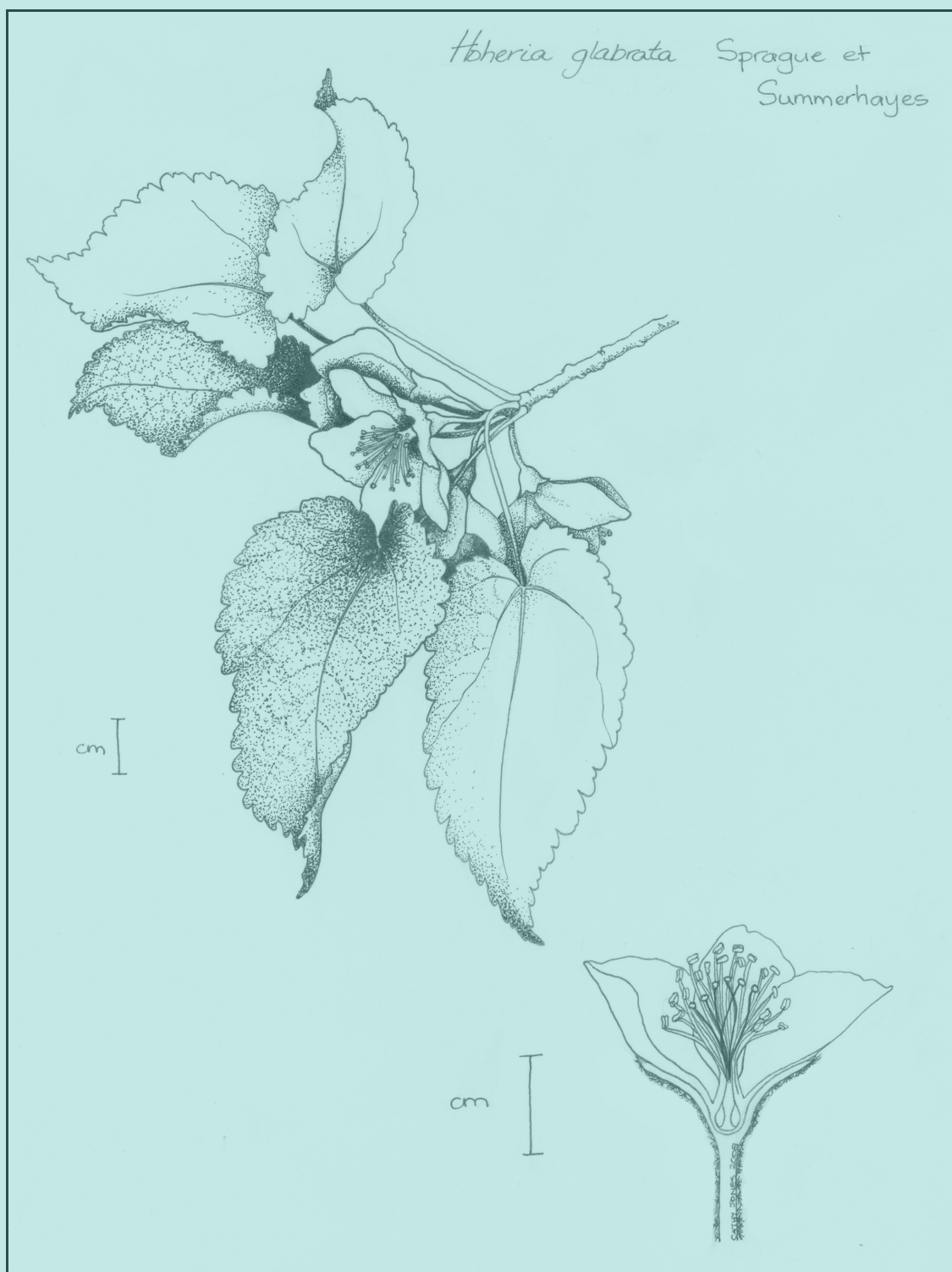


NEW ZEALAND BOTANICAL SOCIETY

NEWSLETTER

NUMBER 91

March 2008



New Zealand Botanical Society

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Secretary/Treasurer:	Ewen Cameron
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Subscriptions

The 2008 ordinary and institutional subscriptions are \$25 (reduced to \$18 if paid by the due date on the subscription invoice). The 2008 student subscription, available to full-time students, is \$9 (reduced to \$7 if paid by the due date on the subscription invoice).

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

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

Subscriptions are due by 28th February each year for that calendar year. Existing subscribers are sent an invoice with the December *Newsletter* for the next years subscription which offers a reduction if this is paid by the due date. If you are in arrears with your subscription a reminder notice comes attached to each issue of the *Newsletter*.

Deadline for next issue

The deadline for the June 2008 issue is 25 May 2008

Please post contributions to:
Melanie Newfield
17 Homebush Rd
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Wellington

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

Cover Illustration

Hoheria glabrata Sprague et Summerhayes collected by Julie McLintock at Arthur's Pass, February 4th 2008, and drawn by Cathy Jones.

NEW ZEALAND BOTANICAL SOCIETY

N E W S L E T T E R

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NEWS

New Zealand Botanical Society News

■ From the Secretary

Balance sheet for financial year 01 January – 31 December 2007

Income	\$	Expenditure	\$
B/fwd from 2006	3,648.65	Printing Newsletter 86, 87, 88, 89	3,687.96
Subscriptions, back issue sales, donations	5,665.89	Posting Newsletter 86, 87, 88, 89	894.32
Interest	6.87	Calligraphy – Mere	30.00
		Bank fees	42.00
Total income	9,321.41	Total expenses	4,654.28

Excess income over expenditure of \$4,666.93 represented by current account balance of \$2,036.71 and cash saver account balance of \$2,630.42 carried forward to 2007.

Note printing for Newsletter 90 (December 2007) of \$1077.75 and postage of \$270.50 will be paid in January 2008.

Ewen Cameron, Secretary/Treasurer NZBS

Regional Botanical Society News

■ Auckland Botanical Society

December Pot Luck Dinner

This year's event was hosted by Landcare Research, Glen Innes. First we visited Mt Wellington, where we walked through the Winifred Huggins woodlands, then searched in vain for *Anogramma leptophylla*. This minute winter-green fern had unfortunately died back for the summer. Illustrated talks were followed by a bring and buy auction, a tour of the building and fungal herbarium, and the potluck dinner/BBQ.

January South Island camp at Kaikoura

The base for our camp was the Canterbury University Marine Lab right on the coast at Kaikoura township. Led by Cathy Jones, we explored up rivers, over mountains, in reserves, and around Cape Campbell. Over the week we became familiar with many South Marlborough endemics, some such as *Carmichaelia glabrescens*, beautifully in flower. Various species of *Pachystegia* amazed us by growing straight out of inhospitable rocky precipices.

Anniversary Weekend Camp

With Mike Wilcox leading, and based at the Okataina Outdoor Education Centre, Rotorua, we explored the surrounding area. A launch trip across Lake Okataina then a walk to Tarawera was part of the programme. The highlight for fern enthusiasts was seeing swards of *Lindsaea viridis* and *Hymenophyllum atrovirens* in the Onaia Stream.

February Field Trip

Dune lakes are rare on the east coast of Northland so, although they are badly degraded, it was interesting to explore two of the three Tomarata Lakes. A fenced-off marginal fringe at Spectacle Lake was first to be checked, then a short drive took us to Tomarata Lake. It was a good opportunity to revise monocots, especially species of *Baumea*. *B. arthropophylla* is not often seen in the district, so here it could be compared with *B. rubiginosa* and *B. teretifolia*. *Empodisma minus*, although authoritatively claimed in the book "Wetland Plants in New Zealand" to no longer occur north of Auckland City, was seen in robust, tangled masses. *Oenothera drummondii*, an adventive not in Flora IV, was seen in bright yellow flower on the dunes at Te Arai Point.

FORTHCOMING ACTIVITIES

5 March	AGM & Jonathan Boow: Californian plants
15 March	Waiomu Kauri Grove, Coromandel Peninsula
2 April	Ewen Cameron & Alison Wesley: Highlights from summer camps at Kaikoura & Okataina
19 April	Anawhata coastal vegetation and west coast seaweeds

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

President: Mike Wilcox

Secretary: Leslie Haines lhaines@unitec.ac.nz

■ Wellington Botanical Society

5 May 2007: Johnny's Bush and Fenaughty covenant

A group of 16 added another 11 species to a Mitcalf/Horn plant list for Johnny's Bush; an advanced, second-growth podocarp/tawa/kohekohe forest with emergent rewarewa and pukatea. Situated off the road to Makara, it is surrounded by mainly indigenous shrubland and reverting pasture. Through the efforts of Chris Horn and Barbara Mitcalf, Meridian Energy has now negotiated a DOC covenant. Fencing repairs have ended the heavy browsing and allowed palatable understorey species such as *Asplenium bulbiferum* to recover. A grove of large karaka also indicates the site may have once been a kainga.

Nearby was Fenaughty's Bush, a 5.5 ha QEII covenant of semicoastal forest which has been fenced for the past 12 years. Much of the canopy is ngaio with some manuka, mahoe and mapou, but also includes hawthorn, barberry and holly. There are also two small areas of pine plantation within the covenant. When harvested, the Fenaughtys plan to revegetate these areas with local native species. They also control mustelids, rats and possums in the covenant and *Pseudopanax* spp., titoki, wineberry, kohekohe, mahoe and *Streblus banksii* now thrive. Wellington Regional Council is also assisting with the poisoning of many of the exotic weed trees within the covenant.

Saturday 14 July 2007: Te Marua Bush workbee

Thirteen workers led by Sue Millar and Glenis Shepard added another 315 plants to the southern extension of this reserve on this cold, frosty morning. They have seedlings organised for next year from last season's heavy seeding of kahikatea within the bush.

4 August 2007: Belmont Regional Park—Korokoro Dam

Forteen members added a number of species, including *Adelopetalum* (= *Bulbophyllum*) *tuberculatum*, but failed to find others from a vascular plant list of 168 species for this area of regenerating, tawa-dominated bush. Of concern were the areas of *Tradescantia*, montbretia, *Ehrharta* and *Selaginella* with *Lonicera* and banana passionfruit also present.

1 September 2007: Mount Victoria

Eleven BotSoccers and others led by Leon Perrie completed a circuit on the city-flank of Mount Victoria Reserve. In what must have been coastal broadleaved forest, pines, macrocarpa, and eucalypts now dominate the canopy. The two common pines are the three-needled, large-coned monterey pine *Pinus radiata*, and the two-needled, smaller coned bishop pine *P. muricata*. Several *Eucalyptus* species were present, but only *E. leucoxylon* (popular with tui) could be identified. A suite of exotic weed species were recorded including climbing asparagus *Asparagus scandens*, old man's beard *Clematis vitalba*, wandering willie *Tradescantia fluminensis*, elaeagnus *Elaeagnus ×reflexa*, holly *Ilex aquifolium*, hazel pomaderris *Pomaderris aspera*, willow-leaved hakea *Hakea salicifolia*, Japanese honeysuckle *Lonicera japonica*, periwinkle *Vinca major*, broom *Cytisus scoparius*, *Teline* spp., boneseed *Chrysanthemoides monilifera* and saplings of bay tree *Laurus nobilis*. Also spotted were two species of *Viburnum*, *V. tinus* and *V. japonicum* with adults of both species scattered widely. Species native to New Zealand, but not to Wellington, were also prominent, particularly karo *Pittosporum crassifolium* and *P. ralphii*, houhere *Hoheria populnea*, karaka *Corynocarpus laevigatus*, and *Pseudopanax crassifolius* × *lessonii*. There was little evidence of regeneration by pohutukawa *Metrosideros excelsa*. The origins of native species such as lemonwood/tarata *Pittosporum*

eugenioides, kōhūhū *P. tenuifolium*, akeake *Dodonaea viscosa*, and five-finger *Pseudopanax arboreus* here are unknown: remnants from the original Mount Victoria forest, colonists from remnants elsewhere in Wellington, or escapees from neighbouring gardens?

Highlights amongst the native species included five *Asplenium* species (*A. appendiculatum* subsp. *maritimum*, *A. flabellifolium*, *A. flaccidum*, *A. hookerianum* var. *colensoi* and var. *hookerianum*, and *A. oblongifolium*) together on one trackside bank, while *A. gracillimum* was sighted elsewhere. *Asplenium appendiculatum* subsp. *appendiculatum* might also be present, which, if confirmed, would make this site scientifically important, as the two subspecies of *A. appendiculatum* are otherwise not known to occur together. Another bank hosted a good population of rasp fern *Doodia australis*, which is uncommon around Wellington. An abundant population of *Melicytus crassifolius* was encountered in one gully, although, as may be emblematic of the intertwining of native and exotic vegetation on Mount Victoria, it was being smothered by climbing asparagus, ivy *Hedera helix*, periwinkle, and Japanese honeysuckle.

Saturday 6 October: Pakuratahi Forest: Climie Ridge – Goat Rock – Tane's Track

A party of eleven followed Barbara Mitcalf on the 400 m climb followed by a traverse along the northern section of Climie Ridge. Only metres from the carpark, were noted a community of wetland species including tataramoa *Rubus australis*, tupari-maunga *Gahnia xanthocarpa*, maire tawake *Syzygium maire*, hukihuki, *Coprosma tenuicaulis*, and kahikatea, *Dacrycarpus dacrydioides*. There were large northern rata trees garlanded with epiphytes towering beside the track. Underfoot, snugly concealed in the moss *Leucobryum candidum*, the sessile leaves and minute, fimbriate-mouthed flowers of the orchid *Singulariobas oblongus* rewarded close inspection through a lens. Another orchid species to be identified en route was *Diplodinium alobulum*, a slender, greenhood species which used to be called *Pterostylis alobula*. Further up, we were reminded that Hall's totara, *Podocarpus hallii*, has become *Podocarpus cunninghamii*, and by lunchtime, at the ridge crest, we had seen red, hard and silver beech. Later was seen a pole raukawa *Raukawa edgerleyi*, and a mahoe wao *Melicytus lanceolatus*, with tiny, fragrant, wine-coloured flowers in dense clusters along the stems. We also noted a single occurrence of peretao *Blechnum colensoi*, in what seemed a drier-than-usual site, ten species of filmy ferns, and *Cyathea cunninghamii*. Returning via what is known locally as the "cycle track" and the old railway alignment, we saw tutukiwi, *Pterostylis banksii* in flower.

Saturday 20 October 2007: Dench Garden weeding

Seventeen pairs of busy BotSoc hands worked with a will, to show their appreciation of Arnold and Ruth's perseverance and skill in maintaining this special garden. Noted at this workbee was *Leucogenes neglecta* in full flower. This and other treasures are a reward for those visiting the Dench garden, an ideal place to be to learn plants outside one's normal range. While some struggled to remove a rogue, tuber ladder fern, others sawed off dead branches, or meticulously weeded swards of *Leptinella* spp. or painstakingly released tussocks from invading velvet grass.

3 November 2007: Whareroa Farm, Mackays Crossing

Eighteen BotSoc members joined Guardians of Whareroa to compile a vascular plant species list for this site. Ann Evans of the Guardians described the history of the farm. A lowland broadleaf-podocarp forest until the 1850s, it was then subjected to draining and clearing for cattle and sheep farming, until taken over by the Defence Department for the US Marines in 1942. After WWII, it was transferred to the Department of Lands and Survey, then Landcorp. During the 1980s it was a farm park open to the public until it was bought by DOC in 2005. Flax, cabbage trees and *Carex* spp have been planted in the wetland area near the gate. The small streams feature retoreto/*Azolla rubra* and three-square/*Isolepis prolifer* in abundance. Other wetland plants include *Hydrocotyle elongata*, as well as weeds that include watercress/*Rorippa nasturtium-aquaticum*, water celery/*Apium nodiflorum*, and a variety of introduced pasture grasses. DOC has now employed a possum hunter and other pest animals include hares, rabbits, possums, feral goats and sheep.

One bush remnant on the slopes included mahoe, karaka and rangiora at the edges and the canopy comprised kohekohe, tawa and some emergent rewarewa over a previously browsed understorey. Ground ferns included *Asplenium hookerianum* and hound's tongue. Akatea/clinging rata and kareao/supplejack vines, and ota/leatherleaf fern grew on many trees.

A stand of gum trees acts as a nursery for recovering natives as well as hosting tui and eastern rosella. The few live totara on the hill, and many dead, headless, mamaku bore witness to spraying done six years ago. Gorse is invading the sprayed area. Nearby two *Carex secta*, over 1.5 m tall, looked spectacular.

A second bush remnant on a north-facing slope had a canopy that included miro, kahikatea, kohekohe, tawa, narrow-leaved maire and kanuka, with some clinging rata/*Metrosideros perforata* at the edges. With the cessation of browsing small seedlings are appearing at the bush edges, including mahoe, taupata, kawakawa, karaka and *Asplenium hookerianum*. There were also several juvenile *Streblus banksii* trees. The orchid, *Earina mucronata*, was seen in flower. A mature ewekuri/large-leaved milk tree/*Streblus banksii* was in the open, infected with galls and some trunk rot. A third remnant at the mouth of Ramaroa Stream has been fenced for about 20 years with very little cattle damage. Here the dominant canopy tree is kohekohe with matai, titoki, and an understorey of kawakawa, climbing rata, supplejack vines and *Pseudopanax* hybrids. The groundcover is mainly ferns and kohekohe seedlings. Unfortunately *Tradescantia* and arum lilies are encroaching on its boundaries.

17 November 2007: Te Marua Bush Workbee

On perfect morning ten members queued up to release plants in the southern extension to the Bush planted during the winters of 2006 and 2007 which, despite the rocky "soil" and exposed site, have done well. The south and west borders of toetoe have formed a good windbreak and are flowering already. A survey showed the bush now hosts healthy native seedlings and only a few, small patches of weed growth. 'Vigilant paste' was used on blackberry stumps where grubbing was difficult.

Saturday 1 December 2007: Pukerua Bay to Plimmerton

Robyn Smith led a group of 18 in brilliantly fine weather to explore this very special piece of coastline. Using Colin Ogle's 31/7/1980 species list for Raroa Reserve and the coast from Pukerua Bay to Wairaka Rock, we began in Raroa Reserve and botanised along the track and True Left side of the gully. The reserve is dominated by a kohekohe canopy with some ngaio, karaka, large mahoe and kanuka. Light filtering through to the forest floor has encouraged some native seedlings, among patches of invading veldt grass, *Ehrharta erecta*.

Outside the bush, vegetation changes dramatically in the Department of Conservation scientific reserve covering most of the escarpment below with wind-sculpted *Coprosma propinqua*, *Poa cita* and manuka hugging the contours of the land. At the west end of the reserve is a remnant of coastal forest with wharangi on its edge. With views of Mana Island and the South Island we descended to the coast via one of five coastal remnants, covenanted with QEII by the Carrads. These have been fenced for only nine months, and are already showing good recovery. At Wairaka Rock, Barbara re-discovered several plants of *Trisetum antarcticum* in flower. Other plants of interest were *Peperomia urvilleana*, *Disphyma australe*, a hairy *Wahlenbergia*, *Oxalis exilis*, *Senecio lautus*, *Colobanthus muelleri* and the odd *Melicytus crassifolius*.

Walking along the stony beach to Plimmerton we could see the results of feral goat infestation. Huge scree slopes are dominated by the less palatable species such as *Phormium cookianum* ssp. *hookeri*, *Coprosma propinqua* and tauhinu. A lone ngaio stood out. Continuously being buried by scree, with only the tips its canopy showing, *Raoulia hookeri* was in full flower and in a freshwater pond created by quarrying, several tarapunga/red-billed gulls (status: Gradual Decline) were bathing. Nearer Plimmerton, there is an extensive area of the invasive weed, *Polypodium vulgare*, a fern which resembles hound's-tongue, and a huge area of pampas.

Saturday 8 December 2007: Hutt City rata walk

After some good publicity in the *Hutt News*, Dave Holey and Rosie Doole led a group of 20 on this annual foray to check on our local rata with the wider public. Flowering was not as profuse as last year. Of special interest was the naturally-regenerating terrestrial *Metrosideros robusta* within Gracefield scrub after possum control.

FUTURE PLANNED EVENTS

Saturday 1 March: Field trip Gracefield Scrub, Wainuiomata: a swamp remnant and regenerating bush above the swamp. Led by Chris Hopkins.

Friday 21 March: Monday 24 March: Easter field trip Western Ruahine Range and Ngamoko Range, Ruahine Forest Park as well as reserves in the Pohangina Valley: led by Chris Horn and Barbara Mitcalf.

Saturday 5 April: Field trip Eastern Hutt catchment: Phillips Stream, including wetland, matai/northern rata-hardwood forest terraces of Eastern Hutt River and beech/hinau/kamahia forest, with some podocarps and northern rata: led by Owen Spearpoint.

Monday 21 April: Evening meeting. Plants of south-western Australia. Speaker: Leon Perry, Curator of Botany, Te Papa.

Saturday 3 May: Field trip Korokoro - Maungaraki Bush: led by Bev Abbott.

President: Bev Abbott (04) 475 8468 bevabbott@xtra.co.nz

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

■ Canterbury Botanical Society

Kaikoura Area, Friday 16th to Sunday 18th November 2007

Friday morning - Mt Fyffe Hinau Grove – In addition to an abundance of mature hinau (*Elaeocarpus dentatus*), we found a variety of ferns, including the “velvet fern” *Lastreopsis velutina*, many small-leaf coprosmas, and of note amongst other shrubs, *Melicope simplex*. Friday afternoon – the Fyffe-Palmer Reserve, an exceptional podocarp remnant containing very large matai, miro, the two totara tree species, plus rimu and kahikatea, a large range of ferns and *Tmesipteris* – possibly both *elongata* and *tannensis*. Many other tree species and tree-ferns were of exceptional size.

Saturday – Blue Duck Reserve, preceded by a visit to QEII covenant land adjacent to Clematis Grove B & B accommodation. The covenant contains a high density of *Streblus heterophyllus*, some being large trees, numerous other species, including the occasional nikau palm and a few very large podocarps. Sloping ground gave us close access to the canopy of a hinau in full flower – the flower is quite unique when viewed through a hand-lens. The Blue Duck Reserve covers a good range of altitude. Many lianes were present, the girths of some supplejack (*Ripogonum scandens*), reaching 25 cm diameter at their bases. The species diversity within the forest was rich – pigeonwood (*Hedycarya arborea*) abounds as do small-leaf shrubs. Unlogged areas were rich in very large podocarps, though there were very few miro (*Prumnopitys ferruginea*). Epiphytes included *Griselinia lucida* and *Collospermum hastatum*. Highlights were finding our first tawa (*Beilschmiedia tawa*) trees (up to about 50cm dbh), with good recruitment of seedlings and a recently wind-felled kahikatea with a full load of epiphytes. All the reserves that we visited had abundant *Fuchsia excorticata*, in flower, as well as *Kunzea ericoides* and *Leptospermum scoparium*.

On Sunday browsing limestone outcrops and road cuttings in the Puhi-Puhi Valley highlights were *Pachystegia minor*, *Brachyglottis monroi*, *Heliohebe hulkeana*, *Clematis afoliata*, *Gingidia montana* and *Vittadinia australis*. As in most areas that we visited over the weekend, the hebes were largely limited to variations of *H. traversii* and *H. salicifolia* (occasionally *H. stricta*). Trevor Blogg

Chatham Islands Field Trip

Nineteen Bot Soc members had a most enjoyable botanical exploration of the Chatham Islands from 27th Nov to 4th Dec 2007. Based at Waitangi, we travelled to a variety of destinations on both Chathams and Pitt islands. Reports contributed by participants will be included in the upcoming Canterbury Botanical Society Journal.

December Meeting

Alice Shanks gave an overview of the botanical values of the 6 km Mt Cass limestone scarp which runs NE from Mt Cass Road, Waipara, North Canterbury through Mt Cass Station, owned by Transwaste Canterbury Limited, and is the location of the first wind farm application in Canterbury. The scarp is visible from Highway 1 but what cannot be seen are the tongues of forest and shrubland on the SE slope. Following the talk some members took advantage of a trip to Mt Cass Station with North Canterbury Forest and Bird. The limestone scarps contain the remnants of a characteristic North Canterbury dry, rupestral shrubland including the Weka Pass hebe, *Heliohebe raoulii* subsp.

maccaskillii, *Linum monogynum*, *Senecio glaucophyllus* var. *toa*, *Gingidia enysii*, *Vittadinia australis*, *Pimelia* aff. *aridula*, *Chaerophyllum novae-zelandiae* (formerly *Oreomyrrhis rigida*) and *Rubus squarrosus*. The wind-battered shrubland on the edge of the scarp comprises a surprising mix of wind-shorn trees, shrubs, and climbers including the rare climbing broom *Carmichaelia kirkii* in flower and a large *Tupeia antarctica* mistletoe growing on a four metre *Raukawa anomalous* shrub. Also seen was the red version of *Parsonsia heterophylla*, *Scandia geniculata*, a number of *Clematis* species including *C. marata*, and the large, glaucous *Aciphylla* that grows only on the exposed ridgeline rocks (recently designated an undescribed species). The diversity of vegetation types over such a small area, from the rocky, dry north-facing slopes to the forest sheltered amongst the limestone platforms on the south-facing slopes, was remarkable.

Alice Shanks

December Field Trip – Onepunga rock outcrops, Onepunga Farm, Mt Grey.

First stop was a large (c. 1ha) greywacke buttress supporting a remarkable range of woody plants, herbs, lichens and mosses. Larger herbs included *Aciphylla aurea* and *A. subflabellata* growing with hard and silver tussock respectively. Woody vegetation was dominated by *Coprosma propinqua* and *C. tayloriae*, several plants hosting the tiny mistletoe *Korthalsella clavata*; *Leptecophylla juniperina* and *Olearia cymbifolia* also were also abundant. A few Hall's totara (*Podocarpus hallii*) were found, as were numerous snow totara (*Podocarpus nivalis*) and a fair number of bushy plants which appeared to be hybrids. The fruit-salad scented, diminutive *Clematis marata* was in full flower. Southern aspects supported a good array of high-altitude species, including *Celmisia semicordata* (in flower) and *C. spectabilis*. Further up, in the forested headwaters of the Grey River, where a kakariki (green parakeet) provided a special welcome, we found several orchids, including *Chiloglottis cornuta* in flower.

Miles Giller

Mokihinui highlights - Summer Camp, 11-18 January, 2008.

Monday 12: Denniston (600 m asl). The surrounding pakihi yielded many interesting plants, including insectivorous sundews and bladderworts, sun orchids, at least four *Celmisia*s, *Donatia novae-zelandiae*, *Euphrasia disperma* with its elongated corolla, and the semi-aquatic *Liparophyllum gunnii*. Shrubs formed much of the vegetation, especially stunted manuka, a slender-leaved *Dracophyllum*, *Pimelea gnidia* and scrambling podocarps, crosses between yellow-silver pine (*Lepidothamhus intermedius*) and pygmy pine (*L. laxifolius*). In wetter sites grew the endemic moss *Pleurophascum ovalifolium* with bright orange bag-like capsules rising through the dominant *Campylopus* species.

Tuesday 13: Charming Creek Walkway follows an old railway bed through the deep gorge of the Ngakawau River to the Mangatini Falls and then above to the much gentler terrain of Charming Creek itself. Semi-coastal forest of northern rata, kiekie, mamaku tree ferns, etc changes to one made up dominated by yellow-silver pine, the lowland form of *Phyllocladus alpinus* and a large-leaved *Dracophyllum* (*latifolium* or *traversii*?) as the Mangatini Falls are approached. A special feature of the gorge walls is flowering plants of the local endemic *Celmisia morgani*, far larger than plants of apparently the same species on the coal plateau above.

Wednesday 14: Millerton Ecological Park. As at Denniston, induced pakihi prevails. A steepish climb led to an escarpment, which, once surmounted, led back to bare rock pavement, etched by the roots of a forest that has long-since been swept away. Scattered shrubs of both northern and southern rata were rooted in crevices to at least 800m. Embedded in soil on rock pavements was the blackish leathery lichen *Austropeltum glareosum* best known from this region and similar sites in Tasmania. In the late afternoon we went to Chasm Creek walkway, where the chief item of botanical interest is the dense growth of bryophytes covering the walls of the tunnel portal, the broad, deep red cushions of the liverwort *Isotachis lyallii* being admired by all.

Thursday 15: After heavy rain all night, brilliant sunshine made walks to Scott's Beach and around the Nikau Walk at the beginning of the Heaphy Track very enjoyable. Plants that we had not seen further south included karaka, *Pimelea longifolia*, *Peperomia urvilleana* and *Pittosporum cornifolium*, the last perched high on a giant northern rata tree.

Friday 16: Under a cloudless sky and with creeks back to normal, we set off for the Glasgow Range east of Seddonville. We climbed a spur that first leads through forest of rimu, mountain totara, southern rata, and red, hard and silver beeches, with abundant shrub rata (*Metrosideros parkinsonii*) in the understorey, looking its usual sickly self. Around 800m the spur flattens, and supports a shorter

forest of rata, mountain beech, yellow-silver and pink pines (the latter reaching impressive diameters and canopy spread), *Dracophyllum traversii* and manuka. As the spur steepens again, silver beech becomes dominant, and *Archeria traversii* and *Coprosma pseudocuneata* are prominent in the understorey. The beech forest reaches its limit at 1100m and is replaced by low forest dominated by pink pine which grades into a mosaic of scrub, chiefly of leatherwood (*Olearia colensoi*) and tussock grassland of *Chionochloa pallens* and *C. flavescens*. A very steep rocky slope gives way at 1300m to a gentle slope that continues to the main ridge. Here *C. pallens* is accompanied by many alpine herbs, the showiest being *Celmisia dallii*. The highest point of the range, at 1480m, is a boulder field with a few plants of the vegetable sheep *Raoulia eximia*. Peter Wardle & Bryony Macmillan

February Meeting - Larry Burrows gave a talk on carbon sequestration.

By ratifying the Kyoto Protocol in 2002, NZ is committed to reducing greenhouse gas emissions over the period 2008 – 2012 (the first commitment period) to 1990 levels, or it must take responsibility for the difference. Aside from reducing emissions (increasing at present), NZ can offset emissions by sequestering carbon as forest. Larry described how this presents both challenges and benefits – and potential liabilities. Approved areas for forest reversion can be either planted or naturally regenerating. Sequestration sites need to be permanent and the area must show measurable gains in carbon stored. Developing vegetation may initially sequester carbon, but eventually will reach a stage where it is no longer storing increasing amounts of carbon. Carbon credit payments can no longer be claimed from this stage. It is important that stored carbon is not lost (by harvesting, fire or degradation by pests) or the landowner will be liable for the income received, to compensate for those losses. There can be co-benefits associated with carbon sequestration - biodiversity, soil conservation and water quality can be enhanced. Some presently low-production grazing lands have the potential to become suitable areas for carbon sequestration through successional processes, facilitating the restoration of native forest. Gillian Giller

Kirsten Nghidinwa – Talk by student grant recipient

Kirsten's thesis is on the spread and control of plants introduced to NZ from South Africa. Some of the 10% of NZ's exotic plants originating from South Africa have become weedy in their new environment, including *Cotyledon orbiculata*, or Pig's Ear. Kirsten is studying this species in two climatically different NZ areas - Auckland and Canterbury, as well as back in its home range.

February Trip Report - Mount Hutt

At Scotts Saddle low on the ski field road the beech forest edge contained a range of hebes and other shrubs including *Brachyglottis cassinioides*, *Phyllocladus alpinus* and *Podocarpus nivalis*. In the scree and tussock fields adjacent to the mid way car park we found *Celmisia lyallii*, *Pentachondra pumila*, *Raoulia eximia*, and *Ranunculus crithmifolius* in seed and plentiful. At the ski field, we explored the ski slopes 30 meters at a time, as that was our visibility range in the cloud. First to colonize the disturbed ground were *Poa buchananii* and *Epilobium pycnostachyum*. These species were still common on older disturbed ground but many *Hebe haastii* plants with lots of new seedlings and a goodly scattering of *Ranunculus haastii* also occurred. Higher up on the undisturbed slopes *Hebe haastii* was abundant and a few plants of *H. epacridea* were present. We also encountered a good range of herbs including *Ranunculus haastii*, *Haastia sinclairii* in flower, *Aciphylla similis* and *A. monroi*. Back down the road to the Rakaia Saddle we walked along the old road and found plenty of *Hebe haastii*, *H. epacridea* and *Leonohebe tetrasticha* on the rocks. Alastair Macdonald.

FUTURE EVENTS

April 5 th	Boggy Reserve Lake Ellesmere; bladderwort hunt and species list creation for the Reserve.
May 2 nd	Fungi - Jerry Cooper
May 3 rd	To be confirmed
June 7 th	AGM Speaker: Chatham Islands – Bill Sykes
July 4 th	'When good plants turn bad' – Prof. Phil Hulme
July 5 th	Insectivorous plants – Christchurch Botanic Gardens

President: Ryan Young ryan.young@xtra.co.nz

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■ Botanical Society of Otago

November Meeting and Allan Mere presentation

Our meeting on 14 Nov 2007 was a very special occasion. Anthony Wright, the president of the New Zealand Botanical Society, came down from Christchurch to symbolically present the splendid Allan Mere to Peter Johnson.

Peter's citation, written in handsome calligraphy in the bound Book of Awards, reads – "Peter has had a distinguished career as a scientist, public lecturer, author and conservationist. Along with numerous research publications on weeds, wetlands and dune-lands, he has produced popular books on wetlands, wildflowers and flowering plants of New Zealand. He gives generously of his time, expertise and enthusiasm to the wider public. Peter is an exemplary botanist in the tradition of the world's best naturalists."

But first Peter had to sing for his supper, and he gave one of his inimitable, entertaining and idiosyncratic talks, titled 'A Very Merry Mere'. In it he shared snatches of his journey through life and botanical growth, revolving round his own personal "mere". This he has carved of diverse woods, including totara, sandalwood, matai and oak from an acorn he planted 27 years ago. It is beautifully decorated and contains ancient treasures in a secret compartment, among them a birth-date threepence with crossed carved Maori patu, gold from a tooth and tooth from a whale, blessed by a Chatham Is Moriori. Along the way he recorded the growth of some significant trees on his home ground of the Otago Peninsula, such as a totara that has grown 7 m in 35 years, and a kauri that has grown 4.5 m over the same time. All of this, and much more, was poetically supported by quotes from Dennis Glover, including the classic Magpie Poem, quoted for botanist Peter Wardle. A well-deserved award and a memorable evening. Congratulations, Peter!

Allison Knight

Photo: Anthony Wright presenting Peter Johnson with the Allan Mere and his citation as the 2007 recipient.



November Field Trip: Painted Forest – Silver Peaks

Esteemed leader Robyn gave us an outline of the day before 18 members drifted up through the manuka corridor with its resident fernbirds and on to the dividing ridge between Silver Stream and the Waikouiti River. Of note were numerous seedlings and saplings of pahautea (*Libocedrus bidwillii*) and mountain three-finger (*Pseudopanax colensoi* var. *ternatus*). Further uphill the vegetation soon reduced in stature as we entered a heathland dominated by dracophyllum and *Androstoma empetrifolia* until the rocky bulge of Pulpit Rock was reached. This magnificent view point also turned out to harbour numerous herbs within its rock crevices – diminutive *Anisotome aromatica*, *Leucopogon fraseri*, *Celmisia gracilentia* and *Colobanthus* sp. to name a few. The interior of the 'Painted Forest' silver beech forest provided welcome respite from the midday heat. An understorey of *Raukawa simplex* and weeping matipo (*Myrsine divaricata*) sat above a carpet of ferns, including *Cyathea colensoi*, which hid a multitude of foot snares. A proliferation of sapling silver beech marching out into the tussock suggests the forest is beginning to regain some of its former extent.

John Barkla

January Field Trip

During January several Botsoc members rallied at short notice to carry out a botanical inventory of a 328 ha block of land centred on the iconic Harbour Cone on Otago Peninsula (Akapatiki Block). The Dunedin City Council was considering whether to purchase the block and the Society was keen to ensure that the Council had the most up-to-date information to support its decision-making process. Subsequently the Council unanimously agreed to buy the block. Botsoc members found approximately 113 indigenous vascular plant species representing 30 % of the total recorded for the Otago Peninsula. This indicates high species richness given that the Akapatiki block constitutes just 3.4 % of the land area of the Otago Peninsula. Considerable diversity remains in the small forest and scrub remnants and within some plant groups (e.g. fern diversity is especially high in Stewarts Creek with 24 species representing 43 % of native fern species recorded for the Peninsula). Two threatened plants were found (*Raukawa edgerleyi* and *Epilobium chionanthum*). Several other species are significant in a local sense, occurring elsewhere on the Peninsula in only one or two sites (e.g. *Blechnum colensoi*, *Olearia bullata*, *Raoulia subsericea*, *Neomyrtus pedunculata*, *Muehlenbeckia complexa* and *Australina pusilla*) and sometimes as only one or two individuals (e.g. miro).

John Barkla

FUTURE EVENTS

19 March	A talk by Dr Peter Johnson on "Chatham Island Places & Plants"
29 March	Field trip to Mt Watkin
16 April	An evening of Botanical Photography and AGM
19 April	Field trip to Kurinui, North Otago
7 May	Botanical "Show and tell" evening
11 May	Field trip to Tavora Reserve, North Otago
11 June	A talk by Dr Lisa Russell on "The expanding range of <i>Undaria</i> in Southern New Zealand"
22 June	Field trip to Varleys Hill, Otago Peninsula

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

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

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

■ **Other Botanic Society Contacts**

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

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Nelson Botanical Society

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Wakatipu Botanical Group

Chairman: Neill Simpson (03) 442 2035

Secretary: Lyn Clendon (03) 442 3153

Letter

■ **Royal Society Journal Proposal**

It would be a huge step backward to abandon the New Zealand Journal of Botany. We really do need a stand-alone botanical journal. If the Royal Society doesn't want to continue with the journal in its present form then we should seek another publisher. Would Landcare be willing to do it?

I believe that the Royal Society is unwise in its attitude towards scientific publication in our (and other) disciplines. Publication is the means by which scientists convey their work to the wider world and in my opinion this still needs to be done in print in specialist journals. The Royal Society hasn't acted in good faith towards subscribers to the New Zealand Journal of Botany. It hasn't consulted us. Also it has failed to appoint an editor to take over the specialist role since Fran Kell's retirement.

Colin Burrows (Christchurch)

ANNOUNCEMENTS

■ **Tom Moss Student Award in Bryology**

Tom Moss was an active member of the Wellington Botanical Society for many years, and was a participant in the very first John Child Bryophyte Workshop in 1983. He helped to organise the second Workshop at Akatarawa in 1984 and attended every year after that until the Kaikoura Workshop of 1993.

To commemorate his name, his contribution to New Zealand botany, and his particular interest in bryology, a Trust Fund was established following discussion at the 2006 John Child Bryophyte Workshop. It is administered by the Wellington Botanical Society. The *Tom Moss Student Award in Bryology* provides a small annual prize for the best student contribution to New Zealand bryology.

The first Award will be made at the John Child Bryophyte Workshop that will be held in December 2008 in the Catlins Region of SE Otago. Contributions that would qualify for the Award include:

- A student presentation at the Workshop relating to New Zealand bryology.
- A paper relating to New Zealand bryology. Only one application per student will be accepted (i.e. either a presentation or a publication).

This can be published, or accepted for publication, or a significant unpublished report. This should be published or written in the twelve months immediately prior to the Workshop and submitted for judging by 1 Nov 2008 (see below). It is not necessary to attend the workshop where a paper is submitted for consideration.

Contributions are invited and will be considered from any student enrolled for a B.Sc., M.Sc., Ph.D., or equivalent degree in the twelve months immediately prior to the Workshop. Students may be enrolled in a New Zealand or overseas university, and may include work on overseas bryophytes as long as the work relates in some significant way to New Zealand bryology.

An Award of \$150 will be made by a panel of three judges attending the Workshop and appointed by the Wellington Botanical Society. The panel may reserve the right to make no award if there are no suitable contributions.

Publications for consideration should be submitted with a covering letter to "Tom Moss Student Award, Wellington Botanical Society, PO Box 10 412, Wellington 6143" by 1 November 2008. Students intending to make a qualifying presentation at the Workshop should indicate this when they enrol for the Workshop.

Further information about the Award may be obtained from Dr Patrick Brownsey, Te Papa, P.O. Box 467, Wellington (04 381 7135; email patb@tepapa.govt.nz).

■ **Announcing a New Web-based Facility for Managing Natural History Observations**

Colin D Meurk, Jon Sullivan, Jerry Cooper, Steve Pawson, Mark Fuglestad

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The NZ Biodiversity Recording Network (NZBRN) is an online system (www.nzbrn.org.nz) for viewing, recording and processing contemporary or historical natural history observations from around the country. It has been largely funded by TFBIS (administered by DoC) and is hosted by Landcare Research.

The purpose of NZBRN is firstly to provide a secure repository for storage and retrieval of natural history data (from both past and present sources) that falls outside institutional plot- or voucher-based records, and secondly to engage the public in observing and recording nature in a systematic and interactive way through maps, lists, graphs or spreadsheets. It also provides a mechanism for tracking movement of migratory or pest species across the country once a network of observers is established. It does have the power to provide statistically robust biological results.

NZBRN has been rolling out over the past year. The results you see are only as good as the information that has been entered, but already with nearly 20 000 each of plant and bird records, distribution maps of relatively common lowland species are taking a realistic shape at a broad scale. We expect soon to upload over 200 000 plant records that have been generously supplied by Graeme Jane. You can view and record observations of birds, plants (including bryophytes and lichens), fungi, mammals, lizards/frogs, and some invertebrates including butterflies. The animal portals use standard common names paired with their scientific names, but the plant and fungal portals use Latin names only at this stage (so have a flora handy or you can use the NZ Plant Names Database

<http://nzflora.landcareresearch.co.nz> or NZ Plant Conservation Network www.nzpcn.org.nz). But you don't have to know the correct spelling (as the names are in drop down or autocomplete lists) or grid references (as these are automated).

You can view existing records ('show records') without logging in, but to 'create records' you must 'sign up' to get a user name and password, in order to 'log in'. Then you must select an existing named site or set up a new site to which you can attach your records. Information can be viewed as lists or distribution maps or exported into an excel spreadsheet. So, in a sense, you can create your own personal diary of your (life) journey and process the information in a variety of ways.

The means of viewing or recording data is zoomable maps that take you right down to street level. If you are in a remote part of the country, the standard NZMS map contours, waterways, and place names help you to orientate yourself. But, it is often desirable to have a NZMS sheet or road map with you to assist with locating your place where roads or names are sparse and you have to rely on the shape of rivers and topography. All grid references are now converted to the new NZ TransMercator Map (NZTM) system.

Start with simple or common place organisms like marking roadkill (possums, hedgehogs, etc), magpies, mynas, cabbage trees (*Cordyline australis*) or NZ flax (*Phormium tenax*) on your road map as you travel around the country. And, when you are next plugged into the internet, record your observations for all to see. You can incidentally hide sensitive data. You can record data in the field onto a downloaded template stored in a PDA.

Set up a site in your back yard - to note the birds visiting the garden, the plants in your lawn or invading the brickwork, during the BBQ – or down at the beach, at the bach, or in the school yard. A school yard monitoring site will be a valuable learning experience for children. All these records will help to make the NZBRN information and maps more accurate and comprehensive – and citizens more observant and knowledgeable about their natural heritage. If you are concerned about data quality you can always be selective in the records you extract (through a variety of filters and protocols), but studies have shown that for common species errors don't affect the integrity of data. For rare species the individual sources can be tracked down and you can discuss the observations with the recorder.

Although development of NZBRN is being carried out at Landcare Research, the management and direction comes from an independent advisory committee representing stakeholder interests. If you have any problems or wish to provide some feedback or be involved in developing this exciting tool, please contact one of us.

The NZ Biodiversity Recording Network Advisory Team
nzbrn@landcareresearch.co.nz

■ New Zealand Plant Conservation Network Conference

Call for papers for science programme, 8–9 August 2008, Wellington

Titles for papers to be presented at the NZPCN 2008 conference are now being solicited. The number of presentation slots is limited so at this stage we are after presentation titles only – please send these in by 30 May 2008. A decision on the papers to be presented at the conference will be made in early June and for those that are accepted an abstract will be required by the 11 July 2008. Presentations will be 15–20 minutes long.

Conference sessions are: genetics and conservation; plant breeding systems; threatened ecosystems; restoration of rare species; and plant conservation success stories.

Please send your paper title to the organisers of the scientific part of the conference: David Norton (david.norton@canterbury.ac.nz) or Peter Heenan (heenanp@landcareresearch.co.nz).

THESES

■ Recent theses from the University of Otago, Department of Botany

- Markey, Adrienne Selina (2005) The evolution of fruit traits in *Coprosma* and the subtribe Coprosminae. Ph.D. Dissertation, University of Otago, Dunedin. 344 pp.
- Marshall, Jane Elizabeth (2005) The role of colour and odour in fruit selection by diurnal, endemic skinks (*Oligosoma*) in Aotearoa/New Zealand. Ph.D. Dissertation, University of Otago, Dunedin. 116 pp.
- Atkinson, Toni June (2006) Unexpected microfungus diversity: woody decay Lasiosphaeriaceae, Chaetosphaeriaceae and Helminthosphaeriaceae of New Zealand. Ph.D. Dissertation, University of Otago, Dunedin. 431 pp.
- Kregting, Louise Theodora (2006) The relative importance of mainstream water velocity and physiology (nutrient demand) on the growth rate of *Adamsiella chauvinii*. Ph.D. Dissertation, University of Otago, Dunedin. 161 pp.
- Peters, M A (2006) Maori farmers' perspectives and experience of pasture soil health: indicators, understandings and monitoring methodology. MSc Thesis, University of Otago, Dunedin. 114 pp.
- Scott, Matthew B (2006) Fine-scale ecology of alpine patterned ground, Old Man Range, Central Otago, New Zealand. Ph.D. Dissertation, University of Otago, Dunedin. 338 pp.
- Denny, Brent Lindsay (2007) A survey of legume viruses in *Trifolium repens* L. in southern pastures of New Zealand. MSc Thesis, University of Otago, Dunedin. 108 pp.
- Porter, Stefan (2007) Partnerships for conservation. MSc Thesis, University of Otago, Dunedin. 160 pp.

NOTES AND REPORTS

■ The botanical aftermath of James Cook's first and second voyages to New Zealand in relation to the genus *Pimelea* (Thymelaeaceae)

Part 3. The Validation of the Genus *Pimelea*.

Pimelea was bedded down as a generic name in Thymelaeaceae by several steps in the 18th and 20th centuries. In Australia there are about 100 species, most on the mainland and adjacent islands, but about 10 in Tasmania (6 endemic) and one on Lord Howe Island; no *Pimelea* species occur on Norfolk Island, contrary to some earlier reports. The genus (all shrubs and shrublets) has a very diverse representation of plant form and size, and of floral features in Australia.¹ However, the key taxonomic steps that led to present recognition of the genus relate to humbler New Zealand representatives.

Georg Forster played no role in the process of definition of the genus, but he did, more or less inadvertently, influence things in one important way. In November 1780 Forster wrote to Joseph Banks that his books and herbarium had been lost in a shipwreck and asked if he could be sent Forster duplicate specimens (then in London).² It appears that this shipwreck spoiling of specimens story was not quite right. Some of the supposedly lost plants were sold by Forster to raise funds! He moved around during his career as a university teacher (Vilna, Poland 1784-87, Göttingen, Germany 1787, Mainz, Germany 1788-94, when he died). His New Zealand plant collection travelled with him. In consequence, through sales before and after his death his "Banksia" (*Pimelea*) specimens have become widely spread in European repositories (from Paris through Germany, to Leningrad and Moscow, and north to Denmark and Sweden).³ Forster's only other publication relating to what we

now call *Pimelea* was *Florulae Australium Prodrum* (Göttingen, 1786) in which a brief note transfers the three “*Banksia*” species into *Passerina*. There are still *Passerina* species, all in Africa, and of course *Banksia* is one of the glories of the Australian flora, but in a different family, Proteaceae. The rules about re-use of generic names were laxer in the late 18th century than now!

The generic name *Pimelea* (from a Greek word *pimele*, meaning fatty, in reference to the oily seeds, or perhaps to the fruits/ seeds of the plants appearing like tiny olives) was drawn directly from Solander's manuscript. It was recognised formally by J. Gaertner (Germany, 1732-1791). The citation is: *Pimelea* Sol. ex Gaertn. *De Fructibus et Seminibus Plantarum I* (1) (1788). In 1797 C.L. Willdenow (Germany 1765-1812) made the combinations *Pimelea gnidia* and *P. prostrata* (J.R. Forst. et G. Forst.) Willd. *Species Plantarum* 1, 50 and 51. In doing so he gave permanent recognition to the work of Solander and the Forsters.

Pimelea as a generic name was conserved, and *prostrata* as a specific name was confirmed, by decisions of the International Botanical Congress in Berlin, 1987 (I.C.B.N. No. 5467, 1988)⁴. *Pimelea prostrata* is the type species for the genus.

Some other invalid generic names formerly applied to New Zealand species now included in *Pimelea* are *Cookia* and *Gymnococca* (other names have been used in Australia). A group of herbaceous plants of that country, that also extends north to the Philippines, has been split off to form a genus *Thecanthes*.⁵

The essential characters of *Pimelea* in Australia and New Zealand are: the plants are woody (rarely suffrutescent), with tough, fibrous bark. The leaves are usually opposite and arranged decussately. The inflorescences, usually clustered terminally on branchlets, are very condensed racemes, with the flowers fixed to a hairy receptacle usually by very short pedicels. Involucral bracts, similar to the leaves, or larger to much larger, subtend the inflorescences. There is often sympodial branching immediately below the uppermost pair of bracts.

The apetalous flowers are actinomorphic hypanthia (trumpet-shaped flower tubes composed of fused axis corolla, calyx and filament tissue), like those of other genera in Thymelaeaceae. A tube includes a lower, often inflated, “ovary portion” and an upper, usually narrower “style portion”. The exterior of the tube is usually hairy. There are four petal-like calyx lobes and two stamens in male or hermaphrodite flowers, staminodes in females. Nectar forms inside the tube at its base and the flowers are usually sweetly scented. The ovoid, superior ovary is one-celled and usually hairy at its apex. The thin style is fixed eccentrically near the apex and is relatively long at maturity, with a papillose stigma (largest in female flowers). Fruits are dry or fleshy. Seeds (one per fruit) are pyriform or ovoid in shape, often with an extension to one side at the apex, and a black, brittle coat.

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2. Stearn, W.T. 1968. The botanical results of the Endeavour voyage. *Endeavour* 27: 3-10.
3. Nicolson, D.H., Fosberg, F.R. 2003. The Forsters and the Botany of the Second Cook Expedition (1772-1775) *Regnum Vegetabile* 139, 759pp.
4. Australian Plant Names Index. Australian National Botanic Gardens; Australian National Herbarium.
5. Rye, B. L. 1990. *Pimelea*: Thymelaeaceae. In *Flora of Australia Vol. 18*, 134-211. Canberra, Bureau of Flora and Fauna.

BIOGRAPHY/BIBLIOGRAPHY

■ Biographical Notes (69) : John Stuart Yeates. The flax years (1927–1938)

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(continued from NZ Bot. Soc. Newsletter Dec. 2007)

When Jack Yeates arrived back from Cambridge in July 1927, his priorities would have been to find a job, and then, with his base secure, to finish his thesis. A job was soon found when he was recruited to the temporary staff of the new Department of Scientific and Industrial Research to improve the cultivated varieties of *Phormium tenax*, the New Zealand flax; and on 5 December 1927, he made his first progress report to the DSIR Council (1).

Yeates reminded the Council that his task “was primarily to find the chromosome numbers of phormium species and varieties [hybrids] with a view to hybridizing.” He reported that he had counted over 30 varieties including representatives of the 2 species and, using “a new rapid method” (presumably anther squashes), had found that all had the same haploid number of 16. This is the first count of *Phormium tenax* and *P. cookianum* and, like his count of *Tmesipteris tannensis* in 1925, they have been overlooked. Published in 1928 they were the first spermatophyte counts in New Zealand. The next were all in 1937: *Hebe* and *Veronica* by Frankel & Hair, and *Danthonia* by Calder. The first count of *P. tenax* in Dawson’s master-list (2) is $2n = 32$ by Sato in 1942, and the first for *P. cookianum* is $n = 16$, $2n = 32$ by Hair & Beuzenberg in 1966.

Also in Dec. 1927 and Jan. 1928, at the nursery of Mr A. Seifert, a prominent Shannon flax-grower, Yeates made his first inter-varietal crosses (3). The object was to combine the excellent fibre and the disease-resistance of SS (“Seifert’s Superior”) with the greater tallness and other desirable qualities of several other varieties (4). And he was to continue work on flax for the next 10 years, despite the fact that he was also holding down a full-time teaching position. On 12 Jan. 1928, he had applied for the lectureship in Agricultural Botany and Field Husbandry at the new Massey Agricultural College, Palmerston North. Applications closed on 15 Mar., and on 22 Mar. 1928 he received notice of his appointment. His salary was £700 a year with 5% deducted for superannuation (5).

When Jack told his mother the good news he wrote: “I told you months ago that I had no hope. Dr. Cockayne was supporting Dr. H.H. Allan of Feilding and told me that it was “colossal impertinence” of me to apply. Prof. Kirk has supported me very well and I owe it largely to him that the job has come my way. I expect still to run the flax business. - - - The first thing I shall have to do up there will be to get a small car instead of my Scott [a motorbike that he had brought back from Cambridge]. I have to travel all over the country collecting flax and the bike is hopeless for carrying all the plants and gear I need” (5).

The other applicant, Dr. H.H. Allan, was First Assistant at Feilding Agricultural High School where he taught English and Agricultural Botany with its attendant practical work. He had earlier introduced an Agricultural Science Course at Ashburton High School (1916–21) and helped run the Experimental Farm, a cooperative effort with the Dept of Agriculture. On top of this, while at Ashburton and Feilding, he had carried out research on native plants and vegetation in his own time, leading to a D.Sc. (NZ) in 1923 and recognition at home and abroad as one of New Zealand’s leading botanists. It is hard to understand why he was not chosen. Perhaps, at 46, he was considered too old. But 5 months later he was appointed Systematic Botanist to the newly formed Plant Research Station, a joint venture between DSIR and the Dept of Agriculture based at Palmerston North. And from here he went on to become one of our great botanists (6).

There were 3 themes in Yeates’s professional life during 1928–31: teaching, thesis and flax.

Of the earliest Massey days the historian of the College, Tom Brooking (7), records that “classrooms and laboratories were improvised and often did not even contain bare essentials such as seats, blackboards and test tubes.” Yeates’s first study was a bedroom in the Batchelar homestead with a packing case for a table. “As there were only nine degree students in 1928 and a record of 33 in 1938, much of the staff’s efforts were directed to diploma and short-course students. Members of

staff with specialised training had to broaden their knowledge and scale it down even more considerably than they had perhaps anticipated. This necessity proved to be a real challenge to those who had little experience of teaching and of the student's level of knowledge. Dr. Yeates, for example, a trained plant cytologist, had to teach agricultural botany, an extremely broad subject which forced him to carry through a concentrated programme of general reading to provide his students with the overview they required. He admits that at times he was only a few pages ahead of his students, a situation in which most teachers find themselves at some stage of their careers."

Early students who took his classes (and their later positions) included C.P. McMeekan (Director, Ruakura Animal Research Station, Dept of Ag.), W.M. Hamilton (Director General, DSIR), J.D. Atkinson (Director, Fruit Research Division, DSIR), E.E. Chamberlain (Director, Plant Disease Division, DSIR), and L.W. Corkill (Director, Grasslands Division, DSIR).

As well as Agricultural Botany Yeates had been appointed to lecture in Field Husbandry, but in 1929 W.A. Jacques was appointed assistant-lecturer in the latter and in 1933 a lecturer, thus freeing Yeates from the subject. As for his thesis, Yeates had received seed from some of the bean plants that he had self-pollinated in the Cambridge Botanic Garden. But his Cambridge PhD was not awarded until 1931 (Diploma dated 5 Dec) (5). Presumably the demands of both teaching and flax research had left him little time for his thesis. Anyway, after comparing the chromosomes of parents and progeny he reported that "additional work to investigate the inheritance of mean chromosome length has produced conflicting evidence". The general conclusion of his thesis (*Some problems in the comparison of chromosomes*) was: "We may say that while internal structure of chromosomes does not yet offer a suitable basis for comparison, chromosome dimensions have given more favourable results. The outstanding need in this work is the measurement under constant conditions of chromosomes from successive generations of different homozygous forms in one species" (8).

The 10 years that Yeates devoted to flax research also saw a larger application of science to the industry than at any time in its history. An Advisory Committee, responsible for all aspects of research – botanical, chemical and mechanical – began meeting in 1930 with the following representatives of growers, millers, and other bodies: Mr. A. Seifert (Chairman), Mr. H.A. Seifert, Mr. B.B. Wood, Mr. E.E. Frost, Prof. G.S. Peren (Principal, Massey Agr. College), Mr. A.H. Cockayne (Director, Plant Research Station), Mr. H. Vickerman, Dr. J.S. McLaurin (retired Government Analyst), Prof. T.H. Easterfield (Chemistry, Victoria Univ. Coll.) (9).

As well as seeking improved varieties by intervarietal hybridisation, Yeates was also seeking flax bushes "which produce a high percentage of vigorous seedlings of uniform milling qualities. - - " To these ends he developed two experimental gardens at Massey College: a small area near the old Batchelar homestead and 20 acres on the College farm. By 1930 he had 250 "strains" of flax from various parts of New Zealand, represented as fans, as well as seedlings from these "strains"; and he also had his hybrids (9). Later he developed an experimental garden at Easton, near Shannon. To help look after these areas he sometimes had temporary labour.

Some interesting additions to the collection, reported in 1930, were 20 varieties from the Pukekura Park, New Plymouth. "They were part of a valuable collection of fine Maori varieties planted many years ago by Mr. W.W. Smith" (9).

In 1931 Yeates reported that "during the past year the work has suffered considerably as a result of the depression in the fibre industry. Nevertheless the work had reached a stage at which it was able to progress for a time at no great expense" (4). Even so, next year he had to report that the appointment of Mr. Meadows – who had worked on yellow-leaf disease since Feb. 1929 – had been terminated in early 1932. And Pollard (15) states that the last reference to the Flax Research Committee among Alfred Seifert's papers is a letter dated 15 March, 1932. Despite this Yeates continued his research until 1938.

Of interest to flower biologists should be Yeates's work on the pollination of phormium. The observations of Cross (10) had shown that flax flowers enclosed in bags did not set seed. But Yeates considered that bags created abnormal conditions and that all his seedling progenies suggested that self-pollination is the rule in phormium. By a time-consuming procedure in which foreign pollen was excluded without using bags he showed that "Ngaro flowers are quite capable of setting seed when

self-pollinated by pollen from the same flower" (4). As for pollinators he listed bees and certain birds such as the starling (*Sturnus vulgaris*) and the sparrow (*Passer domesticus*), all attracted to the nectar. The native honey-eater, the tui, was described as "comparatively rare" (11). He also concluded from his different progenies that brown or black edge to the leaf is dominant to orange edge; orange coloured butt is partially dominant to white butt; and that bronze or purplish colour of the leaf is dominant to green colour (4).

I give these and other extracts because Yeates's flax reports are not easily available. They were published in DSIR's Annual Report probably because, as Atkinson (12) explains: "Unfortunately publication was expensive and this growing spate of paper at a time of retrenchment provoked most critical official comment. Marsden's *riposte* was to publish detailed scientific papers in the Department's Annual Report to Parliament. For the scientists it was unsatisfactory as their papers had very limited circulation, and later generations have had difficulty in locating some of the early work."

The expansion of the flax collection continued. In early Dec. 1935, with the help of Sir Apirana Ngata, Yeates collected varieties from the East Coast and eastern Bay of Plenty. And in that year planting of some 25 acres at Easton was completed (16).

In 1936 Yeates contributed an excellent account of *Flax (Phormium tenax) or New Zealand hemp* to the influential publication *Agricultural Organisation in New Zealand* (11). As it deals with all aspects of the industry there is little reference to Yeates's own work; but in the same volume, F.R. Callaghan (13) notes that "one of the hybrids developed – 13K x SS – has shown distinct promise, and is now being propagated to a sufficient extent in nurseries to enable supplies to be available for new areas."

In Sept. 1937, 10 days were spent with Norman Taylor (pedologist) and Keith Dixon (soil chemist) of the Soil Survey Division, DSIR, examining phormium areas in several districts. They concluded that "in general the best phormium areas have a high soil fertility and a low water table" (17).

In Sept. 1938, "on account of pressure of other duties" (14), Jack Yeates relinquished his position as Director of the Plant-breeding, Testing, and Selection Section of the DSIR's phormium research activities. The work was transferred to the Botany Division, Plant Research Bureau, DSIR, and entrusted to Mr. A.L. Poole (14).

The Annual Report of the Department of Scientific and Industrial Research for 1939 states: "Dr Yeates has been associated with phormium research since its inception, and the Department desires to place on record its sincere appreciation of Dr Yeates's valuable work over a period of some 10 years during which he has contributed a great deal towards the improvement, by judicious breeding and selection of the quality and yield of the phormium plant." (14)

Acknowledgements

Dr Gregor Yeates FRSNZ (Landcare Research, Palmerston North) has again helped me with information about his father's career. I also thank Ms Tanja Webster (Research Librarian, Landcare Research, Lincoln) for copies of references, and Mrs Wendy Weller (Landcare Research, Lincoln) for her typing.

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Correction for previous issue: Note that the previous issue should have been Biographical Notes 68, not 67. Dates should have been 1900–1927.

PUBLICATIONS

■ Launch of David Galloway's "Flora of New Zealand Lichens" Second Edition

The following is the text of Eric Godley's speech at Landcare Research, Lincoln, 14 December 2007.

Thank you, Dr Breitwieser, and greetings to Dr David Galloway and Dr Patricia Galloway, and to all my other friends and colleagues here today.

When I say that it is a great privilege to be speaking at this launch, I say it because the second edition of the Lichen Flora of New Zealand is yet another landmark in the history of New Zealand botany, and indeed in the history of New Zealand science and the history of lichenology internationally.

It is therefore a great pleasure to congratulate David on bringing this major work to a successful conclusion; and it is also a great pleasure to congratulate David's wife Patricia on the award to her recently of the degree of Doctor of Music *honoris causa* by the University of Otago.

This second edition is not only of great importance for our country, and an essential reference for lichenologists of the other Gondwana lands – South America, Australia, Antarctica, Africa – but also, because of its wider approach, it has become of global importance.

These two volumes are a tribute to David's dedication to hard sustained work in the field, the herbarium, and at his desk, and to his wide learning. And they add lustre to the earlier Floras in the series – Allan; Moore and Edgar; Healy and Edgar; Flint; Webb, Garnock-Jones and Sykes; Edgar and Connor; and of course, his own first edition of 1985.

I would like to place David's achievement in a wider context and explain how we come to be meeting here at Lincoln on the 14th day of December, Anno Domini 2007. If I begin in the 1850s I hope that those at the back won't lose heart. I promise not to keep you standing for too long.

The Reverend Churchill Babington, the young English clergyman who wrote the lichen section for Hooker's *Flora of New Zealand* (1855) concluded that "it thus becomes clear that the lichenological flora of a country requires to be studied by a native botanist". But Babington's desideratum was not attained for about 120 years. Certainly, European botanists came here to collect, and New Zealand botanists sent collections to Europe for identification. And from time to time a resident botanist would take up a group. We could recall the retired school teacher, William Martin, of Dunedin, or the University of Otago biochemist, James Murray, but a full-time home-grown lichenologist was a long time in appearing.

The event is recorded in our Triennial Report for 1972-75 under the heading Staff Transfers. "Dr D.J. Galloway, Scientist, Applied Biochemistry Division, Palmerston North to Lincoln, 15-12-72."

This is almost the same date in December, you'll notice, as we're meeting on today. You'll also notice that we didn't get Babington's "native botanist". We got a type he'd never heard of, a native biochemist. But this native biochemist was also a gifted amateur lichenologist and that is why we wanted him at Botany Division. And from that date, 15 December, 1972, lichenology as a serious professional study began *for* New Zealand; but not *in* New Zealand because it seemed wise for David to go to the Natural History Museum in London to study the classic collections there, and in Europe, with a view to writing a *Lichen Flora of New Zealand*. And he was seconded there, as a Scientific Officer, Botany Division, DSIR, from 1973 to 1982.

I should say that it was against all the laws of the Medes and the Persians to have a young State Servant drawing a salary so far away without any supervision. What would he get up to all day? But, with the co-operation of a very civilised State Services Commissioner we managed it.

There is an oft-quoted passage in Cheeseman's 1906 "Manual" which goes: "every botanist who prepares a Flora starts from the standpoint reached by his predecessor in the same field". And "predecessors" are certainly quite common and recent in the field of seed-plants and ferns. When Dr Allan, for example, began writing his Flora in 1949, he could look back just 24 years to the 2nd edition of Cheeseman. But where was the lichen predecessor that David could start from? As far as I can see it was Hooker's treatment of the lichens in his 1867 Handbook. In other words he was more or less on his own. But his purpose was achieved in 1985 and on 3 March, he wrote and told me that "several copies of the Flora reached the Museum late last Wednesday" and how delighted and relieved he was. He added: "Within 10 years I'm sure we will need a completely new Flora and I really look forward to being able to put something together in due course – having the flora out at the age of 42 makes this possible", and 2 months later, on 14 May, he was making lists of notes for the second edition which, he thought "will indeed be necessary within 10–15 years."

From 1982 to 1987 David was a Senior Research Fellow in the Dept of Botany at the British Museum (Natural History); and from 1987 until 1992 he was Head of the Lichen Division, Environmental Quality Programme, also at the BM(NH). This involved him in much travelling and lecturing, particularly in Europe and North and South America and with his genius for friendship he became an unofficial ambassador for New Zealand botany, particularly because during these 5 years he was President of the International Association for Lichenology. Back in New Zealand he began writing in 1993, and the result you now see before you. This second edition is more than twice the size of its younger brother, and for at least three reasons: the greater number of species now recognised; the expanded descriptions including ecological information; and a Bibliography covering the world.

What David has done in a mere 35 years is to transform New Zealand lichenology from being one of the poor relations of New Zealand botany, to a status second to none in the world. And in the same time he has become one of the world's leading lichenologists. Should you not believe me take a look at a recent volume of *Bibliotheca Lichenologica* with its 38 papers written in honour of his 65th birthday.

Ladies and gentlemen when Allan's Flora appeared in 1961 Henry Connor reviewed it for the Christchurch Press and I reviewed it for the Listener. I doubt whether this would happen today [Next morning the Christchurch Press carried an excellent short notice of the Flora (E.J.G.)]. But certainly an appreciation of learning and scholarship still exists within the orbit of Landcare Research and that is why we are here today. I hope that it will continue to be so in the future.

David, the idea of this second edition came into the back of your mind in 1985, and the reality of it has been in the forefront of your life since about 1993. This coming Christmas will be the first for a long time that you don't have the responsibility of the Flora hanging over you. I hope that you'll now find time to relax with another of your great interests – botanical history. The trouble is that a man who gets out the first edition at 42 and the second at 67 may feel that he still has time to do a third. Perhaps though you'll settle for periodic "Additions and corrections to the lichen flora of New Zealand" and perhaps with one or two young co-authors in training to succeed you.

Finally I wish to thank David for his friendship over the years and for including me among the three to whom he has dedicated this major work. I am very grateful, and very proud. I should confess though that I cannot claim to know a great deal about lichens. But I do know this: they are very mysterious and very beautiful things.

There is a flier for the "Flora of New Zealand Lichens" on the last page.

■ Book review

“Flowering Plant Families of the World” by V.H. Heywood, R.K. Brummitt, A. Culham, and O. Seberg [with 25 contributors & 3 artists]. Firefly Books (Brown Reference Group). 2007. 424 pp. US\$65.00.

In 1978 the Oxford University Press produced two plant-books for the serious amateur: Moore & Irwin's “Oxford Book of New Zealand Plants”, and Heywood's “Flowering Plants of the World”. Just freed from the pressures of student life that year I found them invigorating, especially their splendid illustrations, which made comprehensible even oddities like *Balanophora* and *Rafflesia*.

In style and substance the book reviewed here is a molecular-biology era elaboration of the latter work, with pages that are slightly larger and a third more numerous. In its foreword Professor Heywood is praised for his role in vitalizing “plant diversity science” over more than 50 years. Because of this, and because of my fondness for the 1978 version, I'd hoped to be able to give here a very favourable review. But I can't, the main reason being that the discussions on affinity, though now on a less idiosyncratic basis than those of the past, have been allowed to take over, and as a result much space is now wasted, in my opinion, in citing tentative conclusions based on inadequate sampling of taxa.

The book's division of the flowering plants into 506 families follows a slightly modified Angiosperm Phylogeny Group II scheme. No cladogram is presented, just a double-page table that groups the families into clades (Magnoliids, Eudicots, etc.) and orders. The omission of a cladogram seems strange, but even more so is that the families are arranged in the text in alphabetical rather than phylogenetic order (except that that dicot/monocot division is retained). Despite what I've said above this has to be regarded as a failure to help readers grasp the phylogenetic nettle. One now has to turn to widely separated pages as relationships are endlessly considered and supported or dismissed, e.g. as Alseuosmiaceae is compared and contrasted with Phellinaceae, and Argophyllaceae with Escalloniaceae and Saxifragaceae, etc. The practical problem of finding families in a non-alphabetical ordering could have been solved by colour-coding the page numbers for each of the clades, with a family index placed on the end-papers (these have, unimaginatively, been left blank; a world-map would have been a useful adornment).

To repeat, in the treatment of each family much space goes towards discussing putative relationships, eg. for Griselinaceae the speculation is more copious than the description. Often old ideas are rejected without any new ones being put in their place; this of course is unobjectionable, but it could have been done more briefly. A good effort has been made to give the latest information, but one has to suspect that much of this will date badly (Hydatellaceae !).

The 1978 version did not contain literature references for each family. The present one does, sometimes just a couple but often half-a-dozen or more, nearly all of them molecular studies. Would not the most recent one(s) of these have been sufficient? The older references could mostly have been picked up from the Kubitzki et al.-edited “The Families and Genera of Vascular Plants” series, or from the internet. Secondly, not only are too many references cited for each family but the same ones appear again and again for related families. Perhaps this is a consequence of the collaborative mode of writing, but it does waste space.

What might have been done with the space saved? I would like to have had more elaborate synopses of infrafamilial classification, longer morphological descriptions, and much more phytochemical information. And more families should have been illustrated. In this regard the work is a disappointment: in order to preserve its distinctive look, presumably, it has no new illustrations at all. Even in the 1978 work only two-thirds of the c. 300 families were illustrated. Now the figure is somewhat less than half. Amborellaceae, despite its basal position, gets only text, as does the enigmatic *Hydnora*, “the strangest plant in the world”, and similarly for Medusagynaceae, only in the last few decades saved from extinction and recently given the full Kew Magazine treatment. Piperaceae, perhaps the most-frequently collected pantropical dicot group, is represented only by some glasshouse peperomias. Nothofagaceae is depicted just as it was in 1978 (as the genus), by an empty cupule. Nor have all the 1978 illustrations been recycled: Epacridaceae was formerly represented by a plate showing *Dracophyllum* and three other genera; now this group is merely noted as constituting a tribe in Ericaceae. *Alangium* (formerly as a family) is omitted.

The mapping of the families has serious flaws. The maps, generally of the whole world, are a single column wide, which is inconveniently small where restricted distributions are concerned. This problem is made worse by the strange choice of yellow to represent presence, and green, absence. (The 1978 book outlined the land-masses and used red for presence). The sea is shown in blue, making it that much harder to tell whether or not island-groups in the Indo-Pacific region have been yellowed. In fact, for the Solomons south and east, it is often impossible to see from the maps whether a family is present -- one would never know that Fiji is the terminus for a significant number of families.

Such complaint might be dismissed as local bias, given the format requirements, if family distributions had always been stated adequately in the text. But they haven't: there are startling errors (text or maps or both) with respect to the distribution of at least 50 families. New Zealand misses out (text and map) on Burmanniaceae, Rhamnaceae and Sapotaceae, but undeservedly gains Smilacaceae and Celastraceae (or perhaps it was intended that Stackhousiaceae went in here; it has been omitted altogether). New Caledonia misses out on Asteliaceae and Palmae, and (despite the enlarged map for these families) on Balanopaceae and Sphenostemonaceae too. Buddlejaceae, Elaeagnaceae and Quintiniaceae are either not shown or not mentioned for New Guinea, and Meliosmaceae is shown there for Irian Jaya only.

In his preface Professor Heywood notes that "a general distribution map is given for most families, but because of the scale, little detail is possible. Accurate distribution maps are difficult to compile and are surprisingly rare in the literature". But internet searches might have helped, e.g. Nesogenaceae, despite being one of only four families in the Pacific region to get an enlarged map (the others being Elaeocarpaceae, Surianaceae and Viscaceae), is now widely known, at least among conservation biologists, to occur in the Cook Islands.

As usual in such a comprehensive treatment one can find things to quarrel with in the morphological data. I don't think *Amborella* should be described as "sometimes becoming a liana" -- it is a bushy shrub with subscandent branches. *Griselinia (lucida)* is a hemi-epiphyte, not an epiphyte. *Ixerba brexioides* does not have scented flowers and its capsule valves are horny rather than woody (this is vital to its mode of dehiscence and seed-display). The inflorescences of *Piper* I think are always terminal, though they are often aggregated into the axils as reduced-branch systems. It seems anomalous to assert that cannabis is "dangerously addictive" when cocaine is noted merely as a "recreational drug" and khat (*Catha edulis*) as a "stimulant".

The standard of production is very high but there are lapses in the proof-reading, e.g. "Phillipines" and "[W.R.] Phillipson". "Malaysia" has often been used where "Malesia" would be correct.

This book, then, does have something of the feel of being a money-making venture: get hold of a classic, change the title slightly, and stuff it with phylogeny. But I did enjoy revisiting the illustrations with new interests in mind, and had to smile at comments by various contributors, Dick Brummitt in particular, on how best to partition some troublesome complexes. In summary, it provides a convenient family-scheme to follow, at a pretty reasonable price (unlike the Kubitzki-edited volumes!).

Note for those interested mainly in the artwork: second-hand copies of the 1978 edition can be got for c. US\$45.00.

Rhys Gardner

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