens. It was identified on 5 Oct 2004 as *C. alata* by Peter de Lange then confirmed as such by Bill Sykes. This plant had been found three years before my Santoft discovery and it appears to be the first New Zealand collection. Table 1 shows the discrete collections of *C. alata* in AK, in chronological order. A pulse of new records is evident for late 2008, all but the Auckland record (AK 303756) being from the south-western North Island.

¹ Several plants collected at Bulls on 4 Nov. 2008 (AK 303769) and growing among unbranched plants of *C. alata* were branched from near the base and, in the field, resembled *C. decumbens*. However, the absence of rows of papillae on the stems and presence of 3-merous flowers showed these to be *C. alata*.

While travelling around the Wanganui-Manawatu region in September-November 2008, I watched for 'tough' sites that might have weedy spring annuals. These included places with 'threadbare' lawns or pasture on compacted sand or gravel, especially if they looked as though they had held shallow water in the winter. *C. alata* was found in five such sites, namely (and in chronological order), Palmerston North, Himatangi, Wanganui, Feilding and Bulls (Table 1). The largest population, numbering many hundreds or, perhaps, thousands of plants, was beside SH 56 near Himatangi, where *C. alata* extended along 100 m or more of vehicle tracks in damp sand and gravel. In places, it was the dominant plant cover. In the shallowest soils, *C. alata* plants (AK 303659) had red leaves and stems but the plants were green in slighter deeper soils, often just a few cm distant. In the Wanganui site (AK 303748), a kerb-side lawn used as a car park with very compacted sand and fine gravel, all the plants were red. Apart from one site at Santoft, where *C. alata* grew among mosses on a concrete slab (CHR 574255), sites had other small adventive herbs, mostly annuals, growing among *C. alata*. Some of these species were in two or more sites, including *C. decumbens*, *Poa annua*, *Aira caryophyllea*, *Sagina apetala* and *Trifolium dubium*. A new record for the south-western North Island, *Moenchia erecta* (AK 303660, 303588) was found with *C. alata* in two sites, and has yet to be found in this region in a site lacking *C. alata*.

Conclusions

It is clear that *Crassula alata* is now widely established in the south-western North Island, at least, and perhaps elsewhere. Not having any feature which would attract horticulturalists for cultivation and also not known yet in any garden, *C. alata* seems to have established in New Zealand from some source other than the 'garden origin' of most new adventive species. It is tempting to suggest that its small size and seemingly short life span caused it to be overlooked until recently. However, it is now so widespread and locally common, that it seems unlikely that would have been overlooked by botanists, had it been present for many years. It is more likely that it has expanded its range and abundance quite recently in New Zealand. There is a regular review process that allows the status of adventive species to be re-evaluated triennially (Heenan et al. 2004, Heenan et al. 2008). Regardless of its origin and duration in New Zealand, *C. alata* meets the criteria to be moved from 'casual' status to that of a fully naturalised species in the next re-evaluation of adventive species' statuses.

Acknowledgements

My thanks to Peter de Lange for handling and checking the identities of each batch of specimens, for encouraging me to compile this article and commenting on a draft of it. Thanks, too, to herbarium staff at Auckland Museum and Landcare Research for information, and to Bill Sykes for additional comments. I am especially indebted to Cathy Jones of Nelson, who made the drawings for the front cover of this Newsletter, to complement my article.

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Location	NZMS260 grid ref.	Herbarium voucher	Date	Collector	Associated species	Habitat
Taupo, 'south end of town'	U18/788725	AK 254666	5/10/2000	R O Gardner 10214A		Footpath edge, compact soil
Rangitikei, Bulls, Santoft	S23/002151	AK 284862	3/11/2003	C C Ogle 4388	<i>Vulpia bromoides</i> , <i>V. myuros</i> , <i>Aira caryophylla</i> , <i>Trifolium arvense</i> , <i>Bromus diandrus</i>	Vehicle track depression at road edge; damp peaty sand of old dune
Rangitikei, Bulls, Santoft	S23/002152	CHR 574254	15/11/2004	C C Ogle 4644	<i>Polycarpon tetraphyllum</i> (adjoining <i>Aira caryophyllea</i> , <i>Vulpia bromoides</i> , <i>V. myuros</i> , <i>Ehrharta calycina</i>)	Vehicle track depression at road edge; damp peaty sand of old dune
Rangitikei, Bulls, Santoft	S23/003152	CHR 574255	15/11/2004	C C Ogle 4644	moss cushions (no other vascular plants)	Concrete pad after building removed
Bay of Plenty, Whakatane	W15/620537	AK 289819	18/04/2005	P J de Lange 4674; P B Cashmore	<i>Crassula decumbens</i>	Gritty mud beneath leaking pipe near wharf
Rangitikei, Bulls, Santoft	S23/002162	CHR 586811	16/11/2006	C C Ogle 5062	<i>Crassula decumbens</i>	Fine gravel & sand between road verge & pasture
Palmerston North, Massey University	T24/323875	AK 303589	22/09/2008	C C Ogle 5433	<i>Crassula decumbens</i> , <i>Oxalis exilis</i> , <i>Polycarpon tetraphyllum</i> , <i>Trifolium dubium</i>	Gravel carpark, infrequently used
Manawatu, SH 56, Himatangi	S24/687873	AK 303659	4/10/2008	C C Ogle 5435; R C Ogle	<i>Poa annua</i> , <i>Moenchia erecta</i> , <i>Ornithopus sp.</i> , <i>Cerastium glomeratum</i> , <i>Aira caryophyllea</i> , <i>Crassula decumbens</i> , mosses	Gravel vehicle track on sand, beside highway; seasonally wet; old dune
Wanganui, Hatrick St West	R22/847390	AK 303748	23/10/2008	R C Ogle; C C Ogle 5437	<i>Poa annua</i> , <i>Sagina apetala</i> , <i>Spergularia rubra</i>	Consolidate sand of 'lawn' used for casual car-parking; old dune
Manawatu, Feilding, West St	S23/277070	AK 303752	27/10/2008	C C Ogle 5438	<i>Moenchia erecta</i> , <i>Vulpia myuros</i> , <i>Sagina apetala</i> , <i>Trifolium dubium</i> , <i>Triquetrella moss</i>	Disused driveway on road berm; fine gravel, little soil
Auckland, Western Springs Park, old quarry pit near Motions Road		AK 303756	1/11/2008	P. J. de Lange 7521, T. J. de Lange & F. J. T. de Lange	<i>Crassula decumbens</i> , <i>C. sieberiana</i> , <i>Aphanes inexpectata</i>	Fine soil overlying basalt scoria in old quarry
Rangitikei, Bulls, Dalziel St	S23/113126	AK303769	4/11/2008	C C Ogle 5439	<i>Lythrum hyssopifolia</i> , <i>Sagina apetala</i> , <i>Trifolium repens</i> , <i>Poa annua</i>	Flat waste section; silty gravel, seasonal water ponding

BIOGRAPHY / BIBLIOGRAPHY

Biographical Notes (72) : Kate Violet Edgerley (1887–1939) & Olga Livia Gertrude Adams (1900–1950)

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

This note commemorates two former pupils of the Auckland Girls' Grammar School who became much-loved teachers of Botany. Both died at a relatively young age. One of them was the granddaughter of one of our earliest resident botanists.

Kate Edgerley (1887–1939)

Miss Edgerley's story takes us back to 1831 when Lieutenant Thomas McDonnell RN (retired) settled at Horeke on the Hokianga Harbour, North Auckland, and founded a major timber-trading business (1). McDonnell made a return visit to England, and when he arrived back at Horeke in April, 1835, he came with the honorary appointment of "Additional British Resident" (i.e. additional to James Busby); and he brought with him the 21-year-old John Edgerley (c. 1814–1849) as gardener and botanist (2).

McDonnell had promised to send specimens of New Zealand plants (living or dried) to Aylmer Bourke Lambert (1761–1842), a friend of Sir Joseph Banks; and between 1835 and 1841 this was one of Edgerley's tasks (2). This could mean that Edgerley was our first resident plant collector. To be sure William Colenso had arrived at Paihia, Bay of Islands, on 30 Dec. 1834, some 4 months before Edgerley arrived at the Hokianga. But Colenso was busy as a catechist-printer for the Church Missionary Society, and not a full-time gardener-botanist like Edgerley, and may not have collected seriously until enthused by Allan Cunningham in 1838. Lambert died on 10 Jan. 1842, and his plant collections were sold at auction in June (2). Lot 57 "Plants of New Zealand, by Egerley [sic] and others, 5 bundles" was bought by Rich (3).

During 1842–1843 Edgerley visited England, arriving in April, 1842, with a collection of living New Zealand plants and fruits in spirits which he sold to Kew. His first English address was Arley Hall, Staffordshire, the home of Lord Mountnorris, friend of Lambert and Banks, to whom he had sent plants. And while in England he married Miss Sarah Newnham of Upper Arley (2).

Edgerley arrived back in Auckland in August, 1843, with a collection of trees for sale, given by Sir William Hooker in exchange for further New Zealand plants. He purchased 2.5 ha at Newmarket (and a further 2 ha in 1848) and became a well-known nurseryman befriended by Sir George Grey. He died suddenly on 9 June, 1849, *aet.* 35, not living to see his name commemorated by Joseph Dalton Hooker in *Panax edgerleyi* (1853) and *Pomaderris edgerleyi* (1864) or, presumably, in Edgerley Avenue which marks the site of his property (2).

John Edgerley left a widow and 3 young children, a girl and 2 boys. His widow, Sarah Edgerley died on 5 June, 1895, *aet.* 83, by which time her sons, John and William, had become "well-known builders" (4). William Edgerley had married Louisa Hannaford and they



Miss Kate Edgerley, Auckland Girls' Grammar School Magazine, 1939.

reared a family of 3 daughters and 3 sons. On 21 Feb. 1887 their second daughter, Kate Violet, was born (5,6).

Kate Edgerley attended Auckland Grammar School for 6 years from Feb. 1900 to Dec. 1905. It was then a large wooden building in Lower Symonds Street, and remained a co-educational school until 1909 when the girls moved to their new home in Newton. In 1905, in the Upper Sixth Form (Girls), Kate came 3rd in English and Latin, 5th in French, 2nd in Mathematics, and 1st in Science; and she was 2nd for the Mathematics and Science Prize (7). She then went on to win a Senior Scholarship in Botany at Auckland University College in 1909, and to complete her MA with First Class Honours in Botany in 1911.

Kate Edgerley's supervisor in her MA studies was A.P.W. Thomas, Professor of Biology and Geology, who numbered among his many interests the vascular cryptogams. He had already studied *Tmesipteris* and *Phylloglossum* and had supervised a thesis on the comparative anatomy of 6 New Zealand species of *Lycopodium* by John E. Holloway (later Lecturer-in-charge, Botany Dept., University of Otago, and FRS). And he then suggested that Miss Edgerley extend Holloway's work (which was concerned with the aerial spore-producing stage of the lycopod life-cycle) to a study of the tiny subterranean prothallia which bear the sexual organs. This she did with a study mainly devoted to the internal structure of the prothallia of *Lycopodium volubile*, *L. scariosum* and *L. billardieri*, using material collected by Thomas, Holloway and herself. Her paper was read before the Auckland Institute on 16 Dec. 1914, and published in the Transactions of the New Zealand Institute in 1915 under the title "The prothallia of three New Zealand lycopods."

From 1912 to 1939 Miss Edgerley taught at Auckland Girls' Grammar School, and was particularly successful in teaching Botany. "Her students remember her breathless manner of speaking as words of great enthusiasm came tumbling out about gardening, botany in general, and native plants in particular." (8) In 1919, no doubt at her suggestion, the Rambling Club was superseded by a Botany Club, of which she was elected the first President. The chief object of the Club was the collection of botanical specimens. The subscription was sixpence per head and with it they bought their "only Club property – a tin billy". This they boiled on their picnics at such places as One Tree Hill, Waikowhai, Orakei, Titirangi, or as far afield as the Waitakere Dam (9).

In 1935 Miss Edgerley was elected first Woman President of the New Zealand Secondary Schools Assistants' Association. From 1936 to 1938 she was Second Mistress at Auckland Girls' Grammar School, and briefly Acting Head Mistress before she died suddenly on 26 Feb. 1939 *aet* 52, at Auckland Hospital, from 11 Edgerley Ave, Newmarket. She was buried in St. Mark's Cemetery, Remuera, and this is probably where her parents and grandparents were also buried (8,10).

In memory of Miss Edgerley the staff and students presented to the school the 2 volumes of T.F. Cheeseman's *Illustrations of the New Zealand Flora* (1914); and at the school there is a plaque in her memory. For many years 'The Kate Edgerley Memorial Prize for Botany' was presented at Prizegiving. Nowadays the Kate Edgerley Prize is presented to a Year 12 student for natural Sciences. As for Edgerley Avenue, it is now under the shadow of the Newmarket Viaduct of the Southern Motorway and is a very busy commercial area (6).

Olga Adams (1900–1950)

Miss Olga Adams was born in Tauranga on 25 June, 1900 (6). She was the 5th and youngest daughter and the 9th of 10 children born to Mr J.C. Adams and his wife Helen (Hereni) of Tauranga; and she traced her part-Maori ancestry back to Hoturoa of the Tainui canoe (11, 12). Olga first attended Tauranga District High School, and then Auckland Girls' Grammar School, presumably on a Senior National Scholarship tenable from Jan. 1916 to Dec. 1919 (13). In the event she only attended the Grammar School from Feb. 1916 to Dec 1918 (6) and here she came under the influence of Miss Edgerley.

In 1916 Olga was mainly in the Lower Division of 6th Form and "working separately" in French and Latin (perhaps not taught at Tauranga). Her best result was 5th out of 12 in Lower Division Botany (14). In 1917 Olga was in Division B of 6th Form with Final Positions of 10th out of 16 in Languages and 2nd out of 16 in Mathematics and Science. In the latter she was awarded a Special Prize. She was 4th out of 16 in Botany (14).

In 1918, in Division A of 6th Form, Olga was 7th out of 11 in Languages, and 6th out of 11 in Mathematics and Science, although absent from part of the examination. And in 1918 she won the Sinclair Scholarship. In 1917 and 1918 she was a School Prefect and in 1918 Secretary of the 6th Form Rambling Club (15) the year before it changed to the Botany Club.

The Sinclair Scholarship enabled Miss Adams to take a B.Sc. degree at Auckland University College. She then taught at Waihi District High School and Waitaki Girls' High School; and then, in 1928, she was appointed Science Mistress at the newly created co-educational Grammar School at Takapuna on Auckland's North Shore. Back near her old University she embarked on an MSc degree graduating in 1930 after what must have been part-time study. Her thesis, supervised by Mr T.L. Lancaster, Lecturer in Botany, was entitled "An ecological study of the Cyperaceae of the Northern Heath, Auckland, New Zealand". (12)

The new Takapuna Grammar School building contained a laboratory specially designed for teaching Botany and studying plants. It had generous work benches and ample shelving for the large collection of fruits, seeds, and other material, dry or pickled. I was reminded of this laboratory by a photograph of its counterpart at Auckland Girls' Grammar School in (8) with Miss Edgerley standing in the background. Probably the one a copy of the other.



**Miss Olga Adams, Auckland
Weekly News 26 Jan. 1950**

Early Takapuna Grammar students who were enthused by Miss Adams's teaching included Geoff Baylis (later Prof. of Botany, University of Otago), Graham Turbott (later Director, Auckland War Memorial Museum), and Neville Stephenson (Prof. Zoology, University of Sydney). In 1935 and 1936, I also had the privilege of being taught Botany by her, first for Matriculation and then for University Bursary. In her teaching she had no idiosyncrasies or flamboyances. She was just friendly and relaxed and always had plenty of plant material for us to see and handle. I remember how proud I was when assigned the task of bringing her a range of mangrove seedlings for class work. My recollection of her is of a plump, jolly, little lady, progressing slowly and thick-ankled along the corridor as if against a head wind, with her gown held tightly around her.

In 1937 Miss Adams became Senior Mistress at Takapuna Grammar School and in 1938 was appointed Lecturer in Science to the Secondary Division of the Auckland Teachers' Training College (15). In 1945 her only published botanical work appeared, probably prompted by the need to be more self-sufficient during the war years. They were on "Maori Medicinal Plants" and "Karengo-Porphyraspp" (an account of the Maori utilisation of this seaweed as food) both published by the Auckland Botanical Society. In 1945 she also contributed items on Maori topics to the IYA Winter Course Talks (12).

In January, 1950, Miss Adams visited Kapiti Island, and on 26 Jan. when driving back to Tauranga she suffered a heart attack on the Main South Road at Otorohanga, south of Hamilton. Whether she was driving or a passenger I do not know. She was only 49 years old, and was buried in the Tauranga Cemetery (16,17).

Acknowledgements

I am particularly grateful to Ms Isobel Gillon, Archivist, Auckland Girls' Grammar School for sending much information about Miss Edgerley and Miss Adams. I also thank Mrs Helen Connor (Helen Clark, AGGS 1940, 43-44, and now of Christchurch) for the loan of *Auckland Girls' Grammar School. The first 100 years*, and Mr & Mrs Neil Campbell (Tauranga) for searching *The Bay of Plenty Times*. Thanks also to Dr Matt McGlone for finding Sarah Edgerley's obituary, and to Mrs Wendy Weller for her typing.

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(1) R.M. Ross 1966: McDonnell, Thomas (1788–1864). *Encycl. NZ* 2: 357–358; (2) R.C. Cooper 1970: John Edgerley, Botanist, in *New Zealand. Rec. Auckland Inst. Mus.* 7: 123–136; (3) H.S. Miller 1970: The herbarium of Aylmer Bourke Lambert. Notes on its acquisition, dispersal, and present whereabouts. *Taxon* 19(4): 489–453; (4) Obituary (Sarah Edgerley). *Auckland Weekly News*, 15 June, 1895; (5) Death Certificate (William Edgerley); (6) Ms Isobel Gillon, in litt. 28 July & 2 Sept. 2008; (7) School List, AGS (Girls), 1905; (8) H. Northey et al. 1988: Auckland Girls' Grammar School. The first 100 years. AGGS Old Girls' Association; (9) Botany Club Notes. AGGS Magazine, 1920; (10) Death Certificate (K.V. Edgerley); (11) Deaths (Adams) Bay of Plenty Times, 27 Jan. 1950; (12) A.D. Thomson 2001: Two notable pioneer woman botanists in teaching: Olga Adams & Helen Dalrymple. *NZ Bot Soc. Newsletter* 65: (Sept) 28–31; (13) School List, AGGS, 1918; Names of pupils holding scholarships, Dec. 1918; (14) School Lists, AGGS, 1916–1918; (15) W.J.D. Minogue et al. 1977: The first fifty years. Takapuna Grammar School, 1927–1977; (16) Death Certificate (O.L.G. Adams); (17) Obituary (Olga Adams), *Auckland Weekly News*.

Dr Godley regrets that he will only be contributing two Biographical Notes in 2009 – June and December. He needs extra time to write up other work, but hopes to be back to normal in 2010.

PUBLICATIONS

Note: the author of the Lichen flora review in the previous newsletter was omitted in error. The review was by Dan Blanchon, School of Natural Sciences, Unitec New Zealand - Te Whare Wananga o Wairaka.

■ Book Review

[Plant Heritage New Zealand Te Whakapapa o nga Rakau: Interpreting the special features of native plants. By Tony Foster. Published by Penguin Books / Raupo Publishing \(NZ\) Ltd. Paperback, 207 pages, 210 × 260mm, New Zealand, 2008 ISBN 9780143009795 \\$NZ49.95](#)

Reviewed by Murray Dawson

Tony Foster is passionate about New Zealand's native plants. He has taught biology and horticulture at secondary schools, developed his own native plant website called 'bushmans friend' (www.bushmansfriend.co.nz), and runs a business bearing the same name taking visitors on interpretive bushwalking tours in Northland.

Tony draws upon this background to write a book sharing his enthusiasm and knowledge of a wide range of native plant species found in the New Zealand bush. He showcases his superb photography and provides brief descriptions of each species that teaches us how to identify and distinguish them.

Many of the native plants covered are widely cultivated in our gardens, such as the iconic cabbage trees, flaxes, and ratas. Others are less well known, but all have stories to tell of their origins and evolution, their traditional and present day uses, and how they have inspired poems and proverbs. These stories, both European and Maori, are brought together to highlight special features of the flora, and how New Zealanders have created a cultural history around these plants.

This book sets itself apart from most other offerings. It is not a strictly botanical field-guide like Poole and Adams (1994), St George et al. (2006) and other guides. Nor is it a comprehensive treatment such as those featuring botanical artwork (Eagle, 2006), cultivars (Metcalf, 1993), divaricating plants (Wilson and Galloway, 1993), cabbage trees (Simpson, 2000), or hebes (Bayly and Kellow, 2006).

Plant Heritage New Zealand seems most allied to an earlier title by the name of *Flowering plants of New Zealand* (Webb et al., 1990). Both books celebrate the special qualities of the New Zealand flora,

are aimed at a wide public audience, and attempt to increase people's appreciation and knowledge of native plants.

Plant Heritage New Zealand is divided into two parts that contain four chapters each. Part 1, *Introduction to New Zealand's remarkable plants*, provides the background and natural history for the native species profiled in Part 2.

This first part outlines endemism, species diversity and distribution, forest and plant associations (Chapter 1, *New Zealand plants in the landscape*), biostatus (exotic/native/endemic), ancestry and elements of the flora, features of New Zealand plants (Chapter 2, *The characteristics of New Zealand's flora*), taxonomy and common names (Chapter 3, *What's in a name? Classifying plants*), and Maori genealogies and insights (Chapter 4, *Maori and the plant world*).

These are all 'heavy duty' topics, and to me the author seemed to struggle with the balance between presenting complex information and conveying it in a simple but accurate manner. Professional botanists and ecologists may feel that more detail is needed to properly explain some of the topics. For the less knowledgeable reader the information could have been more clearly written in places.

Part 2 is the main section of the book and reveals its real strengths, where the authors' first-hand knowledge of the 110 species that he observes and his 300 or more photographs unfold. Reading through the species profiles, I gained the distinct impression that the author was writing using much of his own keen observations, rather than rehashing information from floras and other plant books.

Most of the species chosen for this book were derived from the authors' home area of Northland. This is quite appropriate because (as he points out) much of New Zealand's species diversity is found in the upper North Island anyway.

The format of each species profiled works well, and green text boxes are used for relevant quotes and explanations from early European writings and Maori oral traditions. These are a delight to read and add much to the interest of the 'stories' surrounding each plant. Also, the meanings of the botanical names are usefully provided, and nicely relate to the photos and short descriptions.

Different plant groups are well represented – there is a selection of conifers (Chapter 5), dicotyledons (Chapter 6), monocotyledons (Chapter 7), and ferns (Chapter 8). This book does not include any native orchids, but these have already been dealt with by others (e.g., St George et al., 2006).

Within each major grouping according to chapter, the genera are arranged together in their respective families. The families themselves do not seem to follow any particular order.

The preferred botanical names and treatments used for the plants are generally current. For example, the book places *Hebe* in the Plantaginaceae family, where it is now considered to belong, rather than its long-standing placement in Scrophulariaceae.

However, some of the recent and generally accepted name changes have not been followed. No explanation is provided for this, which creates an impression that the author has not kept abreast of the botanical literature. Returning to the hebe example, "*Hebe hullcana*" is presumably a mis-spelling of *Hebe hulkeana*, which is generally accepted under a different genus, *Heliohebe hulkeana*. And some botanists now include *Hebe* (and allied genera) all under an enlarged *Veronica*.

Other names are outdated in the book. *Pseudopanax anomalus* is referable to *Raukaua anomalus*, and *Pseudopanax simplex* is referable to *Raukaua simplex*. Reinstatement of the name *Raukaua* (Mitchell et al., 1997) has been well accepted by botanists.

At the family level, *Cordyline* is now accepted in the Laxmanniaceae family rather than Agavaceae, *Leucopogon fasciculatus* is in the Ericaceae (along with *Dracophyllum*, *Leptecophylla* and other epacrids not covered in the book), rather than Epacridaceae; *Laurelia* is in Atherospermataceae rather than Monimiaceae; *Phormium* is in Hemerocallidaceae rather than Agavaceae; *Vitex* is in Lamiaceae rather than Verbenaceae.

Some authors will chose not to follow these recent name changes, but they should at least mention them. Many of these changes are the result of DNA sequencing studies. Noticeably absent throughout the book is discussion of the huge impact that DNA sequencing has made on our understanding of the plants – on their names, taxonomic relationships, and evolutionary histories. These DNA and taxonomic ‘stories’ should also be told.

This book is not perfect in other ways – there are a considerable number of typographic errors that should have been picked up during editing. There seems to be a trend in recent years where publishers are not rigorous enough in their copy-editing. As a result, the published work lets themselves and their authors down. I do hope that there will be an improved second edition that removes these minor irritations. The most glaring problem is that much of the index lists page numbers for the main body that are incorrect – they are 1–3 pages out of kilter!

Nevertheless, *Plant Heritage New Zealand* is a useful book that should appeal to a wide readership from secondary school students upwards. By and large, it does achieve what it sets out to do, and successfully celebrates the diversity, special features, and beauty of the New Zealand native flora.

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■ **New Book**

Chatham Islands Heritage and Conservation. Edited by Colin Miskelly

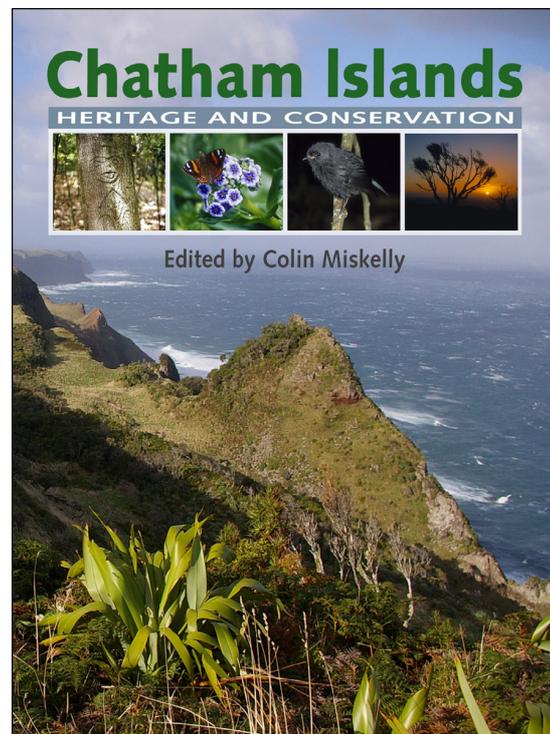
This much-anticipated revised and expanded edition describes the Chatham Islands with emphasis on their geology, flora, fauna, habitats, and extinct and endangered species - on land, in freshwater and in the sea.

It also provides an introduction to the human history of the islands, and is a guide to the many reserves and covenants that have been established to protect and conserve the islands' heritage.

Contributors:

- Te Miria Kate Wills-Johnson (heritage)
- Michael King (history)
- Hamish Campbell (geology)
- David Schiel (marine life, seaweeds)
- Wendy Nelson (seaweeds)
- Rhys Richards (marine mammals)
- Ian Atkinson (land habitats)
- Peter Johnson (freshwater wetlands, lichens)
- Nadine Bott (freshwater fish)
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