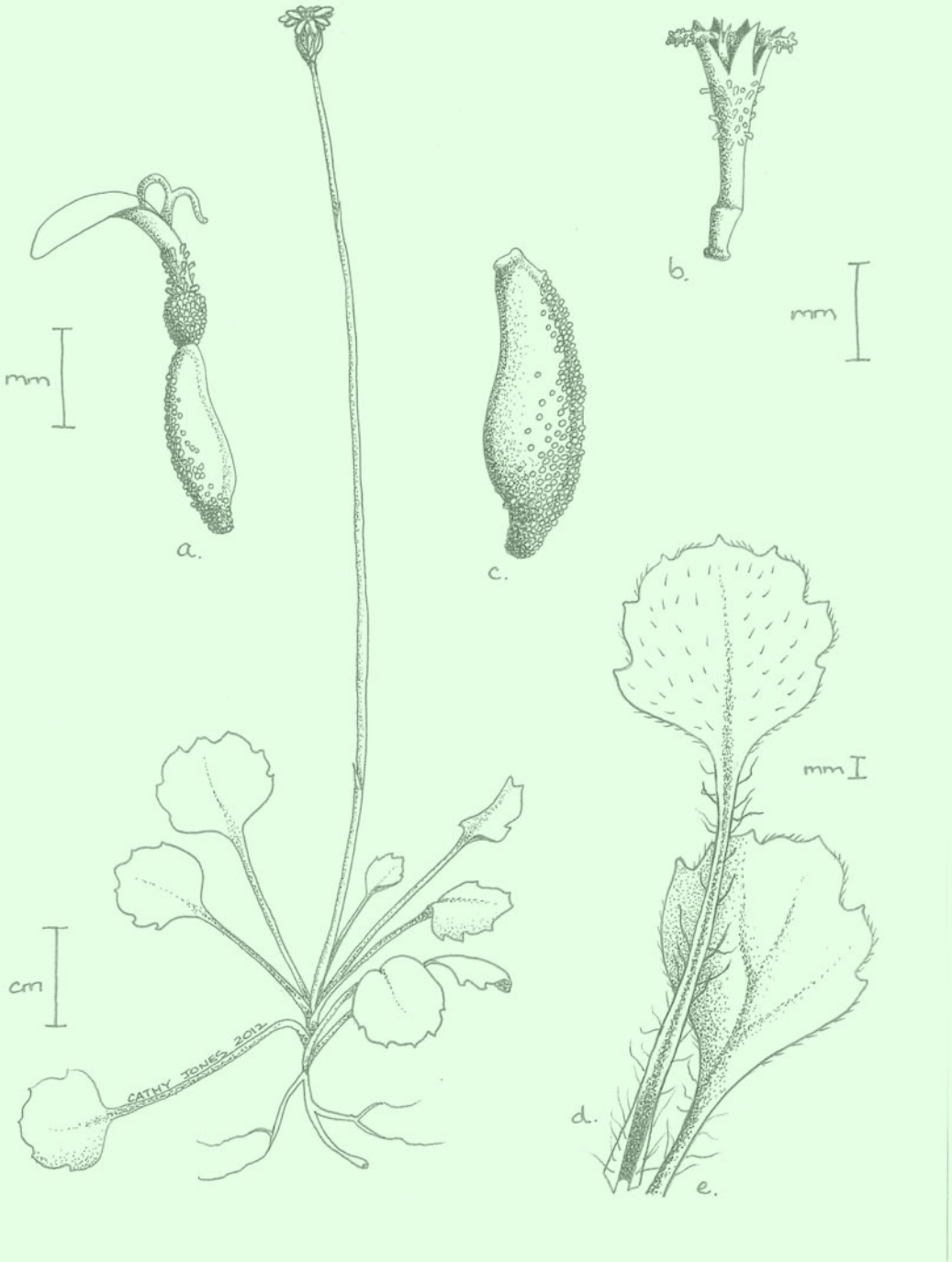
NEW ZEALAND BOTANICAL SOCIETY

NEWSLETTER

NUMBER 107 March 2012



New Zealand Botanical Society

Subscriptions

The 2012 ordinary and institutional subscriptions are $25 (reduced to $18 if paid by the due date on the subscription invoice). The 2012 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 June 2012 issue is 25 May 2012.

Please post contributions to:
Lara Shepherd
Museum of New Zealand Te Papa Tongarewa
P.O. Box 467
Wellington

Send email contributions to editor@nzbotanicalsociety.org.nz. Files are preferably in MS Word, as an open text document (Open Office document with suffix ".odt") or saved as RTF or ASCII. Macintosh files can also be accepted. Graphics can be sent as TIF JPG, or BMP files; please do not embed images into documents. 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.

Cover Illustration

Lagenifera strangulata Colenso drawn by Cathy Jones from a specimen collected in the Lower Branch Valley, Wairau catchment, South Marlborough on 16 February 2012. a. ray floret with immature achene, b. disc floret, c. semi-mature achene, d. adaxial leaf surface, e. abaxial leaf surface.

NEW ZEALAND BOTANICAL SOCIETY

N E W S L E T T E R

NUMBER 107 March 2012

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New Zealand Botanical Society News

- **Financial Statement for year ended: 31 December 2011**

	2011
INCOME	
Bequests	$0
Donations	$304.78
Interest	$26.11
Sale of Back issues	$14.00
Grant from DOC for lichen project TFBIS 227 (part 2 of 4)	$0.00
2010 Subscriptions	$0.00
2011 Subscriptions	$3,985.00
2012 Subscriptions received in advance	$428.00
Total Income	**$4,757.89**
EXPENSES	
Printing costs	$1,654.06
Postage costs	$1,078.80
Bank fees	$0.00
Calligraphy costs (Allan Mere)	$104.25
Lichen Project TFBIS 227	$0.00
Total Expenses	**$2,837.11**
Total income	$4,757.89
Less total expenses	$2,837.11
Net surplus	**$1,920.78**
ASSETS	
Cash in bank - current account	$5,972.68
Cash in bank - Achiever Savings	$2,008.18
Total Assets	**$7,980.86**
LIABILITIES	
Printing costs	$434.50
Postage costs	$0.00
Part payment of cheque dishonour recovered	$0.00
Total Liabilities	**$434.50**
Total Assets	$7,980.86
Less Total Liabilities	$434.50
Net assets	$7,546.36
Represented by	
Retained earnings c/fwd from previous year	$5,625.58
Profit for year	$1,920.78
TOTAL FUNDS AS AT 31 DECEMBER 2011	$7,546.36

Note: Liabilities is the costs for printing Newsletter 106 (December 2011)

Ewen Cameron, Secretary/Treasurer NZBS

Regional Botanical Society News

- **Auckland Botanical Society**

Christmas Outing
On a fine day a picnic trip down the Mahurangi River from Warkworth to Scotts Landing near the Mahurangi Heads, on the restored scow, *Jane Gifford*, was a very pleasant experience. The several scenic reserves lining the river were pointed out, as were some of the historic ruins and landmarks. The tide allowed only an hour or so ashore at Scotts Landing, but that gave time to check out the old boarding house and orchard there, and a walk uphill revealed tawapou (*Planchonella costata*) with green fruit, *Calystegia tuguriorum* in full flower, and the dainty fern, *Doodia mollis*.

January South Island Camp
Our biennial South Island camp was held at Arthur's Pass, with the Outdoor Education Centre as our base for eight days. There were reports that it was pouring with rain back at home, but we were fortunate to experience good weather for the whole trip and with the expert leadership of our South Island friend, Cathy Jones, we explored the botanical delights of the mountains. The many flowering and fruiting plants of the pen-wiper (*Notothlaspi rosulata*) growing on the screes of the Cheeseman ski field, and swards of the beautiful *Ranunculus lyallii* at Temple Basin, left all with lasting memories.

Anniversary Weekend Camp
Mayor Island was the venue for the long weekend camp, and it lived up to its reputation as a special botanical destination. From the comfortable camp at Opo Bay, we explored the crater and the beaches, and as always we were struck by the large leaf sizes of several of the plants. Even more surprising, in a gully leading down from the crater rim, were the enormous trees of mangeao (*Litsea calicaris*) and wineberry (*Aristotelia serrata*) growing there, the latter reaching a height of 33 metres. Special plants for the weekend were *Senecio banksii, Sonchus kirkii,* and restoration plantings of *Hibiscus richardsonii*.

February Field Trip
Our first regular trip for 2012 was full of botanical interest and fine scenery. Jacky's Peak is a prominent bush-clad hill at Little Huia, owned by the Turner family. The bush is diverse and in good condition, with *Hebe bishopiana* present on rock outcrops. The track to Destruction Gully (Makaka Bay) on the Manukau Harbour traverses splendid second-growth kanuka/conifer forest and scrubland, in which *Sophora fulvida, Helichrysum lanceolatum, Corokia buddleioides, Pittosporum ellipticum, Toronia toru* and *Leionema nudum* were prominent.

FUTURE EVENTS

7 March	AGM. Sarah Wise: Lucy Cranwell Award recipient
17 March	Awhitu dune lakes

Auckland Botanical Society, PO Box 26391, Epsom, Auckland 1344
President: Mike Wilcox Secretary: Kristy Hall aucklandbotanicalsociety@gmail.com

- **Rotorua Botanical Group**

December Field Trip: Paeroa Water Reserve
It rained hard overnight and enroute to Paeroa, but after a little dithering it cleared to a fine day. As everything was wet, we moved slowly along the weedy roadside from the gate to the dam, recording several species previously overlooked including *Gladious daleneii,* in flower*,* and *Ottelia ovalifera*. The surrounding vegetation was tall kanuka forest with a riparian fringe of mahoe, wineberry and coprosmas. From the dam, the old tramway continued through kanuka forest with a good variety of regenerating species. Near the stream a long discussion about the differences between lowland and thin bark totara terminated in the realisation that the adjacent tree was a kanuka.

After lunch we proceeded up the right fork of the tramway close to the stream through a rich piece of lowland forest of puriri, kohekohe, hinau, mahoe, pigeonwood and the odd kahikatea and rimu. At one

point it was useful to see *Tmesipteris lanceolata* alongside *T. elongata* on the same tree. One of the highlights was a re-visit to a *Nematoceras* "Kaimai" site where now only two or three plants from hundreds of flowers had successfully seeded. The tramway terminated (with coal and a steel rail) at a small waterfall. This proved a challenge to photograph.

January Field Trip: Tukainuka Scenic Reserve

Seven people headed up the Waiotahi Valley to this little visited 38 ha reserve on the alluvial river terraces on the east side of the Waiotahi River along with the adjoining river terrace opposite side in Waioeka Conservation Area. The reserves contain extensive areas of totara-matai forest, an extremely rare forest type both in the Bay of Plenty and nationally. This was a very successful trip finding substantially more *Myosotis forsteri* than on a DOC visit last year. However there was no sign of *M. pottsiana* previously vouchered from the reserve. Species noted included *Drymoanthus adversus* on several totara while we stopped to admire the fine examples of *Collospermum hastatum*, which were abundant on most trees, some seemingly perching on vertical trunks in mid air. Also noted were some substantial specimens of puka (*Griselinia littoralis*) and an adult and some saplings of kawaka (*Libocedrus plumosa*), which is uncommon in the Bay of Plenty. Matai was fairly common amongst the totara on the eastern side of the river but appears to be sparser on the other. A total of eight species were added to the list for the reserves.

FUTURE EVENTS

4 March	Te Ananui Falls
24 March	Little Waihi Estuary and Islands
25 April	Pokopoko Scenic Reserve
12 May	Te Tuhi Track
9 June	Upper Rangitaiki River oxbows and frost flats

President: Paul Cashmore (07) 348 4421 pcashmore@doc.govt.nz
Secretary: Sara Crump

- **Wellington Botanical Society**

June Field Trip: Upper ‘Solomon Knob’ spur, Wainuiomata catchment

The challenge for our group of eleven on this trip was to add to the Mitcalfe/Horne species list comprising over 145 native species. In an area of successional forest exhibiting evidence of extensive pig rooting we added *Diplodium alobulum*. The canopy soon became predominantly silver and black beech. We saw the odd emergent northern rātā, but near the trail they appeared to be mainly damaged stumps supporting aged kāmahi. There was extensive *Metrosideros fulgens*, much of it in flower. The trackside *Coprosma* graduated from predominantly *C. rhamnoides* to *C. foetidissima* and the confusing *C. colensoi*. Before lunch we had found *Hymenophyllum villosum* and later, in the damper forest near the top, *H. pulcherimum* and *H. flabellatum*; these three additions increased the already extensive list of filmy ferns. We also saw three small plants of *Brachyglottis kirkii*, two of which were damaged from serious browsing. We added *Sticherus cunninghamii* and mountain five-finger just before turning back.

July Field Trip: Johnston Hill Reserve, Karori

With frost on the ground, nine assembled for the walk through the Karori Cemetery and onto Johnston Hill Reserve. A species list was made from scratch as we proceeded for an hour through second-growth, mixed indigenous and adventive forest. We noted the beneficial effects of ten years of possum control. We climbed to the scrub-covered Johnston Hill summit via a farm track, enjoying a 360° view over Terawhiti, the North Makara Stream catchment, a glimpse of Te Wai Pounamu/South Island, the city, its surrounding ranges, and the harbour. We then descended to Hauraki St, through shrublands and mature indigenous forest including several gnarled old goblin māhoe.

August Field Trip: Paekākāriki Escarpment forest remnant

Seventeen of us took the 100m climb up Nga Uruora’s zig-zag track and, at the top, we were briefed on what Nga Uruora is doing. Soon after entering the forest, we saw a large-leaved milk tree, *Streblus banksii*, planted about ten years ago. The size of the trees, which are mostly kohekohe, with occasional karaka, suggests that a large slump occurred here perhaps 200 years ago; hence its name, ‘Slump Gully’. Out of the gully on its south side we moved into an area of broadleaf canopy

with profuse understorey. Trees included māhoe, akiraho, ngaio, pigeonwood, māpou and tītoki. The climbing ferns *Arthropteris tenella* and *Blechnum filiforme* were common.

We climbed slowly to a shelf where we were delighted to find a young mataī; an addition to the list for this forest. We then climbed to the forest margin and, across rank grass pasture, saw the large gully to the south, which was clothed in wind-sculptured *Coprosma propinqua*, and areas of native bush with kānuka and whararaki. Our return trip was straight down the steep 'Slump Gully' where we saw spectacular examples of epiphytic puka, *Griselinia lucida*. We noted several examples of akiraho, *Olearia paniculata*, with very thick trunks. At the top of the zig-zag track we turned right and walked past plantings of ngaio, taupata, five-finger and karamu. We passed another patch of tall kohekohe forest, and reached a series of terraces built by Kiwirail to stabilise the hillside now covered in tree lucerne, *Chamaecytisus palmensis,* originally sown to provide shelter for natives to grow.

<u>September Field Trip: Skull Gully, Wainuiomata Water Catchment</u>
Twelve of us were privileged to be given permission by the Greater Wellington regional council to see this relatively untouched forested valley that includes numerous tall emergent kahikatea, rimu, miro and northern rātā; the trunks of which were up to 1.0–1.5 m diameter. Amid the tops of these giants we saw large clumps of *Collospermum hastatum, C. microspermum, Astelia solandri*, orchids e.g. *Earina autumnalis*, *E. mucronata* and *Winika cunninghamii*; the fern *Asplenium polyodon, Pittosporum cornifolium* and *Griselinia lucida.* The canopy below included tawa, hīnau, pukatea, black maire, white maire and kāmahi.

At the start of the track that frequently crosses Skull Gully Stream we botanised a short distance under tall kānuka. This had established after logging ceased sixty years ago, before the land was purchased for water collection purposes. On a shady, undercut clay stream bank, at the first stream crossing, we saw *Trichomanes elongatum*, a fern uncommon to Wellington. Other plants of interest along the track/stream were a mataī seedling*, Raukaua edgerleyi, Clematis forsteri, T. endlicherianum*, *Carex dissita, C. forsteri, C. secta, Polystichum vestitum* and hybrids with *P. silvaticum*, and *Uncinia distans.*

We turned back after reaching a swamp about 1.4 km from the stream's confluence with the Wainuiomata river. Here there was a partial canopy cover consisting of mānuka, *Coprosma tenuicaulis*, with regenerating kahikatea towards the western margin, and *Austroderia fulvida* prominent on its eastern margin. Some plants of interest in the swamp and its margins with the forest were; *Melicope simplex*, *Raukawa anomalus, Clematis foetida, Botrychium biforme, Blechnum penna-marina* ssp. *alpina, Eleocharis acuta, Machaerina rubiginosa, M. tenax, Schoenus maschalinus, Potamogeton suboblongus, Typha orientalis, Ranunculus amphitrichus* and *R. macropus*.

<u>October Field Trip: Woodburn Drive Reserve, Takapu Valley, Wellington</u>
Eight members spent four hours compiling a plant list for this little-known 16.4 Ha forest remnant on an escarpment on the true right of the Takapu valley, Tawa. The canopy ranged from regenerating native forest to impressive stands of tawa, *Beilschmiedia tawa*, with some emergent rewarewa*, Knightia excelsa.* Tree fuchsia, *Fuchsia excorticata,* and mamaku*, Cyathea medullaris,* are also prominent components, with the latter damaged by snow in August.

Greater Wellington Regional Council, Wellington City Council and the Friends of Tawa Bush Reserves (FoTBR) are working together to control pest animals and pest plants. In December 2005, FoTBR removed the worst of the weeds—old man's beard and Himalayan honeysuckle. Possum control began in October 2006 and mustelid traps were set up in 2010. For the last four years FoTBR have planted 2000 plants around the edges of the existing reserve. We noted *Pseudopanax* hybrids invading parts of the reserve and puka, *Griselinia lucida,* growing on a low dry bank with *Asplenium oblongifolium*, and two large displays of *Clematis paniculata* in flower.

<u>November Field Trip: Puffer, Kaitoke</u>
The weather was fine for the 25 participants, but a cold southerly kept the temperature well down, aided by a brief hailstorm near the end of the trip. The initial part of the track is bounded by some native scrub, and much gorse. Pine trees in the area have been removed but small lodgepole pines (*Pinus contorta*) noted on the survey should also be removed. The track passes through a variety of habitats from exposed, stunted scrub with somewhat bare banks, to gullies, and mature beech forest. The list prepared for the trip was augmented by some notable additions including *Pseudopanax*

colensoi, *Hymenophyllum pulcherrimum*, *Craspedia minor*, *Drosera binata* and an unusual pink-coloured *Thelymitra formosa*. It was too early for many orchid species to appear, but *Pterostylis graminea* was in full flower, as were the only two specimens of *P. banksii*. Of interest as to how they came to be present in the area were an isolated rengarenga lily (*Arthropodium cirratum*), seedlings of quintinia (*Quintinia serrata*) and juvenile coastal kōwhai (*Sophora chathamica*). Not far up the Dobson Hut track, *Brachyglottis kirkii* was in flower. Snow damage was still obvious, with fallen branches and flattened ferns and sedges. Browse damage on *Coprosma lucida* and other species was also noted.

July and November Workbees: Te Marua Bush

In July a team of twelve planted 145 native trees to fill gaps in the more recent plantings. Noted were self-sown seedlings, including black maire and tawa, amid older plantings and in the original Bush. Rubbish was also cleared. The crowns of three large black maire in poor condition were photographed as a part of monitoring future changes. Noted also was plenty of fruit on the *Ileostylus micranthus* mistletoe planted years ago on *Melicope simplex.* Eastern rosella, *Platycercus eximius* was added to the adventive bird list.

In November ten keen volunteers set about weeding in the two southern blocks, one of which had long grass that had overgrown recent plantings. Snow had also damaged some of the faster growing planted hebes and karamu. The second block which has bigger plants also has some lacebark, *Hoheria populnea*, a species not naturally occurring here. The intention is to remove and replace these with tōtara, kahikatea, mataī and maire. Elsewhere the first plantings are now 3-4m high. The sole remaining naturally occurring mature kahikatea is now showing dieback after snow damage, and is not fruiting well. However, during the last 10 years, many of its seedlings have been grown on and planted back. The block along the Twin Lakes Road boundary next to the pony club that was planted with tōtara, kānuka and mānuka, is coming along well. The remainder of this strip has a broad mixture of species, including mataī, black maire and kahikatea, grown on from locally sourced seedlings. Leaving the long grass in place has, over time, reduced damage from rabbits. Several older trees of hīnau, black maire and mataī in the original bush block had either fallen or had severe crown damage due to the August snow. Elsewhere tradescantia control had been effective and there were increased numbers of native seedlings, including tawa, some now up to to 2m high

December Field Trip: Mangatoetoe Valley; Sutherland's Track, Te Kopi, Wairarapa

Eleven of us took the steep, steady climb on Sutherland's Track, a 4WD road above the Te Kopi house. It took us past a disappointingly wide range of adventives including willow but, because we had limited time, we chose not to list adventives. Not far past the junction of Sutherland's Track and the Washpool Track we noticed hard and black beech forest and with it, a sudden increase in indigenous species. We used a 1970 Druce list, *Indigenous Vascular Plants in the Vicinity of the Pūtangirua Stream,* added to by Pat Enright, Rob Lucas and Olaf John from 1997 onwards. Under beech, we saw three plants of the greenhood orchid *Pterostylis irsoniana,* a species which none of us had seen growing before. In perfect condition, the largest one was much photographed. Also trackside were extensive patches of *Lagenifera pumila* in flower and *Drosera auriculata*. Despite the dry habitat there was a variety of ferns, including *Hymenophyllum cupressiforme* and *Grammitis pseudociliata.* We discussed whether a single plant of gahnia was *Gahnia setifolia* or *G. xanthocarpa.* The black nuts indicated the latter, although the site did not seem to be as moist as one would normally expect for that species. Out in the open again we added *Solanum aviculare, Rubus schmidelioides, Oxalis rubens,* and on the road back we saw one plant of the grass *Elymus solandri*.

FUTURE EVENTS

3 March	Field trip Makara Hill, Karori. Leader: Chris Horne 475 7025.
19 March	Evening meeting There and back again—a botanist's tale of a visit to the islands of the Kermadec Archipelago. Speaker: Peter de Lange, Scientific Officer – Threatened Plants, DOC
6 –8 April	Easter field trip Western Wairarapa. Swamp forest on Upper Plain Road, other QEII covenants of mature forest. Sunita Singh 387 9955, 027 4052 987.
16 April	Evening meeting Promoting plant health via the soil. Cherryle Prew, Director, Soil Foodweb Institute NZ Ltd, Otago.
5 May	Field trip Seton Nossiter Park, Woodridge. Leader: Frances Forsyth 384 8891/021 072 5210.

21 May Evening meeting. Members' evening with auction. Photos, plant specimens and other short presentations.

President: Chris Moore, 04 479 3924. Moore.c@xtra.co.nz
Secretary: Barbara Clark, 04 233 8202. Bj_clark@xtra.co.nz http://wellingtonbotsoc.org.nz/

- **Nelson Botanical Society**

November Field Trip: Orchids on the Wakamarina Track
The track led through a mixed canopy of red, silver, black then hard beech, and podocarps – rimu, miro, matai, totara Tawa was abundant and both kamahi and wineberry were coming into flower. A female *Coprosma lucida* and one particular hinau provided a great display of flowering. Tree ferns were also part of the forest (*Dicksonia squarrosa, D. fibrosa, Cyathea smithii* and *C. dealbata*). Where the track passed small creeks, *Blechnum colensoi* was found and *Botrychium biforme* was present on the track margins. Filmy ferns frequented the shadier banks, including a beautiful *Hymenophyllum scabrum*. Of the orchids, the greenhoods were well represented with *Pterostylis banksii, P. irsoniana* and *P. graminea* and just a few *P. foliata*, which unfortunately had all flowered. Also not in flower were *Nematoceras* sp. and *Singularybas oblongus*. In more open bush with clay banks were *Thelymitra longifolia* in flower, *T. nervosa, T. pauciflora* agg., *Caladenia* "red stem" and flowering *C. chlorostyla* demonstrated that small can be beautiful. *Orthoceras, Simpliglottis and Microtis* completed the list of orchid genera on this trip; none of these were yet in flower.

December camp: Arthur's Pass. Day 1, Carroll Hut Track and Dobson Nature Walk
The track from Kelly's Creek to Carroll Hut held a diversity of flora. At the start there were forest species similar to those around Nelson such as miro, *Cyathea smithii, Dicksonia squarrosa,* horopito*, C. foetidissima, C. rotundifolia, Neomyrtus pedunculata*, together with a good selection of ferns including *Blechnum fluviatile, Microsorum pustulatum* and *Leptopteris hymenophylloides.* Further up the track, plants less well known to the group appeared. *Archeria traversii* was in flower but surprisingly its flowers were of a yellow-green hue. Southern rata; not in flower, was admired for its textured bark, and members compared *Pseudopanax linearis* with juvenile *P. crassifolius*. *Libertia* aff. *peregrinans* gave itself away with its spreading habit. Mature *Dracophyllum traversii* appeared higher up still, with *Libocedrus bidwillii* (hosting *Hymenophyllum malingii*). At Carroll Hut, in the alpine zone, were early-flowering plants, including drifts of *Ranunculus lyallii* and abundant *Ourisia macrocarpa*. Meanwhile, other members walked the Dobson Nature Walk passing through beech forest, subalpine scrub and wetland and the start of alpine vegetation. *Pseudopanax linearis* was very common as was *Raukaua simplex*. One plant of *Aciphylla crenulata* was found in the forest, where we also saw *Viola filicaulis*. Three *Ourisia* species (*O. lactea, O. macrocarpa* and *O. caespitosa*) were seen and many orchids: *Aporostylis bifolia* in the forest, and *Pterostylis oliveri*, *Stegostyla lyallii* and *Waireia stenopetala* in scrub on the track margins. We found several *Celmisia* species not seen around Nelson: *C. lyallii*, *C. armstrongii*, *C. semicordata, C. walkeri, C. verbascifolia* and *C. vespertina*. The most stunning daisies were the snow marguerites, *Dolichoglottis scorzoneroides* and *D. scorzoneroides x D. lyallii,* both in perfect bloom (white flowers and cream flowers, respectively). Wetland areas held *Donatia novae-zelandiae, Celmisia alpina* and *Drosera arcturi,* all in flower.

December camp: Day 2, Mt Cheeseman
Leaving the cars at the Middle Carpark, members botanised the skifield road as we climbed amidst cloud. Camouflaged in the shingle were *Stellaria roughii*, *Lignocarpa carnosula* and *Notothlaspi rosulatum*, the last given away by its ring of creamy flowers. Also on the scree were: *Senecio glaucophyllus* subsp. *discoide*us; *Myosotis "australis* white*"*; *Anisotome filifolia*; and *Hebe epacridea*. Closer to the outbuildings, we found a group of flowering *Leptinella atrata*. The scree slopes also had *Leonohebe tetrasticha* and *Hebe pinguifolia* (both in flower). In an area of tussock were the somewhat similar *Aciphylla aurea*, false Spaniard (*Celmisia lyallii*) and *C. armstrongii.* A rocky outcrop hosted other treasures: *Lobelia macrodon,* scree grass *Poa buchananii, Leucogenes grandiceps* and *Phyllachne colensoi* (in flower). There were two other species of *Leptinella*, both in flower: *L. pyrethrifolia* and *L. pectinata*. Seeps and boggy areas held a raft of other alpines, including three buttercups (*Ranunculus enysii, R. multiscapus* and *R. gracilipes*)*; Chionohebe pulvinaris*; *Ourisia caespitosa; Montia sessiliflora*; and *Schizeilema hydrocotyloides*. After returning to the cars, we headed to Dry Stream, to find the scree pea *Montigena novae-zealandiae* in flower. Also there were *Myosotis "australis* yellow", the native chickweed *Stellaria gracilenta* and *Helichrysum intermedium*, all in flower. *H. depressum*, was also present, looking like a piece of old dead gorse. Closer examination

revealed the plants were quite alive.

January Field trip: Mt Arthur

Along the track to Mt Arthur hut were, among others, *Brachyglottis rotundifolia* almost in flower, *Hebe albicans* with its attractive grey/green foliage, *Raukaua simplex* and *Huperzia varia* and *H. australiana*, the latter being half orange; a patch of *Simpliglottis cornuta, Bulbinella hookeri,* several different *Celmisia* and *Myosotis forsteri*, all in flower. After lunching at the hut, we continued upwards to some real treasures – *Colobanthus canaliculatus, Montia drucei* (critically endangered) and *Pachycladon latisiliqua*. Unfortunately deteriorating weather turned us back at this point.

Anniversary Weekend camp, Sedgemere, Molesworth Station: Day 1, Wairau Tributary 7

Leaving the vehicles at Island Gully Hut, we crossed the Wairau River, and headed towards Tributary 7. The wide riverbed was home to many low-profile plants, such as four *Raoulia* species, *Geranium brevicaule* and *Epilobium microphyllum*, with its attractive black and white seed capsules. Off the riverbed were tussocks and woody plants like *Coprosma atropurpurea* and *C. cheesemanii*; *Pimelea oreophila* subsp. *hetera*; *Dracophyllum rosmarinifolium*, *D. pronum*, and hybrids; five hebes (e.g. *Hebe anomala*, *H. brachysiphon*, *H. rakaiensis*); and *Melicytus "*Blondin*"*. Wet or moist patches hosted *Hydrocotyle* "*montana*"; *Celmisia* "rhizomatous"; *Uncinia rubra*; *Ranunculus gracilipes*; *Leptinella "mediana"*; *Senecio wairauensis*; and *Cystopteris tasmanica*. Of the many species seen in drier places, *Schizeilema pallidum* was one of the day's special plants. We also saw *Leucopogon fraseri*, *L. nanum*, *Pimelea traversii, Anisotome filifolia* and one specimen of *Aciphylla subflabellata.* Rock walls were home to *Hebe decumbens*, *Helichrysum intermedium*, *H*. *parvifolium*, *Acaena glabra, Stellaria gracilenta, Myosotis "australis* white*"* and *Gingidia montana*. We passed through patches of *Podocarpus nivalis*, *Phyllocladus alpinus*, *Aristotelia fruticosa* and *Brachyglottis cassinioides* to reach a large scree slope and fellfield. There we were treated to *Lobelia roughii* in flower, *Lignocarpa carnosula* in seed and suffering from a rust, *Stellaria roughii*, *Epilobium crassum*, *E. pycnostachyum* also in flower, *Coriaria plumosa* and *Olearia cymbifolia*. Those who ventured higher saw *Hebe epacridea*, *Pseudognaphalium* "mountain", *Gingidia decipiens* and a second highlight of the day, *Gingidia trifoliolata*. In all, three whipcords were encountered: *Hebe lycopodioides*, and two threatened/at risk species, *H. salicornioides* and *Leonohebe tumida*.

Sedgemere camp: Day 2, An ephemeral tarn and Rag and Famish Stream

The ephemeral tarn has been monitored and conserved by DoC for some years now. This non-peaty tarn is home to seven threatened plants. Control of *Carex ovalis* has allowed the recovery of native plants, with up to 15 species in some metre-square plots. Among the threatened plants were: *Craspedia* "tarn"; *Chaerophyllum "delicatulum"* and *Pseudognaphalium ephemerum*. Other plants included *Plantago triandra*; *Agrostis muscosa*; *Microseris scapigera*; *Euchiton traversii*; the beautiful blue-flowered *Lobelia ionantha*; and *Ophioglossum coriaceum. Coprosma atropurpurea* was covered in red berries here. Next stop was the sheltered valley of Rag and Famish Stream. On the first rocky bank we found *Stellaria gracilenta, Parahebe decora* and three *Celmisia* species growing together (*C. monroi, C. spectabilis* and *C. gracilenta*). Several plants of *Pachycladon fastigiatum* and *Cardamine bilobata* were later seen plus many *Anisotome filifolia* and some juvenile *Pittosporum divaricatum.* Eventually a young *P. patulum* was spotted. At a waterfall further up the valley was *Clematis marata* (in seed) draped over a hebe.

Sedgemere camp: Day 3, Island Saddle

The saddle (c. 1300 m a.s.l.) is renown for its scree plants. Careful sidling, single-file, across the scree took us past *Lobelia roughii*, *Epilobium pycnostachyum* and *Stellaria roughii* (all in flower); a couple of specimens of *Notothlaspi rosulatum*; *Lignocarpa carnosula* (fruiting); *Myosotis traversii* var. *traversii*; *Leptinella dendyi*; and *Wahlenbergia cartilaginea* (some in flower). The list of scree plants was rounded off by *Hebe epacridea, Poa buchananii* and some young *Haastia sinclairii* var. *sinclairii.* On solid rock, among the commoner plants, were *Gingidia decipiens*, *Pimelea sericeovillosa, Anisotome imbricata* var. *prostrata, Hebe pinguifolia,* and *Colobanthus acicularis.* A small group headed up to the ridge of the Crimea Range and encountered *Raoulia bryoides*, *R. parkii, Chionohebe pulvinaris*, *Haastia pulvinaris* var*. pulvinaris, Celmisia laricifolia, C. monroi, C. viscosa, Helichrysum parvifolium*, *Brachyglottis cassinioides, Scleranthus uniflorus, Anisotome filifolia, Aciphylla monroi, Lobelia macrodon, Phyllachne colensoi, Astelia nervosa, A. petriei, Hebe lycopodioides* and *Gentianella bellidifolia*. There were also carpets of *Celmisia alpina* in flower, *Drosera arcturi*, *Oreobolus pectinatus* and *Hebe macrantha* var*. brachyphylla.*

FUTURE EVENTS

18 March	Brook Waimarama Sanctuary. Leader: Sue Hallas (03) 545 0294.
5–9 April	Easter Camp Seddonville, north of Westport. Leader: Diana Pittham (03) 545 1985.
15 April	Split Apple Rock Beach, Abel Tasman Coast. Leader: Cathy Jones (03) 546 9499.
16 April	AGM, dinner and John Dawson speaking on the strange evolutionary connections of New Zealand's native trees and how they are related to the New Caledonian flora.
20 May	Fungal foray in Pelorus Scenic Reserve. Leader: Rebecca Bowater (03) 545 1260.
21 May:	Evening meeting. Helen Lindsay speaking on Restoration planting and weed control of Tiritiri Matangi.

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Treasurer: Trevor Lewis (03) 547 2812. 71 Kingsford Drive, Stoke, Nelson.
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- **Canterbury Botanical Society**

February Field Trip: Arthur's Pass

Waitangi weekend saw seven keen botanists and three partners explore Temple Basin, Otira Valley and the Dobson Walk. Highlights of the trip were identifying the 14 *Celmisia* species, spotting the yellow-flowered *Euphrasia cockayneana,* catching the last flowering of *Ranunculus lyallii* and untangling the *Olearia* from the *Brachyglottis* species. Good discoveries were also made of the red-spotted yellow-beaked orchid, *Waireia stenopetala* (meaning narrow petals), the wetland *Drosera arcturi* and *D. spathulata* and the ubiquitous bright red berries of *Coprosma pseudociliata.* For those who braved the heights of the scree slopes, *Haastii sinclairii,* several *Epilobium* and many *Hebe* species displayed their flowers, particularly *Hebe lycopodioides.* With, Arthur's Pass, such a botanically interesting area with diverse habitats such as wetlands, beech forest, shrubland, west coast forest, tussock grasslands and alpine herbfields, it would be good to explore the area further, so watch out for more trips in the coming year.

Summer Camp: Catlins

Seventeen members attended our 2012 summer camp, most of us staying at the Lenz Reserve (Forest & Bird) Camp and a few commuting from nearby accommodation. We were joined on the first evening by local eco-guide Fergus Sutherland who provided us with a very useful overview of the Catlins' history, geology and ecology. Southland DoC botanist Brian Rance also joined us for three days, and we were lucky to be able to team up with other knowledgeable locals from time to time. Visits were made to numerous sites, many within just a few minutes travel. These ranged from original forest to cut-over forest, coastal shrublands, turfs and dunes, wetlands, frost-hollow shrublands and tussock-grasslands. Despite being in the midst of a drought we saw numerous filmy ferns almost wherever we went, several beginning to crumple in the dry conditions. Scarlet mistletoe (in full flower) and the excellent conservation work being done by local DoC staff, plus a wonderful glimpse of nesting yellowheads made for a stunning day in the upper Catlins River catchment. The rare *Pittosporum obcordatum* was seen (twice), and several other species unfamiliar to Canterbury botanists were encountered. Several orchids were found, many in flower. On the final day we travelled further afield to Curio Bay where we saw coastal turfs and yellow-eyed penguins, and to the Waituna Wetlands where we were rewarded with a range of wetland and coastal species. A full report on the camp will be included in the next Botanical Society Journal.

FUTURE EVENTS

13 April	Palynology (pollen study) – Janet Wilmshurst.
14 April	Field Trip: Mt Grey Picnic area.
4 May	Talk: Hawaiian flora – Melissa Hutchison.
12 May	Field Trip: Judy Bugo's native plant area - Banks Peninsula.
9 June	AGM. – Talk: Marion Winter – Galapagos visit.
6 July	Talk: Jan Chaffey – China.
14 July	Field Trip: University of Canterbury Campus plantings – Colin Burrows / or Curator

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Secretary: Jason Butt (03) 355 8869 PO Box 8212, Riccarton, Christchurch 8440

- **Other Botanical Society Contacts**

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President: Jackson Efford jte3@waikato.ac.nz **General contact:** bot_soc@waikato.ac.nz
Secretary: Andrea Brandon abrandon@doc.govt.nz
Our newsletters are available on http://cber.bio.waikato.ac.nz/Waibotsoc/WaikatoBotSoc.html

Wanganui Museum Botanical Group
President: Clive Higgie (06) 342 7857 clive.nicki@xtra.co.nz
Secretary: Robyn Ogle (06) 3478547 22 Forres St, Wanganui. robcol.ogle@xtra.co.nz

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

Wakatipu Botanical Group
Chairman: Neill Simpson (03) 442 2035
Secretary: Lyn Clendon (03) 442 3153

Botanical Society of Otago
Chairman: David Lyttle djlyttle@ihug.co.nz http://www.botany.otago.ac.nz/bso/
Secretary: Allison Knight, P O Box 6214, Dunedin North.

ANNOUNCEMENTS

- **Call for Nominations for Allan Mere Award 2012**

Nominations meeting the following conditions are invited for the award of the Allan Mere for 2012.
Conditions of the Allan Mere Award

1. The Award shall be made annually to a person or persons who have made outstanding contributions to botany in New Zealand, either in a professional or amateur capacity.
2. The Award shall be administered by the New Zealand Botanical Society.
3. Nominations for the Award may be made by regional Botanical Societies, or by individuals, to the Secretary of the New Zealand Botanical Society. Nominations shall close on 30th June each year. Nominations shall be signed by nominator and seconder, and accompanied by two copies of supporting information that must not exceed one A4 page.
4. Selection of the successful nominee/nominees shall be made by the Committee of the New Zealand Botanical Society, normally within three months of the closing date for nominations.
5. If, in the opinion of the Committee, no suitable nomination is received in any particular year, the Committee may refrain from making an award.
6. The Mere shall be formally presented to the recipient on an appropriate occasion by the President of the New Zealand Botanical Society or his/her nominee, but otherwise shall remain in the custody of, and be displayed by, the Herbarium Keeper of the Allan Herbarium (CHR) at Landcare Research, Lincoln, together with the book recording awards.
7. The recipient shall receive an appropriately inscribed certificate.

Nominations should be forwarded by 30 June 2012 to:

Ewen Cameron, Secretary, New Zealand Botanical Society, c/o Canterbury Museum, Rolleston Avenue, Christchurch 8013.

- **Call for suggestions for Loder Cup nomination 2012**

The NZBS is one of the named groups able to nominate people for the Loder Cup – New Zealand's premier conservation award.

On Gerald Loder's first visit to New Zealand in 1886 he was introduced to this country's unique and distinctive flora. He was captivated and became an enthusiastic collector. Over a period of time he developed an outstanding selection of New Zealand and Southern Hemisphere plants on his estate in Surrey, England.

In 1926, he donated a cup to encourage and honour New Zealanders who work to investigate, promote, retain and cherish New Zealand's indigenous flora. Gerald Loder became Lord Wakehurst in 1934. He remained passionately involved with what he called our "incomparable flora" until his death in 1936.

The Loder Cup is entrusted to the Minister of Conservation who appoints the Loder Cup Committee and awards the Cup. The Department of Conservation handles the administration of the award and any other matters.

The Cup is awarded annually to the person, group of people, or organisation which has exceeded all other nominees in furthering the aims and objects of the donor of the Cup.

Suggestions for consideration by the Committee for the Society's nomination should be forwarded to the undersigned by 5 May 2012.
Ewen Cameron, Secretary, New Zealand Botanical Society, c/o Canterbury Museum, Rolleston Avenue, Christchurch 8013

- **New Zealand Threatened Indigenous Vascular Plant Relisting – a call for submissions**

P.J. de Lange, Ecosystems & Species Unit, C/o Auckland Conservancy, Department of Conservation, Private Bag 68908, Newton, Auckland, pdelange@doc.govt.nz

Under the terms and conditions set out by the New Zealand Threat Classification System (see Townsend et al. 2008) the last threat listing of New Zealand Indigenous Vascular Plants (de Lange et al. 2009) is now due for revision. As part of that process the New Zealand Indigenous Vascular Plant Panel will be convening sometime in late April or early May 2012 on the Lincoln campus of Landcare Research to undertake this task. Accordingly the panel now seeks contributions from the botanical community to assist with this process. The role of the wider botanical community in threat listing is important. To that end the panel members encourage those of you who have an interest in the threat status of our vascular flora to prepare submissions. Rod Hitchmough has an electronic form to assist with this process and so should be contacted for those of you wishing to make submissions in that manner. However handwritten or emailed submissions are also acceptable.

Other than sending submissions to Rod Hitchmough, submissions may also be sent to the panel members, or the chair. Submissions may include support for existing threat listings, suggested changes to these or proposals for new taxa that may not yet have been listed by the panel. Submissions for informally recognised plant entities may also be provided. This is on the understanding that any such entity proposed is supported by an accessible herbarium voucher specimen lodged within an officially recognised herbarium (see Holmgren et al 1990) which for New Zealand includes the following herbaria (AK, CANU, CHR, LINC, MPN , NZFRI, OTA, WAIK, WELT).

We strongly encourage botanists to be part of this process.

Submissions will NOT be accepted after 10 April 2012.

The 2012 New Zealand Indigenous Vascular Plant Panel

Chair: Peter J. de Lange (pdelange@doc.govt.nz or pj.delange@xtra.co.nz)

Facilitator: Rod Hitchmough (rhitchmough@doc.govt.nz)

Panel (North to South)

Ewen Cameron – Auckland Museum Herbarium (ecameron@aucklandmuseum.com)

Jeremy Rolfe – Wellington / Hawke's Bay Conservancy, Department of Conservation (jrrolfe@actrix.co.nz)
Shannel Courtney – Nelson / Marlborough Conservancy, Department of Conservation (scourtney@doc.govt.nz)
David Norton – School of Forestry, University of Canterbury (David.norton@canterbury.ac.nz)
Peter Heenan – Allan Herbarium, Landcare Research (heenanp@landcareresearch.co.nz)
John Barkla – Otago Conservancy, Department of Conservation (jbarkla@doc.govt.nz)

References

de Lange, P.J.; Norton DA, Courtney SP, Heenan PB, Barkla JW, Cameron EK, Hitchmough R, Townsend AJ 2009. Threatened and uncommon plants of New Zealand (1998 revision). New Zealand Journal of Botany 47: 61–96.

Holmgren, P.K.; Holmgren, N.L.; Barnett, L.C. 1990: Index Herbariorum Part I: The herbaria of the world (eight edition). Regnum Vegetabile, New York Botanical Gardens, New York.

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.

NOTES AND REPORTS

- **Abbreviated annual report of Te Papa's herbarium, WELT, 2010/2011**

Leon Perrie; Te Papa, PO Box 467, Wellington 6011; leonp@tepapa.govt.nz; 04 381 7261.

Staff
Permanent: Jennifer Dalen (Collection Manager), Antony Kusabs (Collection Manager), Carlos Lehnebach (Curator), Leon Perrie (Curator), with part-time technical support from Kent Chamberlain (Natural Environment Technician) and Matthew Chaplin (Natural Environment Technician).
Contract: Patrick Brownsey (Research Fellow), Helen Mechen (Botany Technician), Heidi Meudt (Research Scientist).
Research Associates: Peter Beveridge (bryophytes), Wendy Nelson (NIWA, marine algae), Barbara Polly (lichens), Barry Sneddon (flowering plants).
Volunteers: Lydia Chin (mounting).

Support
Additional responsibilities: including Threatened Bryophyte committee (Pat), NZ Virtual Herbarium governance group (Pat), NZ Organisms Register (Pat, Leon), postgraduate supervision (Heidi, Carlos, Leon), editorial capacity (Pat – *Tuhinga*, Leon – *Australian Systematic Botany* and *Wellington Botanical Society Bulletin*).
Exhibitions: Botanical contributions to *Oceania: Early Encounters* (Banks & Solander specimens) and *Tai timu, tai pari, Tainui: Journey of a people* (King Tawhiao's ferns).
Enquiries: 226 (120 professional, 74 public, 32 internal).
Tours: 14, comprising 66 people.
Visitors: 192, from 68 visits.
Collections Online: notable additions are pages about Te Papa's botanical collections (including highlights), research, and collectors (see **http://collections.tepapa.govt.nz/Theme.aspx?irn=2003**); addition of c. 300 algae type specimen images; pages about plants in Te Papa's Bush City exhibition.
Te Papa Blog: 24 posts, see **http://blog.tepapa.govt.nz/category/plants/**

Collection Management
Loans: Outgoing – 14 sent (470 specimens, 7 institutions), 23 returned (1094, 11); Incoming – 15 received (455, 7), 8 returned (126, 3).
Activity with New Zealand herbaria, AK, CHR, NZFRI and PDD, and overseas institutions BISH, BRI, GB, HO, L, HO, MELU, NSW, NY.
The recall of overdue loans has resulted in a notable increase in the number of Outgoing Loans returned to WELT.

New accessions of specimens: 650 Te Papa field collections (Bryophyte Workshop 277, Landcare subcontract research 164, Mana Island Bioblitz 110, *Pseudopanax* 99); 181 incoming exchanges (mainly CHR 67, AK 49), 2123 donations/gifts (including NIWA 1228, Leon Perrie 206, Joe Buchanan 180, Mike Thorsen 154, Peter Beveridge 66, Barbara Mitcalfe 50).
Collection and database summary: total specimens c. 260 000; total registered 206 007; total databased 148 683 (all indigenous lichens, bryophytes, ferns, and gymnosperms, and c. 50% angiosperms).

11602 new records were added to the database in 2010/2011 (includes backlog and new registrations) – 2536 algae, 261 liverworts, 22 lichens, 293 mosses, 649 ferns, 7841 seed plants.
The families with the largest addition of databased records (largely reflecting backlog databasing): Orchidaceae (2927), Nothofagaceae (1284), Boraginaceae (832), Primulaceae (770), Pittosporaceae (391), Violaceae (381), Scrophulariaceae (328), Asteraceae (326), Gigartinaceae (314), and Halymeniaceae (303).
Majority of databased specimens viewable on New Zealand Virtual Herbarium (http://www.virtualherbarium.org.nz) [does not include the most recent additions].

Scientific Research
Programmes: systematics of marine algae (Jenn), New Zealand and Pacific ferns (Pat and Leon), *Plantago* (Heidi), *Myosotis* (Heidi and Carlos), *Nematoceras* (Carlos), and *Pseudopanax* (Leon).
Publications: 11 peer-reviewed (http://collections.tepapa.govt.nz/theme.aspx?irn=2309), 4 popular, 6 conference and community presentations.

- **Request for *Usnea***

Dr Hannah Buckley is requesting samples of old man's beard lichens (*Usnea*) for a research project being undertaken by her PhD student. To send Hannah *Usnea* specimens, collect each one into folded paper or a paper bag labelled with the collection locality and substrate from which they were collected.

Send to:
Dr Hannah Buckley
Department of Ecology, Burns 523
PO Box 84, Lincoln University
Lincoln 7647, Christchurch

- ***Pimelea* news**

Colin Burrows, Biology School, University of Canterbury, Private Bag 4800, Christchurch 8140

Five papers covering the revised taxonomy and aspects of general biology of 35 species and 18 subspecies of the genus *Pimelea* (Thymelaeaceae) in New Zealand (all endemic) have now been published (see the reference list). I shall refer to these papers occasionally here as *Pimelea* 1, 2, 3, 4 or 5. My main intention is to summarise some salient results of the revision in ways that could be helpful to other botanists. Of course the papers must be read to follow the reasoning on taxonomic decisions and for much ancillary information.

The genus in New Zealand presented many challenges and proved to be more complex than I had anticipated in 2006 when I took on the revision project. At that time 19 species were generally recognised – 15 covered by Allan (1961), two published by me in 1962 (*P. oreophila* and *P. pulvinaris*) and two older names revived by Parsons et al. (1998) (*P. microphylla* Colenso and *P. urvilleana* A. Rich.). The New Zealand herbaria had substantial additions of *Pimelea* material since 1961, with extensive collecting for CHR by A.P. Druce, especially in North Island and northern South Island locations. Other botanists had built up the collections at AK, OTA and CHR and I had done so at CANU. Druce (1993) had used tag names for some undetermined entities and had given opinions about the identity of a few existing taxa but none of these were taken up formally.

The first list (Table 1 below) is an alphabetical ordering of all the taxa now recognised at specific and subspecific rank. This also includes authorship, the year of first publication and the typification, referring to the repository for the chief reference specimen of each taxon.

The second list (Table 2) is in the numerical order that I have followed in publications (*Pimelea* 1 in 2008; 2, 3 in 2009; 4, 5 in 2011) as groups of species were revised. As far as possible this listing adheres to the chronology of publication of the various taxa but diverges where newer taxa are inserted into the informal groups that I recognise (see *Pimelea* 5, in particular, for a full list which notes the distinguishing criteria for taxa in these informal groups).

Many new names in the revision are of Greek origin (Table 2). Apt descriptive Latin words were often unavailable and the Greek language is well endowed with them. Also many Greek adjectives are brief – a desirable feature for plant names. I have treated some names that had been used in the 18th, 19th and 20th centuries for New Zealand *Pimelea* taxa at species rank as synonyms, errors, or extraneous. This applies, especially, to names (many coined by W. Colenso) appearing in the footnotes in Allan 1961 (pp. 290-298). In *Pimelea* 1 I contended that *P. crosby-smithiana* Petrie is merely a reduced form of the variable *P. gnidia*. In *Pimelea* 3 I made the only name change in this revision consequent on priority of publication of another name – *P. arenaria* A. Cunn. is replaced by *P. villosa* Sol. ex Sm., but *arenaria* is retained as the name for a distinctive subspecies.

In *Pimelea* 5 I reduced *P. pulvinaris* C.J. Burrows to being a subspecies of *P. sericeovillosa* Hook. f. I have used the subspecific rank in preference to variety for the definition of variants with distinct regional expression. In New Zealand Botanical Society Newsletter 98, Dec. 2009 (p. 13-14) I showed that *P. haastii* Kirk is not a member of the New Zealand flora. The specimens used to define it actually belong to *P. drupacea* Labill., a mainly Tasmanian species.

In *Pimelea* 5 I briefly addressed the relationships of New Zealand and Australian *Pimelea* floras. The character states expressed among New Zealand taxa generally occur in Australian taxa. However, in the genus in Australia are species with well-marked character states absent in New Zealand or only weakly expressed here. These latter include circumscissile flower tubes and brightly coloured flowers. Gynodioecy is the commonest breeding system in New Zealand but it is less common in Australia where there are many dioecious species.

There is pollen evidence (Mildenhall 1980) for late Tertiary migration of *Pimelea* from Australia to New Zealand. This may have occurred several times, judged by the segregation of characters exhibited by New Zealand species. *Pimelea* in New Zealand (35 species) is actually more richly speciated than Australian *Pimelea* (about 100 species) in terms of the areas of the respective land masses. Presumably this is because of the ample evolutionary opportunities in New Zealand during the late Tertiary – Quaternary.

In *Pimelea* 1, 2, 3, 4 and 5 many cases of interspecific hybridisation are recorded. Numerous instances of hybrid swarms between certain pairs of species are recognised. Some trihybrid crosses are known. A few instances of deep-seated introgressive processes can be discerned. Also there is evidence for late Quaternary origins of some entities, recognised in *Pimelea* 4 as "stable hybrids", as a result of homoploid crosses between species that still exist. This is the most remarkable aspect of New Zealand *Pimelea* evolution that I know. The hypotheses relating to such processes need to be tested by molecular means.

Rampant hybridism in the New Zealand *Pimelea* flora contrasts with its absence in the Australian flora (Barbara Rye pers. comm. 2010). In Australia, presumably the species evolved sufficiently long ago to have developed strong interbreeding barriers.

It seems a far cry from 1956 when I began my first ever research project on variation among four species of *Pimelea* that grew near the University of Canterbury mountain field station at Cass, in the Waimakariri catchment. Some *Pimelea* lessons learnt then were useful during the recent work, as were the results of a small study done on the species now described as *P. actea,* in 2001.

Table 1: Alphabetical list of New Zealand *Pimelea* species

P. acra	C.J. Burrows & de Lange, 2009	Holotype AK284501
P. actea	C.J. Burrows, 2008	Holotype AK216124
P. aridula	Cheeseman, 1925	Lectotype AK101181

subsp. *oliga*	C.J. Burrows, 2011	Holotype CHR179324
P. barbata	C.J. Burrows, 2011	Holotype CHR209763
subsp. *omoia*	C.J. Burrows, 2011	Holotype CHR260138
P. buxifolia	Hook. f. 1864	Lectotype K356691
P. carnosa	C.J. Burrows, 2009	Holotype CANU18020
P. concinna	Allan, 1961	Holotype CHR72444
P. cryptica	C.J. Burrows & Enright, 2011	Holotype CANU38800
P. declivis	C.J. Burrows, 2011	Holotype CANU18180
P. dura	C.J. Burrows, 2011	Holotype CANU38900
P. eremitica	C.J. Burrows, 2009	Holotype AK189577
P. gnidia	(J.R. Forst & G. Forst) Willd., 1797	Lectotype BM829816
P. hirta	C.J. Burrows, 2011	Holotype CHR131903
P. ignota	C.J. Burrows & Courtney, 2009	Holotype CHR358213
P. longifolia	Sol. ex Wikstr., 1818	Lectotype S-G4889
P. lyallii	Hook. f. 1854	Lectotype K356679
P. mesoa	C.J. Burrows, 2011	Holotype CHR129174
subsp. *macra*	C.J. Burrows, 2011	Holotype CHR469397
P. microphylla	Colenso, 1890	Lectotype K356706
P. mimosa	C.J. Burrows, 2011	Holotype CANU38807
P. nitens	C.J. Burrows & Courtney, 2011	Holotype CHR387691
subsp. *aspera*	C.J. Burrows & Courtney, 2011	Holotype CHR387414
P. notia	C.J. Burrows & Thorsen, 2011	Holotype OTA60767
P. oreophila	C.J. Burrows, 1962	Holotype CANU1000
subspp. *ephaistica*	C.J. Burrows, 2011	Holotype CHR159950
hetera	C.J. Burrows, 2011	Holotype CHR393710
lepta	C.J. Burrows, 2011	Holotype OTA41293
P. orthia	C.J. Burrows & Thorsen, 2009	Holotype AK5407
subsp. *protea*	C.J. Burrows & Thorsen, 2009	Holotype CANU38899
P. poppelwellii	Petrie, 1917	Lectotype WELTSPO4422
P. prostrata	(J.R. Forst & G. Forst) Willd., 1797	Lectotype BM829829
subspp. *seismica*	C.J. Burrows, 2009	Holotype CANU38853
thermalis	C.J. Burrows, 2009	Holotype CHR109845
ventosa	C.J. Burrows, 2009	Holotype CHR90403
vulcanica	C.J. Burrows, 2009	Holotype CANU38891
P. pseudolyallii	Allan, 1961	Holotype CHR72451
P. sericeovillosa	Hook. f. 1864	Lectotype K356676
subspp. *alta*	C.J. Burrows, 2011	Holotype CANU39020
pulvinaris	(C.J. Burrows) C.J. Burrows, 2011	Holotype CANU1002
P. sporadica	C.J. Burrows, 2009	Holotype CHR326183
P. suteri	Kirk, 1894	Neotype WELTSPO4421
P. telura	C.J. Burrows, 2008	Holotype AK182959
P. tomentosa	(J.R. Forst & G. Forst) Druce, 1917	Lectotype BM829813
P. traversii	Hook. f. 1864	Lectotype K356711
subspp. *borea*	C.J. Burrows, 2008	Holotype CANU6618
exedra	C.J. Burrows, 2008	Holotype CHR515528
P. urvilleana	A. Rich., 1832	Lectotype P579150
subsp. *nesica*	C.J. Burrows, 2009	Holotype CHR22203
P. villosa	Sol. ex Sm., 1819	Lectotype LINN40.8
subsp. *arenaria*	(A. Cunn.) C.J. Burrows, 2009	Lectotype WELTSPO79522
P. xenica	C.J. Burrows, 2009	Holotype CHR130616

Table 2: Numbered list of New Zealand species (as in *Pimelea* 1, 2, 3, 4, 5) and associated information[*†]

			Meaning of Name	Growth, Habit, Height	Habitat	Conservation
1.	*P. longifolia*	L	longifolius – long-leaved	erect, to 2 m	open forest, forest margin, scrub, rock	severe decline loss from crossing with

					(Ca)	*P. gnidia*
2.	*P. gnidia*	G	like *Gnidia*, a genus in Thymelaeaceae	erect, suberect, to 1.5 m	forest margin, scrub, tall grassl.	severe decline N. Is. crossing with *P. long.*, secure Fiordl.
3.	*P. buxifolia*	L	with leaves like *Buxus* a genus in Buxaceae	erect, suberect, to 80 cm	scrub, tall grassl.	secure on C.N. Is. volcanoes, severe loss elsewhere
4.	*P. traversii*		after Travers, a N.S. Is. botanist	erect, suberect, to 80 cm	rock, stony sites, grassl., scrub	decline but numerous, S. Alps
	b. subspp. *borea*	G	Boreas – northern (location)	erect, to 80 cm	rock (Ca)	decline[×]
	c. *exedra*[†]	G	exedros-strange, extraordinary	prone, to 15-20 cm	rock (Ult.)	known from 1 locality[×]
5.	*P. poppelwellii*		after Poppelwell, a S.S. Is. botanist	erect, to 80 cm	tall grassl., rock, shrubl.	sparse, decline[×]
6.	*P. prostrata*	L	prostratus – grows appressed to ground	prostrate	coastal, inland gravel, sand, rock, wetland	declining, but locally abundant
	b. subspp. *seismica*	G	seismos – earthquake (location)	prostrate	near coastal grassl., dunes, banks, scrub	declining, locally common
	c. *vulcanica*	L	Vulcan, god of fire (location, habitat)	prostrate	C.N. Is. volcanic deposits, grassl. scrub	declining, locally common
	d. *thermalis*	G	thermai – hot springs (location, habitat)	prostrate, pendent on banks	gumland, dunes, grassl., scrub	severe rapid decline
	e. *ventosa*	L	ventus – windy (location, habitat)	prostrate	coastal rock, cliffs, dunes	slow decline, loss through introgression
7.	*P. orthia*[†]	G	orthos – straight stem habit	erect, to 80 cm	grassl., manuka scrub	severe rapid decline
	b. subsp. *protea*[†]	G	Proteus – shape changer	suberect to erect, to 90 cm	dunes	scarce, serious risk
8.	*P. xenica*	G	xenos – strange, foreign (lack of recognition)	upright, to 30 cm, but sprawling	low heathlands, manuka, sedges, landslips	decline[×]
9.	*P. urvilleana*[†]		after Dumont D'Urville, French navigator, scientist	prostrate	coastal rock, cliffs	very sparse, severe decline, near extinction
	b. subsp. *nesica*	G	nesos – islands (location, habitat)	prostrate, decumbent	coastal rock, cliffs, slopes	moderately common[×]
10.	*P. actea*[†]	G	acte – coast	erect, to 50	semi-stable	very scarce,

			(location, habitat)	cm	dune slacks	severe decline, near extinction
11.	*P. telura*	G	telouros – remote (location)	erect, suberect, to 1 m	open scrub on rock, scree, soil	common, secure
12.	*P. carnosa*	L	carnosus – fleshy leaves	prostrate, pendent on banks	coastal cliffs, dunes, short turf on cliff tops	declining, locally common, loss through introgression
13.	*P. sporadica*†	G	sporadikos – scattered (locations)	erect, to 45 cm	rock (including ult.), low scrub	severe decline
14.	*P. eremitica*	G	eremos – solitary (location)	suberect to erect, to 40 cm	rock, cliffs (Vo) ,short grass, low scrub	only 1 location known
15.	*P. tomentosa*	L	tomentosus – hair-covered abax. leaf surface	erect, to 2 m (usually less)	open forest, forest margins, light scrub	declining but some stable local populations
16.	*P. villosa*	L	villosus – shaggy hair-covered abaxial leaf surface	decumbent, suberect, to erect, to 60 cm	coastal sand dunes, salt marsh	rapid severe decline
	b. subsp. *arenaria*	L	arenarius – in sand (habitat)	prostrate to decumbent, to 30 cm	coastal sand dunes	rapid severe decline
17.	*P. lyallii*		after Lyall, a British surgeon and botanist	prostrate	coastal sand dunes, dune slacks	declining, locally common
18.	*P. microphylla*	G	micros – small, phyllos – leaf	prone, loose cushion, to 6 cm	volcanic ejecta, alluvial deposits	declining but secure on C.N. Is. volcanoes
19.	*P. acra*	G	akra – tip, extremity (location)	suberect to erect, to 45 cm	summits of old volcanic hills	vulnerable – few small populations
20.	*P. ignota*†	L	ignotus – unknown, overlooked (lack of recognition)	erect to sprawling, to 30 cm	low heath scrub	very scarce, 5 specimens seen lately
21.	*P. suteri*		after Suter, a N.S. Is. naturalist	prostrate or decumbent	tall grassl., low scrub (Ult.)	declining but locally common
22.	*P. pseudolyallii*		resembling *P. lyallii*	prostrate, sometimes climbing	tall grassl., low scrub	declining but locally common, loss through introgression
23.	*P. oreophila*	G	orus – mountain, philos – loving (habitat, location)	prostrate	short, tall grassl., open scrub	common, not at risk
	b. subspp. *lepta*	G	leptos – slender (stem and leaf)	prostrate	short, tall grassl.	declining but locally common
	c. *hetera*	G	heteros –	prostrate	short, tall	declining ×

			differing, varied (amounts of hair on leaves)		grassl.	
	d. *ephaistica*	G	Ephaistos, god of fire (location, habitat)	prostrate	tall grassl., low scrub	uncommon[×]
24.	*P. mesoa*	G	meson – middle (location and intermediacy)	suberect to 10 cm	short grassl., river terraces, moraines	declining but moderately common
	b. subsp. *macra*	G	makros – large (long stems)	prostrate	tall grassl., above treeline	declining – only 1 locality
25.	*P. dura*	L	durus – hard (severe habitat)	prone, loose cushion	short grassl., river terraces, moraines	gradual decline, moderately common
26.	*P. notia*	G	notos – south (location)	prostrate	short and tall grassl.	moderately common[×]
27.	*P. declivis*	L	declivis – sloping down steeply (habitat)	suberect to erect, to 50 cm	rock (Ca), adjacent grassl., scrub	severe decline, loss through crossing
28.	*P. cryptica*[†]	G	kryptos – hidden, secret (lack of recognition)	decumbent to suberect, to 25 cm	rock (Si)	very local, severely threatened
29.	*P. nitens*	L	nitens – shining (glistening leaf hair)	suberect, to 25 cm	tall grassl., rock (Ca, Si)	moderately common[×]
	b. subsp. *aspera*	L	asper – rough (appearance of leaf hair)	suberect, to 25 cm	tall grassl., scrub, rock (Ult.)	scarce[×]
30.	*P. hirta*	L	hirtus – hairy (continuous abax. leaf hair)	prostrate to decumbent	tall grassl., scrub, rock (Ca)	moderately scarce[×]
31.	*P. sericeovillosa*	L	sericus – silky, villosus – shaggy leaf hair	prone, loose cushion, to 5 cm	fellfield, short grassl.	declining, moderately common
	b. subspp. *pulvinaris*[†]	L	pulvinus – cushion-like (growth habit)	prone, tight cushion, to 5 cm	short grassl., river terraces, moraines	severe decline, at risk
	c. *alta*[†]	L	altus – high (location)	prone, small loose cushion	fellfield, short grassl.	severe loss through crossing, near extinction
32.	*P. aridula*	L	aridus – very dry (habitat)	erect, to 60 cm	rock (Sc) or rocky hillsides	severe decline, loss through crossing
	b. subsp. *oliga*[†]	G	oligos – few (scarcity of the plant)	erect, to 70 cm	rock (Ca) or rocky hillsides	severe decline, loss through crossing
33.	*P. concinna*	L	concinnus – charming, elegant (appearance)	erect, to 80 cm	short grassl. scrub, rocky hillsides (Si)	declining but locally numerous
34.	*P. barbata*[†]	L	barba – beard (shaggy appearance)	prostrate to decumbent, in patches	rock outcrops (Ca)	scarce, severe decline

	b. subsp. *omoia*	G	omoios – to be like (resembles other species)	prostrate to decumbent, in patches	rock outcrops (Si), short grassl., open scrub	scarce[×]
35.	*P. mimosa*[†]	G	mimos – to imitate (resembles other species)	prostrate to decumbent	rock outcrops (Ca)	very scarce, possibly extinct in wild

* The autonym is a. in lists of subspecies.

† These species are very scarce and severely at risk; some are on the brink of extinction; *P. mimosa* may already be extinct in the wild.

L Latin.

G Greek.

Commonly inhabited rock types: Ca calcareous; Si sandstone; Sc schist; Ult ultramafic, Vo volcanic.

× Conservation situation not well known.

Acknowledgements

A major grant from the Brian Mason Scientific and Technical Trust made possible the publication of the work. Many people helped with the papers (acknowledged in each). I particularly wish to thank: Brian Molloy and Josephine Ward who encouraged me to take on the revision; Elizabeth Edgar who helped with name choices and prepared the diagnoses; Rebecca Wagstaff for her excellent drawings; Marney Brosnan for her clear distribution maps and graphs; Murray Dawson for chromosome counts; Barbara Rye for wise advice; Pieter Pelser and Julie Barcelona for their generous help with the texts of *Pimelea* 4 and 5 and the electronic versions.

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- **Threatened plant garden update**

Liz Overdyck, eg3@waikato.ac.nz

In May a new threatened plant garden was established on the Waikato University grounds in a raised bed at the Science and Engineering main entrance, Gate 9 Hillcrest Road. We would like to thank University Grounds Manager Mark Thompson for working with the Society to achieve the great result that we now have. Some new species were planted at the new site (thank you to Jackson Efford for generously donating some specimens), and some plants were relocated from the old garden in the glasshouses compound. We will retain the glasshouse area at present for some plants we were not able to move, such as the root parasite *Dactylanthus taylorii* (which we hope has established and will be keeping an eye out for flowers this summer now that it has been there for over four years).

The new garden has a good collection of mainly trees and shrubs, with some herbaceous ground plants, and of course the giant cane rush *Sporodanthus ferrugineus*, all listed below. We have also installed durable, colourful signs for six of the species, which include drawings and information on habitat, distribution and threats. The signs were produced by Sonia Frimmel and funded by the Department of Conservation Community Conservation Fund. We hope to produce more signage in the future as funding allows. Thank you to all who have helped to date to produce this showcase garden for Waikato's threatened native plants.

Species	**Threat Status**
Carmichaelia williamsii	Nationally Endangered
Hebe speciosa	Nationally Endangered
Lepidium oleraceum	Nationally Endangered
Melicytus flexuosus	Gradual Decline
Myosotis petiolata var. *pansa*	Nationally Endangered
Olearia pachyphylla	Nationally Endangered
Pimelea villosa	Gradual Decline
Pittosporum cornifolium	Locally Uncommon
Pittosporum ellipticum	Sparse
Pittosporum kirkii	Serious Decline
Pomaderris apetala subsp. maritima	Nationally Critical
Sporodanthus ferrugineus	Range Restricted
Teucridium parvifolium	Gradual Decline

THESES

- **Recent theses from the University of Otago, Department of Botany (2010-2011)**

PhD

Brownstein, Gretchen (2011) Mechanisms for guild-based assembly rules in a lawn community. PhD Dissertation, University of Otago, Dunedin. 185p.

Camara, Amadou (2011) The role of shrubs and rabbit herbivory in the ecological restoration of the drylands of south-central New Zealand. PhD Dissertation, University of Otago, Dunedin. 263p.

Pritchard, Daniel (2011) The ecophysiology of the deep-water macroalga *Anotrichium crinitum* (Kützing) Baldock. PhD Dissertation, University of Otago, Dunedin. 183p.

MSc

Korsten, Annika (2010) Life at the edge: plant resources to extreme alpine environments. MSc (Ecology) Thesis, University of Otago, Dunedin. 107p.

Lawrence, Rebecca (2010) Using artificial food patches to investigate the foraging behaviour of *Rattus rattus* L., and testing for suitable study populations of *Mus musculus* L., in New Zealand. MSc (Ecology) Thesis, University of Otago, Dunedin. 138p.

Döbert, Timm (2010) Fragmentation, edge effects and regeneration of tropical dry dipterocarp forest in Thailand. MSc Thesis, University of Otago, Dunedin. 261p.

Engels, Nikita (2011) Oxidative damage and antioxidant metabolism of *Ulva pertusa* and the associated grazer *Micrelenchus tenebrosus* in response to fluoranthene exposure. MSc Thesis, University of Otago, Dunedin.

BIOGRAPHY / BIBLIOGRAPHY

- **Biographical sketch – Charles-François Lavaud (1798-1878)**

Val Smith, 80 Mill Road, New Plymouth 4310.

Born at Lorient, France, on 25 March 1798, Charles-François Lavaud was the son of a Bordelaise naval officer and his Breton wife. In 1810, when he was twelve years old, he joined the French Navy. Serving on a succession of ships over the following years, he progressed through the ranks to receive his first command, that of the *Philomene,* in 1829. Ten years later, after a brief period in the Ministry of Marine in Paris, he was given command of the corvette *L'Aube* and despatched to New Zealand to support the establishment of a French settlement on the South Island, and the French whalers operating in the area. He was also charged with collecting and sending New Zealand flax (*Phormium tenax*) for experimental planting in Corsica.

Veronica lavaudiana

Although French expeditions had explored the South Pacific over many years, and French whaling fleets had worked New Zealand waters since the late 1830s, France had no colonies in the Pacific. Jean François Langlois, commander of the whaling ship *Cachalot,* embarked upon a grandiose scheme for French settlement at Akaroa, on Banks Peninsula. After a

dubious land purchase from local Maori, he set up the French Nanto-Bordelaise Company, and with the eventual support of the French government, the *Comte de Paris,* under his command, left the port of Rochefort in March 1840 with 60 emigrants on board.

When *L'Aube* sailed into the Bay of Islands on 11 July 1840, Captain Lavaud found that the Treaty of Waitangi had been signed, proclaiming British sovereignty of the whole country. Governor Hobson sent HMS *Britomart* with two magistrates to observe the French activities at Akaroa. Lavaud followed, and the *Comte de Paris* arrived two days later, on 17 August. The French colonists settled in Akaroa without major incident, due largely to Lavaud's calm judgement and diplomacy. His exercise of French law within the French community had Hobson's backing, and his officers and men made a major contribution to engineering, science and the arts in the new settlement. The French navy also provided free health services to all Banks Peninsula residents and visitors. Lady Jane Franklin, on a visit to Akaroa in March 1841, declared Captain Lavaud to be the most frank, honest-hearted Frenchman she had ever met!

In 1843, after four years and two months as King's Commissioner, Lavaud left New Zealand in *L'Allier*. For his tactful handling of the difficult situation at Akaroa he was made an officer of the Legion of Honour. He governed the French Pacific colony of Tahiti from 1846 until 1850, and two years after his return to France was appointed naval prefect of the port of Lorient. In June 1853 he was promoted to the rank of rear admiral, and in 1860 he served on the Admiralty Council. He retired in March 1861 and died at Brest on 14 March 1878, one of the most highly regarded of French naval officers.

Heliohebe lavaudiana was discovered and described by Etienne Raoul, naval surgeon and botanist on *L'Aube* and her replacement in 1842, *L'Allier.* During excursions to the Bay of Islands and the long stay at Banks Peninsula, Raoul collected extensively. He wrote, "I have dedicated this pretty species to Monsieur Lavaud, captain of the vessel, as a token of recognition for all the facilities and friendly support which he has kindly consented to accord me in my scientific searches in New Zealand." Descendants of the original French settlers live in New Zealand today, and Rue Lavaud is one of several Akaroa streets with a French name.

Veronica lavaudiana **Plantaginaceae**
Heliohebe lavaudiana

Veronica lavaudiana is a small shrub, seldom more than 20 cm tall, which occurs only on Banks Peninsula where it is usually found on the shady side of bluffs and rock outcrops or in rock crevices where its roots are kept shady and cool – free-draining locations with good air movement. Its small, rounded, dull green leaves are serrated and edged in red. Compact clusters of 50 to 100 flowers appear in October and November, the pink buds intermingling with the open flowers that become white after pollination. Lavaud's hebe, sometimes also known as the Akaroa sun hebe, is now found only in places inaccessible to browsing animals such as feral goats, sheep, hares, rabbits and possums, and is also threatened by overshadowing by invasive weeds such as gorse.

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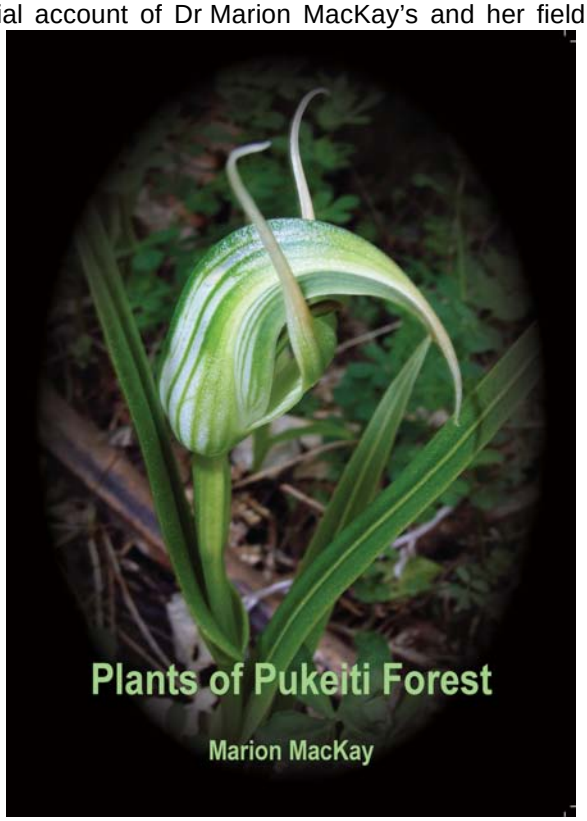
- **Book review: Plants of Pukeiti Forest by Marion MacKay**

Murray Dawson, Landcare Research, PO Box 40, Lincoln 7640, New Zealand

Fantails Publishing, Manawatu, 2011, Paperback, 585 pages, 296 × 208 mm (A4)
ISBN 978-0-473-18489-6
$NZ185.00

Plants of Pukeiti Forest is a comprehensive pictorial account of Dr Marion MacKay's and her field assistant's botanical fieldwork in the 350 ha conservation forest at Pukeiti. The forest is located in the North Island, on the slopes of Mt Taranaki and flanked by Mt Egmont National Park[1].



This publication provides an excellent visual botanical record of the region in its current state of regeneration from earlier forest clearances. The species illustrated are not confined to Pukeiti, so the book is of wider use to those interested in the native and naturalised flora of New Zealand as a whole.

As a larger (A4) format photographic record, this book sets itself apart from smaller format field guides of other regions, such as de Lange et al.'s 2007 *Wild Orchids of the Lower North Island* and Wilson's 1996 *Wild plants of Mount Cook National Park*.

Some 275 native and exotic species are illustrated and the book is divided into chapters according to plant group – Ferns and Fern Allies (57), Orchids (20), Perennial herbs (42 monocots and 79 dicots), Trees and Shrubs (65) and Climbers (12). Of these, 76% are native species and the remainder are exotics and weeds. Each chapter has useful introductory text and summary tables of the particular plant group covered. Genera and species are arranged alphabetically within each group.

It's good to see that the botanical names largely follow the Landcare Research plant names database, Ngā Tipu o Aotearoa (http://nzflora.landcareresearch.co.nz); this is the most authoritative data source for the New Zealand flora. Species headings throughout the book include major synonyms in brackets where relevant. Common names are also provided in these headings.

Plants of Pukeiti Forest showcases what is now achievable with digital photography. Each species is illustrated with a near even split of scanned herbarium samples and photographs. In combination, these convey a real sense of what each plant looks like. There are more than 1100 images in total and they are outstanding, with many showing the smaller details of identification of each species.

Notes on identifications are provided. At times, doubts are expressed over several identifications. This is a perfectly acceptable and honest approach, and typical of the difficulties of identifying botanical survey material from plots. Collected material may lack crucial diagnostic features such as floral characters.

[1] Note that the cultivated rhododendron collection at Pukeiti is outside the scope of this book. For an overview of this collection readers should refer to the 1997 book *Pukeiti: New Zealand's finest rhododendron garden* by Pat Greenfield.

Plot numbers and date of collection are recorded in the figure captions, but herbarium specimen numbers are not included as they had not been deposited at the time of writing. This is a pity as it would have directly linked the photographs in the book with the herbarium specimens. The Introduction states that the herbarium samples will be deposited in due course.

The book concludes with useful maps showing the localities of the plots surveyed, the tracks, and the place names referred to in the figure captions.

The bibliography of relevant botanical literature is also useful, although I consider the first reference superfluous (Allan's *Flora of New Zealand*, Vol. 1, reprinted 1982 without amendment to the 1961 reference that follows).

Plants of Pukeiti Forest could be considered pricy at nearly $200, but bear in mind that this work approaches 600 pages in length, has numerous high quality plant images, and that this first print run was limited to only 70 copies. It definitely deserves a place on the bookshelves of plant enthusiasts.

- **Publications Received**

Auckland Botanical Society Newsletter vol. 66 no. 2 December 2011, ISSN 0113-4132. Trip reports including Motuora Island, Mangawhai, Waitakeres, southern Auckland reserves, Whangarei, lichen list for Motu Kaikoura, botany of islands near Auckland, Kermadecs, *Muehlenbeckia complexa* var. *grandifolia*, *Phragmites karka*, sex ratios of NZ trees, obituary for John Rattenbury.

Rotorua Botanical Society Newsletter no. 57 December 2011. AGM minutes, President and Treasurer reports, update on Okareka mistletoe restoration, Loder Cup winner Mark Dean, trip reports including Ohiwa and Oscar Reeves Scenic Reserves, Tirohanga, Rotoma Hills, Lake Okaro, upcoming trips.

Canterbury Botanical Society Newsletter no. 3 March 2012. Upcoming meetings and trips, trip reports including Arthur's Pass and the Catlins summer camp, call for participation in the Denniston Plateau Bioblitz.