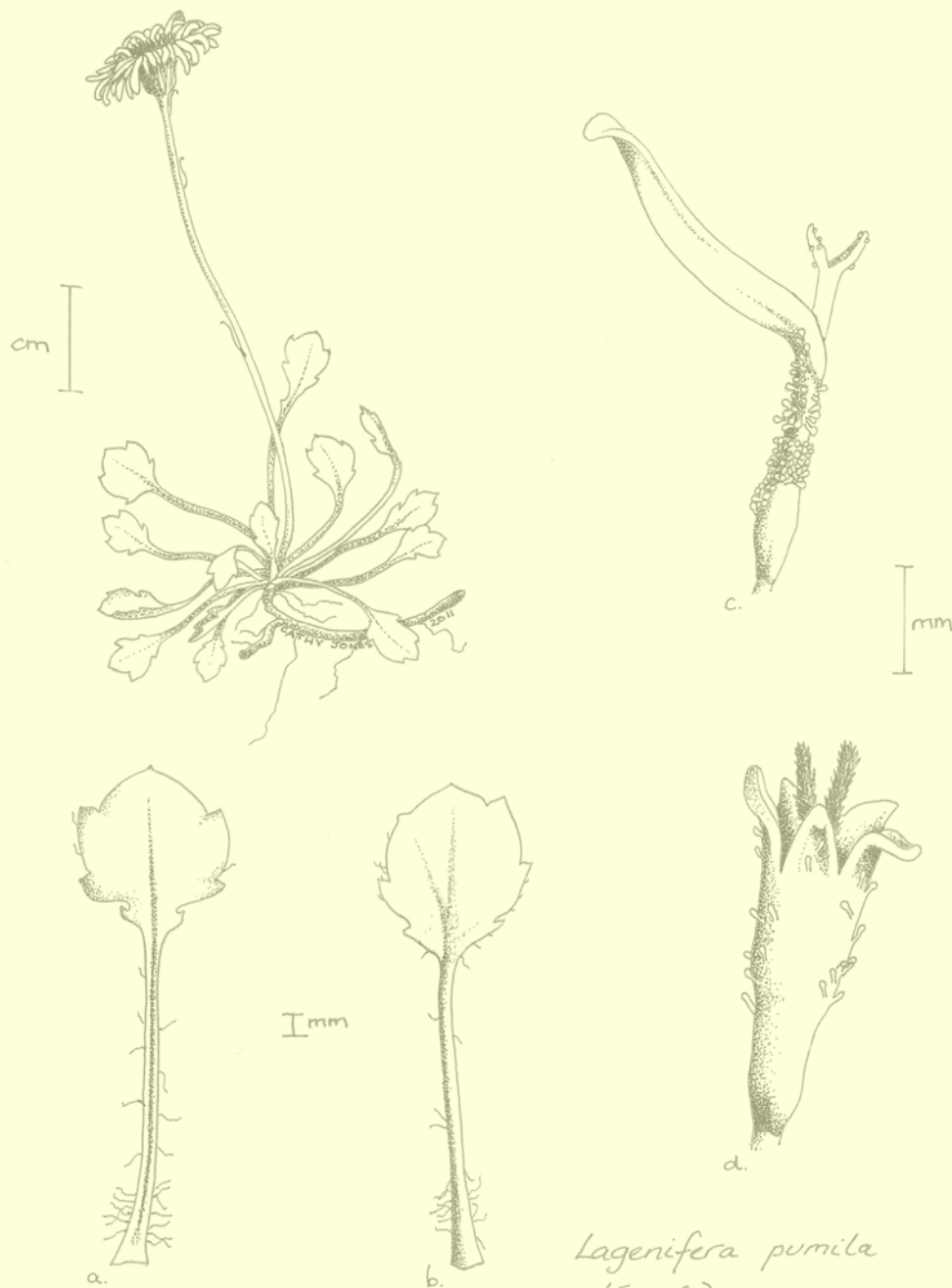


NEW ZEALAND BOTANICAL SOCIETY

NEWSLETTER

NUMBER 106

December 2011



Lagenifera pumila
(Forst. f.) Cheesem.

New Zealand Botanical Society

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Secretary/Treasurer:	Ewen Cameron
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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 (on confirmation of which Institute study is being undertaken at), 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*.

If your contact details have changed please inform Maxine Muscroft (mmuscroft@canterburymuseum.com) of your new contact information.

Deadline for next issue

The deadline for the March 2011 issue is 25 February 2012.

Please post contributions to:

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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 pumila (G. Forst.) Cheeseman drawn by Cathy Jones from a specimen collected at Lake Alexander, Ferny Gair, South Marlborough on 11 November 2011. a. adaxial leaf surface, b. abaxial leaf surface, c. ray floret, d. disc floret.

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NEWS

New Zealand Botanical Society News

■ Committee for 2012

Nominations for positions of President, Secretary/Treasurer and three committee members for the New Zealand Botanical Society closed on 19 November 2011. 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 Lara Shepherd has agreed to continue as editor for 2012.

Regional Botanical Society News

■ Auckland Botanical Society

September Meeting

It was standing room only for Peter de Lange's talk entitled "The Botany at the Tip of the Fish's Tail". Peter outlined the ongoing survey of the serpentine zone of North Cape being undertaken by DoC botanists. First he described the difficulties of access to this remote area, then the geology, soils, plants and associations. The area is well known for the number of endemic plants restricted to the ultramafic substrate, many of them showing a prostrate or creeping form. While many botanists have visited the plateau this is the first systematic botanical survey and it has included the vegetation on the steep faces of the Surville Cliffs.

September Field Trip

As Whangarei is rather too distant for day trips from Auckland, a weekend visit took the place of the usual monthly field trip. On the Saturday, Maungatapere Mountain was the target site, with assistance from Lisa Forester of the Northland Regional Council, and permission from landowners, Peter and June Groves. The mountain is the only completely forested volcanic cone in the Eastern Northland Ecological District and Region and is classified as being ecologically significant. The most notable feature of the botany is a magnificent swamp forest growing in the crater.

On Sunday DoC botanist, Andrew Townsend, led us up Parihaka, a forested hill-reserve right on Whangarei's doorstep. The amazing variation in the small-leaved *Alseuosmia* growing commonly on the trackside was the first item of interest, and northern species such as the ferns *Loxosoma cunninghamii* and *Sticherus flabellatus* were pleasant surprises.

October Meeting, the Lucy Cranwell Lecture

Ecologist, botanist and conservationist *par excellence*, Sir Alan Mark, spoke on "The South Island High Country Tussocklands: ecology, conservation values and sustainable management". Sir Alan reminded us of the serious degradation to the extensive tussocklands following the introduction of pastoral farming, and how an attempt is being made through tenure review to ameliorate this damage. He amused by relating how his inexpensive method of measuring the water yield of a tussock plant was disregarded by a government department, which then spent many thousands of dollars to achieve exactly the same result.

October Field Trip

Torbay Heights Reserve was the first of two North Shore reserves to be visited. This surprisingly large and diverse forest remnant includes a good area of that dwindling ecosystem, gumland scrub. The most discussed plant in the reserve is the small-leaved *Alseuosmia*; it seems as if speciation in this group is as yet incomplete. Mairehau (*Leionema nudum*) is not common in Auckland, but a few small shrubs were in evidence. Swamp forest is regenerating in the gullies. Some good weed work is being carried out by locals.

After lunch the nearby and smaller Awaruku Reserve was visited. The bush is more mature, with some good kahikatea (*Dacrycarpus dacrydioides*), but a serious weed problem and over-tracking was disappointing.

Labour Weekend Camp

Seventeen members and friends experienced a gloriously warm and calm weekend on Motu Kaikoura, in Port Fitzroy Harbour, Great Barrier. With four years regrowth since the eradication of deer, rats and other animal pests, the natural regeneration of plants is well under way. It is a vindication of the policy of the Motu Kaikoura Trust to do no planting, but just deal with the weeds. The spring season meant that a couple of species of *Caladenia* orchids could be identified. About 40 new species were added to the current species list, and the most exciting find of the weekend was a good population of the tiny mistletoe, *Korthalsella salicornioides*. On a flat-calm trip home our skipper followed some spouting whales for our interest.

November Meeting

A busy meeting included an introduction by Ewen Cameron to the New Zealand Virtual Herbarium (www.virtualherbarium.org.nz), and the Plant of the Month talk by Alison Wesley on tawapou (*Planchonella costata*). The main lecture was a demonstration of the online key to New Zealand *Coprosma* species by David Glenny. He discussed which features he found useful when devising the key, and which didn't work so well. For those of us who have difficulty even seeing the stipules on small-leaved species, it was interesting that David found that hair distribution proved to be a more useful aid than the form of the stipules.

November Field Trip

A morning high tide at Mangawhai Heads meant that the large party followed the coast north for a short distance, and then climbed upwards on the cliff top track. Steps, drainage and a gravel surface are evidence that a lot of work has been done on this track, and large areas have been covered with some rather dubious planting. On a fine day Hen Island seemed very close, and a panoramic view took in the Poor Knights, three of the Chickens, the Mokohinau Islands, Great and Little Barrier and Moehau. The excitement of the day was the discovery of a single old tree of coastal maire (*Nestegis apetala*) growing beside a tawapou (*Planchonella costata*), at a spot where we could look down on a known population of parapara (*Pisonia brunoniana*). These species are all present on the Hen, and are most likely outliers of the island flora. On regaining the beach, we were greeted by a picturesque dacite archway on which grows several large clumps of the coastal tussock, *Chionochloa bromoides*, in full flower at this season.

FUTURE EVENTS

3 December 2011	<i>Jane Gifford</i> sailing trip down the Mahurangi River to Scotts Landing
2 – 12 January 2012	South Island camp at Arthurs Pass
27 – 30 January	Anniversary Weekend camp at Mayor Island
18 February	Destruction Gully, Waitakere Range
7 March	AGM. Sarah Wise: Lucy Cranwell Award recipient
17 March	Awhitu dune lakes

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

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Secretary: Kristy Hall aucklandbotanicalsociety@gmail.com

■ **Rotorua Botanical Society**

September Field Trip: Puketoki Reserve

After an introduction from the Friends of Puketoki covering the history of the area, their pest control and restoration work undertaken by Periodic Detention workers we headed off along the margin to get an overview of the forest. As is often the case the margins were quite weedy with common pests such as *Crocosmia x crocosmiiflora*, ivy and a grass sward. The stand itself is dominated by tawa forming an often cathedral-like dark stand over much of the area. There are few emergents because rimu and other valuable trees had been removed over 100 years ago to supply the nearby mill. The first track traversed was one of two old tramways to the former mill. Kohehohe and puriri, along with a variety of other shrub seedlings, have increased since the pest control was initiated. The longer loop track took us past patches of the heavily scented, flowering toropapa. We passed the two remaining large rimu at the second there were large numbers of willow-leaved maire seedlings.

October Field Trip: East Cape Weekend

Eleven people arrived on Friday night and set out to the Whanarua Stream waterfall the next morning. The route crisscrossed the stream through pohutukawa, kohekohe and puriri forest to the falls where *Nematoceras* "Kaimai" was just coming in to flower. The stream was fringed by nikau, pate, pigeonwood and supplejack with a ground cover of ferns including *Pneumatopteris pennigera*, kiokio and hen and chicken fern.

After the Saturday arrivals we headed to the Mud Lake on Waikare Road. This is an intriguing area of methane vents bubbling up through fine glauconitic mudstone, resulting in a large bare area with small mud volcanoes. The soils are very alkaline so plants like oioi, *Triglochin striata*, *Plantago coronopus* and *Isolepis cernua* fringe the bare areas and a wide range of wetland plants occur in the less mineralised areas. Beyond the bare areas there is a transition through manuka/kanuka forest to pasture or, on one side, kahikatea forest. This latter forest contained an extensive freshwater wetland with abundant kiekie and supplejack. As a result some areas were free of stock and plants such as *Coprosma spathulata*, *C. areolata* and *C. tenuicaulis* flourished, rather than the *C. rhamnoides* and *Raukahu anomalus* which occurred elsewhere.

On Sunday our leader set us off along the Mangaroa Access (into the Kereu River) and abandoned us. This 8 km road traverses hard beech forest on volcanic ash and about halfway switches to tawa forest on argillite. Many areas in the hard beech forest had wet seepages with a variety of sedges including *Baumea tenax*, *Lepidosperma australe* and *Machaerina sinclairii* as well as dense mats of *Gleichenia dicarpa* or *G. microphylla* under open manuka. Elsewhere the odd puriri, kohekohe, willow-leaved maire or tawa broke the main canopy of hard beech, pohutukawa, northern rata and hybrids of the last two. Particularly striking was a sapling of taraire and the abundance of *Coprosma spathulata*.

After lunch we slowly made our way back along the road, this time mainly through tawa forest on steep slopes. The forest was very varied, with kohekohe, puriri and rata in the canopy and some huge tanekaha, rata and pukatea emergents. Many emergents were laden with rata and epiphytes such as *Winika cunninghamii* and *Huperzia varia*. The roadside banks were often covered by shrubs such as snowberry, mingimingi and *Hebe stricta*. One large *Nestegis lanceolata* was laden with green fruit.

November Field Trip: Rotoma Conservation Area

On 6th November six Rotorua Botanical Society members gathered at the summit of SH30 on Rotoma Hill. We headed in a north-easterly direction towards the highest point of the Lake Rotoma Scenic Reserve (520m) then further along the ridge to the next highest point (491m). Between these two hills the top of a recently wind-blown rimu was examined and a specimen of *Collospermum microspermum*, not normally found at such low altitude in the Rotorua area, was noted. Near the summit of Hill 491, amongst a patch of tanekaha (*Phyllocladus trichomanoides*), we found solitary specimens of *Coprosma spathulata* and *Carmichaelia australis*, two species rare in the Rotorua district.

A view of Kawerau inline with Patauaiki to the east was visible through the trees. We then made our way out of the reserve west to Matahi Road, sampling on the way some supplejack infested gullies as a change from the easy going ridge top travelling.

FUTURE EVENTS

3 December	Paeroa Water Reserve
22 January	Tukainuka SR Waiotahi Valley
11 February	Pureora wetlands
4 March	Te Ananui Falls

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

Secretary: Sara Crump

■ Nelson Botanical Society

August Field trip: Whitakers' Covenants

Tony and Viv Whitaker have three covenants on their Orinoco Valley property. The Water Gully covenant bush is being extended with replanting. The Bush covenant contains totara, titoki, beech,

rimu, putaputaweta, miro, kaikomako and tawa with numerous seedlings. The Kanuka covenant contains 50+-yr-old kanuka with a dense understory of *Coprosma rhamnoides*.

August Talk by Philip Simpson: "Heartwood: Totara in New Zealand's natural and cultural history"

Philip gave a talk based on his next book. He put totara in the context of the world's c. 600 gymnosperms. Then he spoke about all the totara species. The Waimea Plains would have had some of the best totara forest in NZ. Few old trees remain nationwide (one near Kaikoura is c. 1700 years old). Interactions between totara, wildlife and humans were then explored. With promising results from growing trials and conservation of forest remnants, the future for totara is good.

September Field trip: Mount Duppa Track

The lower slopes had a canopy of kamahi and a few Hall's totara, with an understory of *Pseudowintera colorata*, *P. axillaris* and *Coprosma foetidissima*, and many ferns: six species of *Hymenophyllum*; *Tmesipteris elongata* and *T. tannensis*. A highlight was *Raukaua edgerleyi* on the lower slopes, some free-standing, but many enveloping the trunks of tree ferns. Higher, the canopy changed to red and silver beech with *Metrosideros umbellata*, *Earina mucronata* and *E. autumnalis*. One member reached the summit and noted *Celmisia hieraciifolia* and *Pittosporum crassicaule* there.

September Evening meeting: Coprosma Workshop

David Glenney and Jane Cruickshank (Landcare Research) and Jeremy Rolfe (DOC) have developed an interactive computer-based *Coprosma* key, which they demonstrated. The most important tools required are a hand lens and a ruler. Once members had mastered the key, they stayed on and had fun practising further.

October Field trip: Inches' Bush weed-busting (Wairoa Valley)

This was the Society's fourth year of weeding its adopted patch of diverse riparian podocarp forest in the mid-Wairoa valley. Previous control efforts were visible with *Teuclidium*, kowhai and fierce lancewood very healthy and weed-free. Old man's beard and barberry in the forest understory were quickly dispatched. Later, the team walked through the forest, identifying the rarities. A highlight was finding young black maire. Next year, weeds on the bush/river edge will be targeted.

Labour Weekend Camp, Kaikoura Coast. Day 1: Track from Seaward Valley Rd to Half Moon Bay

A fairly new DOC track passes through podocarp-broadleaved species forest, with some beech, to Rakautara Stream. Highlights were *Raukaua edgerleyi*, *Myrsine salicina*, *Rubus australis*, *Melicytus lanceolatus*, *Ozothamnus* "George". The track continues through former pasture and regenerating kanuka with *Euphrasia cuneata*, *Epilobium microphyllum*, *E. pubens*, *Libertia ixioides*, the eastern South Marlborough endemic *Hebe rupicola*, *H. traversii* and *H. stricta* var. *atkinsonii*. Day 2: Fyffe Palmer Scenic Reserve The walk began in tree fuchsia and wheki forest with a sparse understory, then climbed into mature podocarp forest, mainly matai, kahikatea, hinau and five finger, with occasional miro and Hall's totara. A large *Raukaua edgerleyi* sat by the track, and juveniles were epiphytic on nearby trees. A rich fern flora included *Cyathea dealbata*, *C. smithii* and *Dicksonia squarrosa*, three climbers (*Rumohra adiantiformis*, *Microsorium pustulatum* and *Pyrrosia eleagnifolia*), *Asplenium*, *Blechnum*, *Grammitis*, *Hymenophyllum*, *Hypolepis*, and *Polystichum* species, with several hybrids. Fern allies were *Lycopodium volubile*, *Huperzia varia*, *Tmesipteris elongata* and *T. tannensis*. This region is a national stronghold of *Tupeia antarctica* but some had been browsed; fortunately, healthy specimens were noted higher up. Next stop was the Kaikoura Peninsula Walkway, with its predator-free area for Hutton's shearwater. The flora on the cliff-tops was mostly weedy species with more interesting plants growing on inaccessible cliff faces. Day 3: Puhipuhi Scenic Reserve. Large podocarps remain in the reserve despite widespread logging. *Ileostylus micranthus* was flowering on *Melicope simplex*, with *Clematis foetida* scrambling over hawthorn (both also in flower). *Botrychium bifforme* was of interest and *Korthalsella lindsayi* growing on *Coprosma crassifolia*, with both infected with galls. Also seen were 'leafless' *Rubus squarrosus* and *Clematis afoliata*. Limestone banks supported Marlborough endemics *Brachyglottis monroi*, *Pachystegia* "A", as well as *Heliohebe hulkeana*, *Gingidia montana*, *Vittadinia australis*, and three threatened plants: *Epilobium wilsonii*, *Wahlenbergia matthewsii*, and the nationally endangered *Uncinia strictissima*.

FUTURE EVENTS

Dec 15–19 Weekend camp to Arthur's Pass. Leader: Don Pittham (03) 545 1985.
Jan 15 Horseshoe Basin, Mt Arthur. Leader: Susan Cook (03) 544 6175.

Jan 27-30	Anniversary Weekend camp, Sedgemere, Molesworth. Leader: Cathy Jones (03) 546 9499.
19 Feb	Rainbow skifield, <i>Crassula multicaulis</i> survey. Leader: Shannel Courtney (03) 546 9922 or (wk, direct dial) (03) 546 3148 or Rebecca Bowater (03) 545 1260.
Mar 18	Brook Sanctuary. Leader: Sue Hallas (03) 545 0294.
Apr 5–9	Easter camp to the West Coast. Leader: Diana Pittham (03) 545 1985.

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■ Canterbury Botanical Society

October fieldtrip: Cheviot Domain

This large (c. 55 Ha.) domain is quite unlike any other in Canterbury, which reflects its history. Initially, the Cheviot domain was home to the station house (locally known as the Manor House) of William Robinson. Robinson had been a successful farmer in South Australia. He bought the area from the Lowrie Hills to the coast between the Hurunui and Waiau rivers (then in the Tasman district) in 1856. This became the “Cheviot Hills” station. Robinson commissioned the design of the station house and this was built with timber shipped to Gore Bay from Akaroa (totara) and Auckland (kauri).

When one enters the Cheviot domain from SH1, the first impression is of *Quercus robur* and *Eucalyptus* forest – some of which dates from Robinson’s time, but much was augmented by the NZ Forest Service, who transferred their land to the Cheviot Reserve board in 1960. By this time the understory was dominated by hawthorn and holly. This has since been cleared by volunteers working under the Reserve Board. More recently planting policy has been advised by Reserve Board member Arthur Hyde, a farm-forestry enthusiast who acted as our able tour guide.

A little further on, across from a clear “paddock”, is a (horse) hitching rail. To understand the layout of the reserve it is best to walk to this rail and look along it in the direction of the cricket pavilion. The original avenue which ran to the house then becomes obvious, with a sculptured *Buxus* hedge, backed by *Magnolia grandiflora* specimens to the north and a line of *Fraxinus excelsior* to the south.

Robinson obviously had a strong interest in exotic trees because, within a short distance of the foundations of the Manor House (now behind the cricket pavilion), there are fine specimens of *Calocedrus decurrens*, *Sequoiadendron giganteum*, *Cedrus deodora* and *Pinus ponderosa*, all dating from Robinson’s relatively brief time in Cheviot (he died in 1889). There are many other exotics, many of which have been labelled, some probably planted by Robinson’s daughter who remained at the house for some years after his death. During Robinson’s life he was an MP and received a share of exotic softwood seeds imported by the NZ government in 1870 (including c. 180 kg of *Pinus radiata* seeds). Prior to this he had planted large numbers of *Eucalyptus* and other (all exotic) species to establish a (c. 40 Ha.) forest behind his house. Arthur Hyde guided us through this forest area (where large, labelled, specimens of *E. regnans* and *E. obliqua* persist from the 1860’s) and pointed out interesting exotics including Dawn redwood (*Metasequoia glyptostroboides*), Swamp cypress (*Taxodium distichum*), *Cedrus atlantica*, and *Sequoia sempervirens*.

Among Arthur’s many contributions to the viability of Cheviot Domain has been management of many of the exotic trees as a timber crop, which yielded large amounts of the money required to maintain such a large and interesting domain.

FUTURE EVENTS:

December 2	Jon Sullivan - Are Banks Peninsula forest plants still declining after a century of habitat loss and fragment isolation?
December 10	Field Trip to Banks Peninsula – Lavericks Bay – to be confirmed
January 5-12	Summer Camp – Catlins
February 3-5	Waitangi Weekend camp – Arthurs Pass
February 11	Field Trip: Identification of grasses – Kerry Ford
March 2	Student meeting; Talk - Colin Merck Campbell Island

March 10

Field Trip: Mt. Grey - Onepunga

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<http://cber.bio.waikato.ac.nz/Waibotsoc/WaikatoBotSoc.html>

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

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

Wakatipu Botanical Group

Chairman: Neill Simpson (03) 442 2035

Secretary: Lyn Clendon (03) 442 3153

ANNOUNCEMENTS

■ University of Canterbury summer course: Practical Field Botany

Practical Field Botany (BIOL305) is an intensive, short summer course designed to meet the need for training in the collection, preparation, and identification of botanical specimens.

Venue: Mountain Biological Field Station at Cass, Canterbury **Dates:** 17 – 25 January 2012

This course will be of interest to amateur botanists, members of the workforce (e.g. Crown Research Institutes, Department of Conservation, Local and Regional Councils, Botanic Gardens, horticulturists and teachers) and biology students who need to acquire or upgrade taxonomic skills and are interested in field ecology, conservation, biodiversity and biosystematics. The course is targeted at participants with various entry levels: from students with limited plant knowledge to experienced career professionals.

Goals of the course

To enable participants to

- become familiar with the common plants of the Cass and surrounding areas quickly,
- identify and name plants correctly and accurately,
- maximise usefulness and minimise environmental impact when collecting specimens,
- prepare high quality voucher specimens of plants,
- use scientific names to access detailed information about New Zealand plants,

- understand the patterns of variation within populations, and
- appreciate unique and unusual aspects of the New Zealand flora.

More information

Visit www.biol.canterbury.ac.nz/biol305 or contact Dr. Pieter Pelser (pieter.pelser@canterbury.ac.nz; 3-364-2987 ext 45605).

NOTES AND REPORTS

■ *Crassula* species wild in New Zealand

Bill Sykes, SykesB@landcareresearch.co.nz

The key below is based on that of Sykes (2005) with two main changes:

- 1) The numbering of some of the couplets in the 2005 version is wrong and unfortunately some of the information is therefore misleading. This is in spite of the text being published as intended.
- 2) During the past five years several more species of introduced *Crassula* have been collected in habitats close to where they were cultivated and thus can be said to have casual adventive status. They are nearly all from the Auckland region and except for one were recorded by de Lange et al. (2005). These additions are all South African taxa and none are likely to become noxious weeds, the main reason being that they are widely cultivated in New Zealand and have never shown signs of becoming fully naturalised adventives. In this connection it is perhaps significant that they are not known to form viable seeds here. Their taxonomic position is outlined in the list of sections below.

The present revision of my 2005 paper also contains additional information about the relationship of the taxa included, mainly by giving their sectional classifications, but it does not repeat the information given in the text of the 2005 paper concerning the adventive South African species. As I state in the original article, for most succulent plants, keys are easier to operate with fresh material because the information concerning many characters, especially organ measurements, is then much more reliable. However, for fully submerged plants the key may not always be satisfactory. Finally, I grow or have grown all the South African species that have escaped from cultivation, as well as some other South African taxa of *Crassula* and so have been able to observe their behaviour in different conditions and at all seasons.

Sections in the genus *Crassula* L.

In the key below the indigenous species and their relations are all situated at the end in sections Glomeratae and Helophytum whilst the rest of the species mentioned belong in other sections and are keyed out first. To complete the picture these eight sections are listed here according to the treatment of Toelken (1985). Nearly all introduced taxa that are adventive in New Zealand are from South Africa as are many more that are in cultivation only. The indigenous species are all small, often tiny and not very succulent.

Section **Helophytum**

Some of the indigenous species are aquatic. Two species are shared with Australia, *Crassula helmsii* (Kirk) Cockayne and *C. peduncularis* (Smith) Meigen; the latter also occurs in South America. *Crassula natans* Thunb. var. *minus* (Eckl. & Zeyh.) Rowley, is a new discovery in New Zealand (de Lange et al. 2011), being found first on Karikari Peninsula in Northland, growing in a seasonally wet lakeside habitat. This species is indigenous to South Africa and is considered to be introduced in Australia, from whence it seems to have arrived naturally in New Zealand. This is not a unique situation, although very rare, and *C. natans* is here accepted as being adventive, this being its status in Australia too.

Crassula natans var. *minus* in New Zealand forms a mat and the plants are almost prostrate. The filiform stems have leaves up to c. 7 mm long and are subterete with a flattened ventral surface and are more or less linear to narrow oblanceolate. One or two 4-merous flowers occur in the leaf axils.

The corolla is not more or less star-like as in other species of this section in New Zealand because the petals remain more or less erect. However, the petals are at least twice the sepal length, as expected in this section, and are white with a crimson central and basal streak. The anthers are also more or less crimson. The ovaries only contain a single ovule and there is only 1 seed per follicle, this being 0.6-0.7 mm long.

There are four endemic New Zealand species in section *Helophytum*, these being included in my 2005 key. At the time I tentatively keyed out *C. ruamahanga* A.Druce and *C. hunua* A.Druce together, commenting in a footnote that they “virtually intergrade”. Since then the latter has been officially reduced into synonymy under the former (de Lange et al. 2008).

Section *Glomeratae*

Species in this section mainly grow in dryland habitats in New Zealand, unlike those in the previous section. But as in section *Helophytum*, species are shared with Australia.

Of the eight species keyed below in section *Glomeratae*, two are considered to be endemic and five also occur in Australia. Of these, *Crassula alata* (Viv.) Berger is apparently a fairly recent introduction from there, whilst *C. colorata* (Nees) Ostenf. is probably also an accidental introduction from Australia. Likewise, *C. decumbens* Thunb. is accepted as an accidental introduction from Australia and this species also occurs in South Africa. *Crassula colligata* Toelken, formerly known as *C. tetramera* (Toelken) A.Druce & Sykes in New Zealand, and *C. sieberiana* (Schult. & Schult.f.) A. Druce are most likely to be indigenous to both New Zealand and Australia.

Finally in this section *Crassula muscosa* L. is a South African species that is cultivated in New Zealand and has recently been recorded as being adventive in Whakatane (de Lange et al. 2005). Since the last was not in my 2005 key, I give a brief description of the type subspecies to which the adventive material belongs: *Crassula muscosa* subsp. *muscosa*. This has long or fairly long, more or less decumbent or trailing stems with erect lateral branches, these being obscured by the small densely opposite-decussate and overlapping broad obovate leaves. The tiny sessile flowers are clustered in the leaf axils and the triangular sepals c. 1 mm long are slightly exceeded by the yellowish-green corolla with free petals whilst the stamens and carpels are included. Another subspecies is here in cultivation only.

Species in other sections

Section *Acutifolia*

Crassula biplanata Haw.

°*Crassula sarcocaulis* Eckl. & Zeyh.

Crassula tetragona L.

Section *Anacampseroideae*

**Crassula arborescens* (Mill.) Willd. subsp. *arborescens*

°*Crassula lactea* Sol.

Crassula multicava Lem. subsp. *multicava*

Crassula ovata (Mill.) Druce

Crassula pellucida subsp. *marginalis* (Dryand.) Toelken

Crassula sarmentosa Harv.

Crassula spathulata Thunb.

Section *Argyrophylla*

°*Crassula namaquensis* Schönland & Baker f.

Section *Arta*

°*Crassula grisea* Schönland

Section *Curtogyne*

**Crassula fallax* Friedr.

Section *Globoidea*

**Crassula cotyledonis* Thunb.
Crassula pubescens subsp. *radicans* (Haw.) Toelken

Section **Kalosanthes**
Crassula coccinea L.

Section **Rosulares**
Crassula orbicularis L.

**Crassula schmidtii* Regel

*species included in this 2011 key and the list of sections above but not included in my 2005 key.

°species not included in the 2005 or 2011 key but are listed in the sections above and in notes before the key. The reason for their mention here is, although they are only recorded as cultivated in New Zealand, they freely regenerate from very readily detached pieces of stem. I don't regard these as adventive and as yet they have not been recorded or reported as having adventive status.

Notes on the additional taxa in this 2011 key; plus mention of taxa closely related and sometimes confused with them.

**Crassula arborescens* (Mill.) Willd.

The inclusion of this species is based on two specimens collected in Auckland and recorded by de Lange et al. (2005). The plants collected had the glaucous leaves typical of this thick-stemmed succulent bushy shrub, and the rounded suborbicular leaves with scattered glandular dots and firm margins are typical of subsp. *arborescens*. Apart from the glaucous colour the leaf shape is similar to the main form cultivated of the related *Crassula ovata*, jade plant, with its shining green leaves (see key below). Former confusion between the two species is mentioned in my 2005 article and the flowering period for both species in New Zealand is winter and spring, in contrast to reports from elsewhere.

On the other hand, the commonest form of *C. arborescens* cultivated, at least in the South Island, is subsp. *undulatifolia* Toelken, sometimes called cv. 'Blue Bird'. This has thinner, glaucous leaves that are undulate and taper distally except just around the inflorescence where they are rounded. Interestingly the latter subspecies flowers freely in late winter and spring whereas, at least in Canterbury, the form of subsp. *arborescens* grown has not been known to flower, even in the warmest habitats on Banks Peninsula. But the Auckland specimen, collected in winter, has flowers so I expect that it is not this South Island plant that is sold as cv. 'Orbit'.

**Crassula cotyledonis* Thunb.

(syn. *C. dubia* Schönland)

This record is based on a sterile specimen collected in Auckland City and recorded as *Crassula dubia* (de Lange et al. 2005). This is a short-stemmed species that is keyed below with the stemless *C. orbicularis*. However, the two belong in different sections and are at once distinguished by the lack of runners in *C. cotyledonis*. *Crassula cotyledonis* also has greyish leaves that are densely finely hairy and more or less oblique at the base, unlike the common form of *C. orbicularis* in New Zealand which has long runners and green leaves that are glabrous apart from the margins and are quite symmetrical. Otherwise both species have dense globular heads of tiny greenish flowers held well above the leaves on long peduncles.

de Lange et al. (2005) makes a surprising statement concerning *C. dubia*: "Often sold in Auckland as propeller plant (*C. perfoliata* L.) that has much narrower lanceolate-falcate leaves and red instead of greenish-white flowers". In fact *C. perfoliata* is a much larger plant with stems often over 50 cm long and leaves to 10 cm or more long, whilst the dense inflorescences of bright scarlet flowers are up to 10 cm or more across, the species being one of the most spectacular in the genus in New Zealand when in flower.

**Crassula fallax* Friedr.

This is a newly recorded species because the specimen on which it is based was collected and recorded as the related *Crassula dejecta* Jacq. (de Lange et al. 2005). These two species seem to be the only ones in their section that are known to be cultivated in New Zealand. Apart from a small but significant difference in marginal leaf cilia the easily observable differences are that *C. fallax* has

oblanceolate to oblong-obovate leaves whilst the much shorter leaves of *C. dejecta* are more or less broadly ovate. Also the flat-topped inflorescences are much larger in *C. dejecta*. In cultivation, at least in the South Island, *C. dejecta* has to be nurtured whereas *C. fallax* can grow rampantly with detached pieces of stem freely rooting. *Crassula albiflora* Sims is a synonym of *C. dejecta* and is mentioned here because it has been used instead for cultivated plants in this country and elsewhere.

****Crassula schmidtii* Regel**

This record is again based on a specimen from Auckland. It is recorded as this by Heenan et al. (2008) and was collected on a basalt tuff cliff above a walkway at North Head, being derived from nearby gardens. *Crassula schmidtii* is a small plant tending to form a small mat or cushion and its linear leaves are more or less reddish, especially in high light conditions. Probably the main feature attracting growers are the freely produced deep pink or rose flowers. Unlike most of the species in the key, *C. schmidtii* has to be nurtured because the plants seem to be rather short-lived and is thus not nearly so likely to acquire proper adventive status.

The taxonomic status of *Crassula schmidtii* is uncertain (Toelken 1985). This is because it is only known in cultivation and apparently mainly outside South Africa. But it is apparently very similar to *C. exilis* Harv., especially subsp. *cooperi* (Regel) Toelken, from the eastern Cape Province and thus may only be a form of it. The leaves of *C. schmidtii* are narrower than those of subsp. *cooperi* as described from South Africa whilst the fruiting follicles are said to be spreading there and in *C. schmidtii* they remain upright. This feature cannot be confirmed properly in New Zealand because mature follicles do not seem to be formed, but I am provisionally accepting the name *C. schmidtii* for this plant.

Section Rosulares, in which Toelken (1985) places *Crassula exilis*, is a large, diverse grouping of species. Thus *C. orbicularis* that is also keyed out here is very different indeed from *C. schmidtii* both vegetatively and floristically.

Species cultivated and casually adventive (not in the key)

°*Crassula grisea* Schönland

This *Crassula* is in section Arta that consists of a few small species not widely grown in New Zealand. *Crassula grisea* is a small plant with the leaf pairs spaced on the short stems, each 2-3 cm long, more or less grey hoary and narrowly oblong, and as deep as wide. The inflorescence has a long axis with much shorter branches distally, each with a few-flowered glomerule of tiny flowers. The whitish petals remain erect except for their minutely appendaged apices.

°*Crassula lactea* Sol.

A species related to *Crassula multicava*, *C. sarmentosa* and *C. spathulata* in section Anacampseriodeae, all of which are in the key below. *Crassula multicava* subsp. *multicava* seems to be the most abundantly naturalised *Crassula* in New Zealand. Thus when the last was planted with *C. lactea* in a sheltered garden on Banks Peninsula, *C. multicava* subsp. *multicava* almost smothered it within a few years. Yet *C. lactea* grows vigorously and propagates readily from pieces of stem and on its own can soon form a small loose decumbent mat.

Crassula lactea can be readily distinguished from the other three because the broad obovate-elliptic leaves are obtusely acute and not rounded or truncate. The leaves are up to c. 7 × 5 cm, and much larger than *C. sarmentosa* and *C. spathulata*, as well as being entire unlike these two species. *Crassula multicava* subsp. *multicava* differs in having the leaf surface dotted with glands whereas these are confined to the margins in *C. lactea*, *C. sarmentosa* and *C. spathulata*. Like these species, *C. lactea* has a fairly diffuse inflorescence and in *C. lactea* it forms a small pyramid. The flowers are starlike in all of them and the narrow, usually white, petals lack an appendage.

°*Crassula namaquensis* Schönland & Baker f.

This *Crassula* is in section Argyrophylla, from which several species are sometimes grown in New Zealand. *Crassula namaquensis* forms small tufts with stems a few centimetres long. The distinctive leaves are 1.5-3 cm long, varying from green to grey or brown, broadly obovate, very thick with a flat upper surface and very convex on the lower side. The inflorescence has a long axis and much shorter side branches terminated by a dense head of tiny flowers with the greenish-yellow or creamy corolla lacking appendages.

^c***Crassula sarcocaulis*** Eckl. & Zeyh.

This is in the same section as *C. biplanata* and *C. tetragona* which are in the key. It also has an erect main stem and forms a miniature bush with numerous small linear-elliptic glaucous leaves similar to *C. biplanata*. Like these two species, *C. sarcocaulis* freely grows from pieces of stem that have become detached. As a primarily montane species in South Africa it is unsurprising that it seems more cold tolerant than most species from there in New Zealand, and this combined with its stature and prolific little white flowers make it a popular succulent in Canterbury at least.

Key to *Crassula* species indigenous and naturalised in New Zealand

1. Perennial, succulent herbs or subshrubs with very slender to stout stems, sometimes very short, occasionally runners present; leaves usually much > 12 mm long; flowers 4-5-(6)-merous.....**2.**
 Annual or perennial, ± succulent herbs with filiform or very slender stems; true runners absent; leaves < 12 mm long; flowers (3)-4-(5)-merous**15.**
2. Shrubs or shrublets forming small dense bushes to c.70 cm high; main stems stout and usually woody, sometimes short, thin, subterete and wiry; corolla star-like or nearly so**3.**
 Plants not forming small bushes although habit may be dense; stems not obviously woody, very slender to fairly stout but not subterete, sometimes very short and hidden by leaves; flowers star-like or not.....**5.**
3. Small shrublet; stems short, thin, subterete and wiry; leaves to nearly 1 cm long, almost cylindric .
 **C. biplanata.**
 Shrubs to about 70 cm high with stout stems; leaves usually much >1.5 cm long, flat and broad **4.**
4. Leaves green, at least when fresh, sometimes drying silvery**C. ovata.**
 Leaves always glaucous when fresh, often silvery-glaucous when dried**C. arborescens.**
5. Stems erect or suberect, usually 20-50 cm high**6.**
 Stems spreading to prostrate, usually < 17 cm high, sometimes very short and inconspicuous ...**7.**
6. Leaves subterete, to c. 8 mm wide; flowers ± diffuse, fragrant; corolla of free white petals 2-3 mm long**C. tetragona.**
 Leaves flattened and > 10 mm wide; flowered densely clustered, not fragrant; corolla tubular proximally; lobes 8-12 mm long, crimson**C. coccinea.**
7. Stems very short and inconspicuous; inflorescence terminal from prostrate leaf rosettes; inflorescence dense and spherical; flowers very small and greenish**8.**
 Stem length moderate to long; inflorescence lateral or terminal, diffuse to fairly dense, rarely spherical; flowers small to moderate-sized, if clustered fairly densely corolla white or whitish.....**9.**
8. Plants with long slender runners; leaves glabrous except margins, symmetrical**C. orbicularis.**
 Plants lacking runners; leaves densely puberulous, base ± oblique **C. cotyledonis.**
9. Inflorescence ± flat-topped and thyrsoid (paniculate); corolla white, tubular proximally; lobes soon reflexed (i.e., flowers not star-like); anthers dark and conspicuous **C. fallax.**
 Inflorescence not usually flat-topped; corolla often star-like but if not then either appearing tubular or if lobes reflexed then are pink to rose and with bright yellow anthers obvious**10.**
10. Leaves linear; corolla with petals ± pink to rose, soon recurved; anthers bright yellow
 **C. schmidtii.**

- Leaves flat and wider than linear; corolla usually of white petals, but if pink on reverse then leaves $\pm$ broad rhombic-ovate; anthers either not yellow or if so not bright or are inconspicuous **11.**
11. Inflorescence a moderate to many-flowered, rather diffuse thyrs (type of panicle); corolla of free or only basally fused petals, widespreading from base (i.e., corolla star-like); plants not prostrate and with most leaves > 10 mm long **12.**
- Inflorescence either a few-flowered bracteate cyme or a dense head with a moderate number of flowers; corolla either not star-like at all but if so then plant prostrate with leaves up to 9 mm long. **14.**
12. Leaves entire; hydathodes (glandular dots) abundant and conspicuous, present over lamina surface on both sides **C. multicava** subsp. **multicava.**
- Leaves finely toothed; hydathodes (glandular dots) inconspicuous and confined to marginal teeth sinuses **13.**
13. Stems decumbent with main part creeping or trailing, often rooting at nodes; lamina of leaves crenulated, up to 15 $\times$ 15 mm; petals 3.5-5 mm long **C. spathulata.**
- Stems widespreading to suberect, not rooting at nodes; lamina of leaves serrulate, usually 15-30 $\times$ 12-25 mm (smaller near inflorescence); petals 7.5-10 mm long **C. sarmentosa.**
14. Plant prostrate; stems freely rooting at nodes; leaves to c. 9 mm long, $\pm$ broad 1 rhombic-ovate leaf pairs connate at base; peduncle very short; inflorescence a few-flowered loose cyme; petals lacking an appendage **C. pellucida** subsp. **marginalis.**
- Plant decumbent with stems soon becoming erect, not rooting significantly from nodes; spatulate to broad obovate, leaf pairs not connate; peduncle long and well-exserted from vegetative part; inflorescence a dense head with moderate number of flowers; petals with prominent erect, globular appendage **C. pubescens** subsp. **radicans.**
15. Flowers inconspicuous, often in small clusters in the leaf axils, sometimes solitary; petals closely appressed to carpels or with just the tips spreading, usually < calyx lobes but sometimes equal or nearly so (section **Glomeratae**) **16.**
- Flowers conspicuous, always solitary in the leaf axils; petals spreading from base and corolla $\pm$ star-like, occasionally not but then ovule & seed 1 per carpel, usually significantly > calyx lobes, rarely nearly equal; ovules & seeds usually 2 or more per carpel (section **Helophytum**) **23.**
16. Pedicels, at least some, 5-10-(15) mm at fruiting; petals united at base; scales broadly T-shaped with length < to = width; seeds 4-10 per follicle **C. decumbens.**
- Pedicels < 7 mm long at fruiting, usually much less; petals free; scales narrow linear to rectangular or oblanceolate, with length much > width; seeds 1-2 per follicle **17.**
17. Flowers in dense sessile cymes, 5-merous; follicles smooth **C. muscosa** var. **muscosa**
- Flowers at most in fairly dense clusters, although often shortly so and often inconspicuous; 3-4-(5)-merous; follicles smooth or tuberculate and if the latter then flowers 5-merous **18.**
18. Flowers usually 3 or 5-merous, rarely 4-merous; follicles either with tuberculate appendages on outer surface (flowers then 5-merous) or smooth (flowers then 3-(4)-merous); seeds lacking or with inconspicuous longitudinal ribs **19.**
- Flowers 4-merous; follicles always smooth; seeds lacking longitudinal ribs **20.**
19. Flowers 5-merous; follicles with cluster of tuberculate appendages towards base on outer surface; seeds smooth and longitudinal ribs lacking **C. colorata** var. **acuminata.**

- Flowers 3-(4)-merous; follicles smooth; seeds with rather faint longitudinal ribs **C. alata.**
20. Plants very small, dense and moss-like or forming larger rather loose mats, stems decumbent to ascending, to c. 3 cm high when mature and growing in open sites; flowers 1-2 in leaf axils, either not clustered or clusters very small with flowers not conspicuously aggregated in dichasia; calyx lobes usually acute **21.**
- Plants loosely mat-like or not; stems ascending or erect from base and close or spaced, usually 3-12 cm high when mature and growing in open sites; flowers 2-10 in leaf axils, always clustered in dichasia except in very depauperate plants; calyx lobes acuminate and often long acuminate **22.**
21. Plant forming dense moss-like cushions; stems decumbent or ascending, 3-10 mm high in open sites, $\pm$ inconspicuous between leaves; flowers 1 per leaf axil, not appearing clustered; seeds usually 0.3-0.35 mm long **C. manaia.**
- Plant forming small rather loose mats; stems ascending in upper part or sometimes erect from near base, 10-30 mm high in open sites; $\pm$ conspicuous between leaves; flowers 1-2 in leaf axils, often appearing rather clustered because of subsidiary leaves with flowers at the nodes; seeds usually 0.35-0.43 mm long **C. mataikona.**
22. Plants with stems ascending to erect, branched from near base, $\pm$ fleshy, pink by fruiting stage, forming loose mats; often rooting at lower nodes; pedicels variable in length but usually some to c. 3 mm long at fruiting, remaining inconspicuous because usually $\pm$ hidden by leaves **C. sieberiana**
- Plants with stems $\pm$ erect, close or spaced, usually with lower part unbranched, scarcely fleshy, not forming mats, usually $\pm$ red by fruiting, at least towards base, not rooting at nodes; pedicels very variable in length but usually some 3-6 mm long at fruiting, these then conspicuous because held beyond leaves **C. colligata** susp. **colligata.**
23. Leaves often $> 7 \times 2$ mm; flowers 4-7 mm diam.; plants terrestrial **C. moschata.**
- Leaves $< 7 \times 1.6$ mm; flowers 1.8-4 mm diam.; plants usually aquatic but if terrestrial then leaves always smaller **24.**
24. Pedicels elongating to 13 mm long at fruiting; seeds usually > 10 per follicle **C. peduncularis.**
- Pedicels to c. 5 (-7) mm long, not elongating much further at fruiting; seeds rarely > 5 per follicle **25.**
25. Leaves $\pm$ triangular-lanceolate, clustered and imbricate at stem nodes, acuminate; petals rounded **C. multicaulis.**
- Leaves linear to elliptic or if $\pm$ lanceolate then not triangular-lanceolate, usually opposite, occasionally clustered at stem nodes; petals obtuse to acute **26.**
26. Annual herb; seed 1 per follicle **C. natans** var. **minus.**
- Perennial herbs; seeds 2 or more per follicle **27.**
27. Petals $0.9-1.5 \times$ calyx lobes **28.**
- Petals $2-3 \times$ calyx lobes **29.**
28. Leaves $2.3-7 \times 0.3-0.6$ mm, not noticeably succulent (< 0.5 mm thick); calyx lobes $0.5-1$ mm long; petals with length c. $2-2.1 \times$ width **C. ruamahanga.**
- Leaves $2.3-7 \times 0.7-1.6$ mm, obviously succulent (> 0.5 mm thick); calyx lobes $1-1.5$ mm long; petals with length c. $1.7-1.8 \times$ width **C. helmsii.**

29. Plants mat-forming but not obviously moss-like; leaves obtuse, subacute or sometimes $\pm$ apiculate, 1.5-5.5 $\times$ 0.8-1.7 mm; seeds 0.5-0.7 mm long.....**C. kirkii.**

Plants forming fine moss-like mats; leaves $\pm$ acute, 0.5-2 $\times$ 0.2-0.5 mm; seeds 0.3-0.45 mm long
..... **C. sinclairii.**

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- **E.J. Godley Commemoration, 29 November 2010: “From Elgar to Pat Hanly”: Eric Godley’s wide interests in Literature, Art and Music**

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At heart Eric Godley was a romantic, and one with a great capacity for enjoyment and a quiet inner joy. My brief today is his love of music, art and literature, in all he was an unashamed romantic.

Let us begin with Elgar. That is, in fact, how Eric and I began. After Graham Butler approved in principle my transfer from Applied Biochemistry Division to Botany Division in 1971, the first time I met Eric in his office at the Division we sat down together in two chairs side by side (any other Director would have faced his newest recruit from across an intimidating desk – this was not Eric’s style) under the window and he led off the conversation with Elgar. He knew that I was a cellist and asked about the Cello Concerto – he fairly quickly waxed enthusiastic on the Violin Concerto as well, and then the *Enigma* Variations, the Symphonies and *The Dream of Gerontius*. I was astounded. We didn’t really say much about lichens at all, oddly enough apart from Eric suggesting “You should really go off to the BM to Peter James and learn all about it properly”. I was delighted to realize that here was a person who knew and loved Elgar’s setting of Cardinal Newman’s famous poem. No other senior scientist that I then knew had such a cultivated and knowledgeable taste in music, art and literature as Eric. It was a very happy revelation. Over the years in conversation and correspondence I was to learn a great deal more of the wide extent of Eric’s knowledge and appreciation in these fields.

A musical sense (pitch and rhythm mainly to begin with) develops early, and may or may not be informed by one’s genes and background. With Eric there very definitely was music in the family. His father Rupert, was an accomplished violinist, arriving in New Zealand from England in 1903 with a marked up Breitkopf & Härtel score of the Beethoven Violin Concerto inscribed “...Rupert Godley With all good wishes from Monsieur Marrot and Miss Cromartie. Happy Haven, Christmas 1902 – ‘To Make Life, Death, and that vast Forever, One Grand Sweet Song’”. After rigours of service with the NZ Army in World War I, he was left unable to play the violin at his accustomed level of technical skill, but on October 29, 1921, he performed in a private recital playing Benjamin Godard’s lovely Berceuse from *Jocelyn*, and a Beethoven Minuet. So the Godley family was musically informed and appreciative. The family was also closely associated with Devonport’s Anglican parish church of Holy Trinity, where Eric’s mother, Louise, was an “ardent knowledgeable and efficient Mothers Union member, leader and council member for many years. A most loveable lady” in the words of the present Vicar.

As a boy Eric had a fine treble voice, learning from Madame Annetta Stock, a well-known Devonport singing teacher and also singing in the large choir of Holy Trinity, taking solos in services and in concerts, and being written up in the local press as “Master Eric Godley the boy soprano”. He was even known on the North Shore as the “Lex McDonald of Devonport”. Lex McDonald, 2 years older than Eric was a singing prodigy from Dunedin (both of my parents who also sang in Dunedin knew him) with a country-wide reputation and who made recordings in Sydney. Press reports of Eric’s vocal ability noted “...Master Eric Godley then obliged with a song, and his wonderful soprano voice needs no commendations as its quality is well known to North Shore residents” ...The boy soprano, Eric Godley sang “Love’s Old Sweet Song, his fresh young voice delighted the audience”

On St Bartholomew’s Day, 24 August 1930, at both Mattins and Evensong music was paramount – a full sung service with two hymns, two anthems and a solo, Eric aged 11 singing “*The Chorister*”. Sir Arthur Sullivan’s setting of words by Fred Weatherley (a famous lyricist who is remembered today for the words of *Danny Boy* among very many others), which give a clue to just how good a treble Eric was.

O sweet and dim the lights and shade,
 Across the minster stealing;
 I heard the grand old organ play’d.
 The anthem upward pealing.
 One boy’s sweet voice above the rest,
 I heard so clearly ringing,
 The angels must his dreams have blest,
 To teach him such sweet singing...



Then as a teenager life dealt him an excessively cruel blow. Eric’s father took him across to an evening orchestral concert in the Auckland Town Hall, a great rarity in those days. Eric was tremendously excited to see and hear a full symphony orchestra for the first time. He told me that he felt they took an inordinately long time to tune up and he was wondering when they were ever going to start. Then it dawned on him that the violins were actually playing and he couldn’t hear them. So at a stroke his musical world was all but silenced. A succession of hearing aids from then on would never really bring back the “first, fine careless rapture” of filling a space with the voice uplifted in song, or hearing everything with no sense of strain or loss. But Eric’s deafness allowed him to concentrate wonderfully with his remaining senses, especially comprehension and memory. For the rest of his life, listening to music was a hard struggle, with results varying from sublime to frustratingly awful. And listening to music became for him a solitary occupation, which of course it is for very many, and as such something of a consolation as well as an escape.

Alan Horsman remembers a musical evening in 1941 at Laurie Millener’s house where Eric was present. The Millener’s had a gramophone and 78’s of Wagner were listened to with Eric placing his ear as close as possible to the speaker. Alan, who was (and is) a connoisseur of Bach, both as a performer and a listener, was rather scathing of Eric’s apparent love of loud and violent Wagner. But Eric’s tastes in music were always towards the lushly romantic with an appreciative backward glance to Mozart (the later piano concertos and the last of the 6 quartets dedicated to Haydn, with its eerie dissonant slow opening – and I gave him a recording of the Magic Flute which he grew to enjoy), mainly I think, because he found it difficult to catch anything that was thinly scored, light in texture or very fast. The delights of Mendelssohn for example, were totally lost on him. Though one winter he went to a WEA lecture series on all of the Mozart piano concertos, going studiously through the scores with the aid of Girdlestone’s beautifully written book of detailed analysis. Beethoven, Brahms, Mahler, Richard Strauss, Elgar, Rachmaninoff and Prokofiev were all very much his cup of tea. Eric was especially fond of Elgar as I said at the beginning and in 1978 he gave Patricia and me a little book published by Novello (Elgar’s publishers) – *Edward Elgar Centenary Sketches*, like all of Eric’s well-read volumes, coming apart slightly at the seams. In it there were short essays on various aspects of the composer by a series of well-known people including Menhuin, Barbirolli, Stanford Robinson and Percy Young. Eric was taken most of all by an anecdote of Sir Adrian Boult who recalled a performance of *The Kingdom* in Hereford Cathedral with Elgar conducting – the oratorio started badly and proceeded to get progressively worse with Elgar evidently losing all interest in it. At the scene “The sun goeth down” the soprano Agnes Nicholls through her intense concentration,

brought both the orchestra and the composer back to life and full attention. Eric was amazed that a soloist could wield such intense power and he later asked Patricia whether she had ever experienced this phenomenon.

Eric listened carefully to anything new or different on offer on the Concert Programme and in 1995 he heard Janacek's *Glagolitic* Mass for the first time and liked it. He was a persistent listener and savoured rewards when they came. Especially poignant was his intense concentration when hearing tapes of Beethoven's *Missa Solemnis* on a Christmas break at Springs Junction at the end of 1978. This was a work entirely new for Eric, composed when Beethoven was himself completely deaf and unable to hear the first or any other performance.

Years later, when we were back in New Zealand living in Central Otago, Patricia was engaged to sing the Angel in a performance of *Gerontius* in the Wellington Town Hall with the NZ Symphony, so we suggested to Eric and also to Geoff Baylis that they ought come. Eric jumped at the chance. We got him a seat very close to the front in the stalls and he beamed from ear to ear for the whole night – it was a rich voyage of re-discovery of a work that he had been close to for most of his adult life, without ever having heard it in the concert hall.

Art: As a student, Eric drew competently in both Botany and Zoology classes and he was appreciative of both paintings and sculpture. He mentioned that when he found suitable digs in Cambridge in 1946, in a large house on the outskirts, he noticed "...a lovely little sculpture by Eric Gill". The house was Conduit Head, built as a wedding gift by the botanist Francis Darwin (3rd son of Charles Darwin) to his daughter, Frances Crofts Darwin (the poet, whose work Eric already knew), for her marriage to Francis Cornford, the classicist and Laurence Professor of Ancient Philosophy in the university.

A long-standing favourite artist of Eric's was Stanley Spencer, and on a memorable July day in 1973 Eric and I walked from Maidenhead to Cookham, to see the Stanley Spencer Gallery, a converted Methodist Chapel, and also Cookham Parish Church with its famous Spencer paintings (bringing back with great vividness a recollection of a picture of his in the gallery in Dunedin).

Joseph Mallord William Turner was another favourite, and in 1974 when the Royal Academy opened a comprehensive Turner bicentennial retrospective, I sent Eric my impressions of it to which he replied "...The impact of isolated paintings of his on me is usually terrific so goodness knows what his collected works would have done To think that he died two years before someone like Van Gogh was born...".

In 1977 when I had six months at Lincoln, Eric introduced me to the Brooke Gifford Gallery in Manchester Street, a fairly recently opened gallery (1975) specialising in modern NZ painting and sculpture, and the two remarkable women, Barbara Brooke and Judy Gifford, who ran it. We would call in on a Friday night and either rummage through the stock room or look at pieces on show if there was an exhibition. Eric had already begun collecting pictures and was to build up a good collection of New Zealand work – Gwen Knight (Eric vowed that in time her work would be as sought after as Frances Hodgkins'), Nigel Brown, Trevor Moffitt, Alan Pearson and various others. Eric first showed me the Pat Hanly murals in the Christchurch Town Hall, and one Friday night he said that he had bought something special and would I give him a hand home with it. There was a Hanly exhibition at the "Boyd Neel" as Eric nicknamed the Brooke Gifford Gallery, and Eric bought a painting– "Joy, Love, Live" in hindsight, almost a personal motto. It was a large work, almost 6 feet square. When Judy Gifford asked if she should wrap it, Eric said nonchalantly "No, it's OK, David and I will carry it as it is" – as we proceeded to do, even though it started to rain by the time we'd got to Colombo Street. In Eric's Salisbury Street flat the Hanly was utterly dominant, but Eric loved it and it certainly radiated joy and love and life.

In April 1982 Eric wrote in a letter "...Just back from Dunedin from a meeting of the Hellaby Trust... Geoff was looking well. We slipped over to the Art Gallery for an hour. One or two things that struck me, you or Patricia may remember. "Waiting for the Train" is a lovely little thing by Tissot: a country station in England with a young lady facing you on the platform – bonnet, bustle in traveling rug over left arm and carrying lots of other gear, surrounded by about half a dozen suitcases and a hat box and to the right a milk can. Then a very pleasant Conder of a woman sitting quietly in a room. And behold

a Cookham, but what a poor example if this was the only one you knew. Just a straightforward painting of a row of fairly modern “flats” somewhere in Belfast or Dublin. The main event was two rooms of Frances Hodgkins, one on early work – Dunedin stuff etc and the significant one of work from c. 1935-45. I’d never seen so much mature work together before and my immediate impression of the colour – the whole collective effect – was “liverish”. But after looking for a while a remarkable thing happened. Each one started to “glow” from inside itself. Quite different from the surface brighter colour in some of mine, which are just superficial colours. The “glow” was the result of the combination of everything...”. Other letters would keep us posted of exhibitions at the Brooke Gifford and of any new purchases.

Literature: Eric’s love of literature was wide and deep and he continually surprised you with what he read, knew, or could quote. He delighted in the printed word: novels, essays, poems, letters, biography – a wide and eclectic canvas, nourished over a very long reading life, halted only briefly during those last few weeks in hospital.

I can’t recall Eric ever talking much about Shakespeare or Marlowe or Ben Jonson, but he read the great mystics. From the 19th and 20th centuries his reading was comprehensive, and exceptionally well-informed, including Coleridge, Hazlitt, Blake, Wordsworth, Matthew Arnold, Hardy, Meredith, Henry James, Kipling, D.H. Lawrence, the Georgian poets, J.C. Powys, Ford Maddox Ford and a long list of others. Marcel Proust’s semi-autobiographical 7-volume sequence of novels “*À la recherche du temps perdu*” (Remembrance of things past, or In search of lost time) in the Scott Moncrieff translation was a great favourite, as was its English equivalent, Anthony Powell’s 12 comic novels – “*A Dance to the Music Of Time*” published 1951-1975. Eric knew these novels intimately, enjoying all of the characters and their complex interplay. He would even ‘place’ people that he met within Powell’s cast of personalities. He wrote in 1975 “...Was at a kind of evening party of SIR Directors recently. Ray – who is doing a v. good job- was there and I was interested to talk to him. I tried to place him in my repertoire of Anthony Powell characters but not successfully. Widmerpool? Not exactly...”

As a Powellian aside – two weeks ago I attended a dinner in honour of George Petersen and found myself opposite Judith Medlicott, a former Chancellor of the University of Otago, and before that one of NZ’s Mastermind champions. She chose Powell’s 12 novels as her special subject for Mastermind, and from this developed a correspondence with Powell and over the years she visited him several times at his house, The Chantry, in Somerset. How Eric would have beamed with pleasure had he been sitting in my place, and how two well-stocked Powellian minds would have argued and discussed.

On his return to Auckland from Cambridge, Eric became friends with Barbara and Maurice Duggan and the literary/artistic circle that they were a vital part of on Auckland’s North Shore. Devonport and Takapuna attracted many artists and writers, centred around Frank Sargeson and members of the staff of the Elam School of Art. Into this lively milieu Eric was accepted as a welcome member. Eric collected New Zealand poetry in their often beautifully printed short run imprints, and asked me to look out for early volumes in UK antiquarian bookshops.

On Friday night forays into Christchurch I introduced Eric to John and Connie Summers. Eric was fascinated by John – another romantic, but with often controversial opinions that he was eager to vent. Or he would read us something from work in progress (especially his novel *Fernie Brae* largely written in Lallans) or declaim “Tom o Bedlam’s Song” or some other favourite. Eric greatly enjoyed these sessions at the Summers Tuam Street shop, but sadly there was later an irreconcilable falling out which Eric never attempted to mend. Though while it lasted, their friendship was warm and immediate and lots of good books were bought and/or discussed. From Botany Division’s stable of writers, Eric particularly liked Peter Johnson’s “*Wildflowers of Central Otago*” and Geoff Park’s “*Nga Uruora – The Groves of Life*”.

Eric’s appreciation of good writing and of poetry strongly influenced his own writing style. In August 1979 he wrote to me in reply to comments that I’d made on his 1847-1891 paper in *Tuatara* “...One never really gets much feed-back from all the hours one tries to get a sentence or a paragraph just right...”

In books, Eric was interested in “substance” and not appearance. He would rather a favourite book fell to pieces through constant reading and consultation, rather than carefully preserving a piece of fine binding on a bookshelf. His bookshelves and his revolving bookcase were testament to this – stuffed full of books constantly referred to and used, and put back often haphazardly. Old friends that were comfortable and reassuring in his hands, consulted time and again for the “essence” between their covers and often as not, with large chunks committed to that formidable memory. I have several of Eric’s well-read books, given as “something to read on the plane between NZ and London”. Here is one - Guiseppe di Lampedusas’s *The Leopard*.

Just a year ago Eric was keen to read Coleridge’s *Biographia Literaria*, so I found him a complete works volume containing this extensive sketch of Coleridge’s life and opinions. As Alan Horsman remarked “not at all an easy read”, but it was something Eric felt he really must do. In a letter from 6 February this year Eric wrote “...The potted Spencer biography that you sent me was most interesting and gave a cross-reference to Coleridge, which I was able to follow up in the wonderful Coleridge volume that you sent me as well. The latter will give me “dipping-in” reading for the rest of my life. But its ideal place is not on a book-case, but in a ruck sack on a summer walk in SE South Island at say 15 miles a day from [one] congenial pub to another through back roads, where one eats lunch by a “murmurous stream” or in a “shady grove” and read excerpts from Coleridge. And in the evenings one could read Hazlitt’s two great essays “On going on a Journey” or “On living to One’s Self”. How’s that for a Romantic Revival?...”.

Here is the Hazlitt that captivated Eric. “...What I mean by living to one’s-self is living in the world, as in it, not of it: it is as if no one knew there was such a person, and you wished no one to know it: it is to be a silent spectator of the mighty scene of things, not an object of attention or curiosity in it; to take a thoughtful, anxious interest in what is passing in the world, but not to feel the slightest inclination to make or meddle with it. It is such a life as a pure spirit might be supposed to lead, and such an interest as it might take in the affairs of men: calm, contemplative, passive, distant, touched with pity for their sorrows, smiling at their follies without bitterness, sharing their affections, but not troubled by their passions, not seeking their notice, nor once dreamt of by them. He who lives wisely to himself and to his own heart looks at the busy world through the loopholes of retreat, and does not want to mingle in the fray... He reads the clouds, he looks at the stars, he watches the return of the seasons, the falling leaves of autumn, the perfumed breath of spring, starts with delight at the note of a thrush in a copse near him, sits by the fire, listens to the moaning of the wind, pores upon a book, or discourses the freezing hours away, or melts down hours to minutes in pleasing thought...”.

Eric twice used a quotation from a sonnet of the 16th century poet Joachim du Bellay (c. 1522-1560), “Happy is he who, like Ulysses, has made a fine journey” – in his summing-up paper from the Raoul Symposium in 1998, and in his soon to be published essay “Reminiscences of a neo-Darwinian”. Today, we celebrate Eric’s own great journey in all its manifold aspects and prospects.

And now, a final poem for Eric, by William (Johnson) Cory (1823-1892), one of his favourites and from which he sometimes used to quote, especially when he was looking forward to a visit and a chance to talk about anything and everything. It serves as a suitable ending to this remembrance.

Heraclitus

They told me, Heraclitus, they told me you were dead,
They brought me bitter news to hear and bitter tears to shed.
I wept as I remember’d how often you and I
Had tired the sun with talking and sent him down the sky.

And now that thou art lying, my dear old Carian guest,
A handful of grey ashes, long, long ago at rest,
Still are thy pleasant voices, thy nightingales, awake;
For Death, he taketh all away, but them he cannot take.



■ Biography/bibliography of New Zealand botanists

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

Recently I updated the Landcare Research webpage of biographical references for New Zealand botanists (at www.landcareresearch.co.nz/research/biosystematics/plants/nzbotanists.asp). These were published in the Biography/Bibliography section of the *New Zealand Botanical Society Newsletter*, principally by the late Dr Andrew Thompson from 1992 to 2004 (who focussed on notable woman botanists) and the late Dr Eric Godley from 1991 to 2010 (who produced a series of Biographical Notes up to No. 76). Others have contributed from time-to-time and with the passing of Eric Godley (on 27 June 2010) I do hope that this tradition continues.

For each botanist, the Landcare Research biographical listing links to the relevant PDF issue of the *New Zealand Botanical Society Newsletter* for access to the full article. Since 2009, our newsletters have been online at www.nzbotanicalsociety.org.nz/newsletter/newsletters.html and associated pages. The Landcare Research webpage effectively replaces the 2006 Biography/Bibliography indexes (published in the *New Zealand Botanical Society Newsletter*, No. 83, March 2006: pp. 13-17).

BIOGRAPHY / BIBLIOGRAPHY

■ Biographical sketch – Frances Mary Young Mason (1882-1932)

Val Smith, 80 Mill Road, New Plymouth 4310. A longer version of this article is available from Val (valdsmit@xtra.co.nz)

Frances Mary Young Mason (*née* Wood), the eldest daughter of Richard Francis Marmaduke Wood and Ellen Lingen Burton of Shropshire, England, was born on 12 November 1882. Both parents were from wealthy families: the Burtons were descended from landed Shropshire gentry, and the Woods had significant property and mercantile interests in Bermuda. Her father was born in Kent, educated at Eton and served in the Northamptonshire Militia. In about 1880 he purchased Belswardyne Hall, near Cressage, and moved there with his growing family. By the turn of the century Richard and Ellen had three daughters and five sons. Frances was almost certainly privately educated, as were her siblings.



Plantago masoniae

Her uncle could have encouraged her interest in botany and decision to travel to New Zealand. Richard Francis Lingen Burton had arrived here in 1881 with his cousin Herbert Pryce to learn farming, and later took up land at Apiti. In 1902, after succeeding to the family seat, he returned to Longner Hall and divided his time between the Shropshire estate and his New Zealand run, his interests in the insect life of Shropshire and the cultivation of New Zealand plants, including orchids, from seed. Frances may even have accompanied him on one of his later visits.

At St Johns Church, Feilding on 20 November 1907 she married Edward Laidley Mason. Born in Tasmania on 24 January 1873, Edward was the son of Archdeacon Alfred Nathaniel Mason and Clara Emma Atkinson, and had been on the Feilding staff of the Bank of Australasia for several years. The bride was given away by Herbert Pryce, who was then farming at Rangitawa. Some time later Mason was transferred to Dunedin and then New Plymouth, where Frances was employed in the native plant department of Duncan and Davies Nurseries. In 1916, after the tragic deaths of her two youngest brothers in the war, and her husband's departure for the front, she went to England, and while there worked for six months at Kew Gardens.

Edward rejoined the bank after his discharge, and while he was away on relieving work Frances visited friends at Tangitere, in Hawke's Bay. The Auckland Museum Library holds the plant list she

made there, and 25 letters she wrote to Cheeseman, mostly during 1919-1920 when the Masons were at Manaia. Her collecting, mainly from the coast, included the small plantain that was to bear her name. When ill health led to Edward's resignation from the bank at the end of 1920, he and Frances took up a small farm in Westown, New Plymouth, naming it Belswardyne after the family seat in Shropshire, and lived there for the next twelve years. Frances had little time for plant-hunting, but valued and got enjoyment from her garden and patch of bush, her friendships and contacts, voluntary church work and membership of the Auckland Institute.

In 1932 the Masons made a final trip to England together, arriving at Southampton on 30 June 1932. Sadly, Frances died following an operation at the Royal Ear and Throat Hospital, London, on 8 August 1932, at just 49 years of age, and was buried at Cressage churchyard. It seems they had no children.

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Plantago masoniae

Plantaginaceae

Plantago triandra subsp. *masoniae*

Plantago (Latin *planta*: flat, or the sole of the foot, named for the leaves lying flat) are mostly annual or perennial herbs with the leaves on a rootstock. At least ten species are native to New Zealand. *Plantago masoniae* is a small rosette plantain with fleshy, broad and sometimes deeply notched leaves. It is common in some coastal herbfields of North, South and Stewart Islands, but is often overtopped by pasture weeds. Cheeseman, describing it in 1921 from plants collected from sea cliffs at Manaia, Taranaki, wrote: "I have pleasure in associating the plant with the name of its discoverer, to whom I am much indebted for information respecting the vegetation of south-western Taranaki."

PUBLICATIONS

■ Book Review – New Zealand's native trees by John Dawson and Rob Lucas

Peter Heenan, Landcare Research, PO Box 40, Lincoln 7640, New Zealand

Craig Potton Publishing. 2011. Hardback, 576 pages, 310 × 229 mm.

\$NZ120.00 (Standard Edition; ISBN 978-1-877517-01-3)

\$NZ180.00 (Deluxe Limited Edition; ISBN 978-1-877517-65-5)

This book is a valuable addition to the library of anyone interested in our native trees, whether they are a gardener, student, amateur botanist, or with a stronger scientific background. While it is the first book on this subject by the authors, it is essentially a successor to the well-known *The Native Trees of New Zealand* (Salmon 1996: 220 species and 1,500 illustrations). It significantly expands on Salmon's book by including 320 species, subspecies and varieties and 2,300 photographs.

New Zealand's Native Trees is divided into four main sections, Introduction, Conifers, Tree Ferns, and Flowering Trees. The Introduction provides an overview of the main features of New Zealand plants, forest types, and ecosystems. For each of the sections on Conifers, Tree Ferns, and Flowering Trees there is a general overview, followed by genera and species entries arranged alphabetically; all are easy to read, up-to-date, and informative.

Likewise, the entries for each of the species covered in this book have a layout that begins with a brief introduction of the genus and an overview of species within that genus (shrubs as well as trees). For each tree species, a wealth of information is provided in a well-presented and concisely written style on distribution and habitats, morphological characters, and distinguishing features.

The pictures in this book are absolutely outstanding. They are remarkable for their clarity, depth of field in the close-ups, and the effective use of light to emphasise features and for contrast. Most species have a minimum of six and up to about 16 photographs that show the plant in a natural setting, growth habit, leaves, and usually close-ups of flowers and fruit. Not all plants are photographed in the wild and the authors have also drawn upon cultivated material. Considerable attention has been given to the layout of the pictures. For example, the pictures of single leaves provided for most species are oriented either vertically with the petiole (leaf stalk) at bottom, or the leaves are horizontal and with the petiole pointing to the spine of the book from either the left or right page.

There are also 54 coloured text boxes that include illustrations to elaborate on interesting or unusual aspects of the species being treated, and they often include more specific details of identification and biology. There is some irregularity of style with the illustrations, captions and formatting in the boxes departing from the high standard throughout the rest of the book. Some of the illustrations within the boxes have numbered captions but the corresponding numbers are missing from the plates (e.g., p. 171), some have no captions (e.g., pp. 229, 379, 521), and some have a caption but use "left" and "right" instead of numbers (e.g., pp. 107, 533).

Another issue that is probably deliberate, but rather appears as an inconsistency, is the cross-referencing within the book. When a tree species is mentioned in the text there is often a page number given for the main species entry. But this isn't always the case, and often when 2–3 tree species are mentioned together only one cross-reference will be given (e.g., p. 126). It may have been better to either cross-reference all names or none at all.

Another minor irregularity is that some shrub species that are closely related to the tree species are mentioned either in the introduction of the genus (e.g., *Aristotelia fruticosa* mentioned under *Aristotelia*, p. 144; *Pseudowintera traversii* under *Pseudowintera*, p. 498) or in the main text of a particular species entry where they often appear as an add-on comment (e.g., *Lepidothamnus laxifolius* mentioned under *L. intermedius*, p. 73). Another example is the dwarf *Cordyline pumilio* being mentioned under *C. obtecta* (p. 228) rather than under the *Cordyline* heading (p. 220). It would

have been better to have included all this information under the genus heading rather than the mixed approach adopted.

The taxonomy in the book is generally up-to-date and follows recently published literature. One minor error is the statement that Alseuosmiaceae is an endemic family (p. 140). This is incorrect as this family also includes *Crispiloba* and *Wittstenia* from New Guinea, New Caledonia and Australia (Kårehed et al. 1999), and the statement also contradicts Phil Garnock-Jones (p. 124) that New Zealand has no endemic flowering plant families. The name *Melicytus novae-zelandiae* (p. 332) is also used, but to be correct this should be the full autonym *Melicytus novae-zelandiae* subsp. *novae-zelandiae*, since *M. novae-zelandiae* subsp. *centurionis* is the accepted name for a subspecies from Lord Howe Island – this related subspecies would have been worth mentioning in the book. There is also a minor mix up of names with mātaī (p. 39, caption to picture 2), where the scientific name is given as *Prumnopitys ferruginea* (miro) instead of *P. taxifolia*.

Another minor issue is *Olearia angulata* being accepted at species rank, rather than as a variety of *O. albida* following Allan (1961). While the authors are probably correct that *O. angulata* should be recognised at species rank the presentation of information is not entirely correct. The text for *O. angulata* (p. 398) states that it was “previously treated as a variety of *O. albida*, but it is now a separate species.” It was actually described as *O. angulata* by Thomas Kirk in 1881, reduced to a variety of *O. albida* by Allan (1961), but today is generally considered to be a distinct species; this history is important as recognition at species rank was originally by Kirk (1881). Since it is being recognised in this book at species rank it would have been good to have had mention of some diagnostic characters that separate *O. albida* and *O. angulata*.

There is a smattering of typographic errors throughout the book. While it is good practice to include macrons for Māori plant names, their usage throughout the book is inconsistent (e.g., “nikau” and “nīkau”, pp. 30, 510; “puriri” and “pūriri”, p. 510). There are missing full-stops (e.g., “var” instead of “var.” for variety, pp. 28, 30), hyphens instead of en-rules (e.g., text box, p. 78), stray spaces, lack of spaces and so forth. The publisher rightfully acknowledges (p. 10) the difficulty of obtaining perfection with a book of this magnitude but these basic inconsistencies should have been picked up by editorial proof-reading.

This book is especially valuable as it bridges the gap between scientific and popular literature, and its strength is that it brings together much recent and up-to-date information that is often dispersed in scientific publications. This, however, raises another issue, the balance between brevity for general readership and fully acknowledging the original sources of information.

I scrutinised the bibliography section (pp. 565–569) closely as a professional botanist and author of botanical research papers. In addition to acknowledging the primary literature that some parts of the book were clearly based on, a complete bibliography is of great value to academic readers of the book so they too can read the same original literature as the writers of the book. This is especially important for several recently described species, as readers of the book may want further information on these. The bibliographic section is well laid out and does include some key references, but it is incomplete. There are several omissions with which I am well-familiar from my own writings and co-authorships. In *Olearia*, for example, it is clear that information was used from at least four published papers, and this is excellent as it shows the book authors are familiar with the botanical literature. However, none of these papers are cited in the bibliography, including taxonomic discussion on *Olearia* hybrids (p. 399; Heenan 2005), *O. crebra* (p. 408; Heenan & Cameron 2002), *O. telmatica* and *O. traversiorum* (p. 430 and p. 432 respectively; Heenan et al. 2008) and *O. virgata* (p. 434; Heenan 2001). The recently named and described *Myoporum semotum* (p. 356) and *Pseudowintera insperata* (p. 501) provide other examples where the information provided could have only come from Heenan & de Lange (2006, 2011), but there is no mention of these papers in the bibliography. Other recent papers have been referred to in the bibliography (e.g., *Myrsine*; Heenan & de Lange 1998, 2004), but this highlights the lack of consistency in preparing the bibliography. There will no doubt be many other authors whose research publications have been drawn on in preparing the book, but are also not cited in the bibliographic section and that would have been important and useful to include.

In conclusion, *New Zealand's Native Trees* is very readable, highly informative and beautifully illustrated, and contains an absolute wealth of information on the native trees of New Zealand. Aside from the relatively minor errors and omissions mentioned above, it should be considered as a

landmark botanical publication on New Zealand trees, and would make a valuable addition to the library of any New Zealand native plant enthusiast. I have no hesitation highly recommending it.

Acknowledgements

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■ Publications Received

Auckland Botanical Society Journal 66 (1) ISSN 0113-4132 Lucy Cranwell Lecture, trip reports including Waipoua Forest, Waikawau Bay, Muriwai and Awhitu, flora of Awhitu dune lakes, *Acacia longissima*, *Eragrostis*, *Tayloria*, *Schizeilema trifoliolatum*, threatened plants of Rarotonga, trees of Caughley Preston Home, obituaries for Wendy Patterson, Owen Evans and Bruce Roy, book review.

Wellington Botanical Society Newsletter October 2011 ISSN 1171-9982 Upcoming events, submissions made, awards available, President's report, accounts and notices, trip and meeting reports including Fiordland, Kaitoke, Wainuiomata, Karori, Te Marua and Paekakariki.

Canterbury Botanical Society Newsletter 2011:12. Trip and meeting reports including Banks Peninsula, Nigerian forest restoration, bryophytes. Appeal for donations to Koiata Botanical trust. Upcoming trips and meetings.

Botanical Society of Otago 64 September 2011 Upcoming events, notices, Formosa plants, new lichen from Western Fiordland, bashing boxthorn, Otago University's 'green roof', *Fumaria capreolata* in Otago, meeting and trip reports, Orokonui, NZ Fungal Foray and Woodhaugh Garden.

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