

NEW ZEALAND BOTANICAL SOCIETY

NEWSLETTER

NUMBER 100

June 2010



New Zealand Botanical Society

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Subscriptions

The 2010 ordinary and institutional subscriptions are \$25 (reduced to \$18 if paid by the due date on the subscription invoice). The 2010 student subscription, available to full-time students, is \$12 (reduced to \$9 if paid by the due date on the subscription invoice).

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

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

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

Deadline for next issue

The deadline for the September 2010 issue is 25 August 2010.

Please post contributions to:

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

Cover Illustration

Diplodinium alobulum drawn by Cathy Jones from a specimen collected beside the path to Split Apple Rock Beach, Tasman Bay, on 11 May, 2010.

NEW ZEALAND BOTANICAL SOCIETY
N E W S L E T T E R
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NEWS

Regional Botanical Society News

■ Auckland Botanical Society

March Meeting & AGM

After the AGM, with Mike Wilcox once more ensconced as President, Ewen Cameron filled in for the "Plant of the month" talk by describing the attempts to restore the environs of Ilha da Trindade (Brazil) from the ravages of goats and mice. Maureen Young and Alison Wesley combined to give an overview of the highlights of the January camp in Central Otago. For those who had attended the camp this brought back happy memories of those amazing cushion fields, and for those unable to attend, it was a colourful reminder of the diversity of the New Zealand flora.

March Field Trip

A group of 24 enjoyed a day exploring the plant life on Kawau Island. Our route took us from Schoolhouse Bay up to the Old Coach Road and then down to the copper mine, returning along the shore of Dispute Cove, and finishing at Mansion House Bay. Small native herbaceous plants seen on shaded roadsides were *Centipeda minima*, *Hypericum pusillum* and *Lagenifera lanata*. Kanuka (*Kunzea ericoides*) was the dominant native tree cover, but there was an abundance of naturalised trees and shrubs too, notably brush cherry (*Syzygium australe*) which grows as an understory beneath 60-year-old *Pinus radiata*, and various escapees such as honeyflower (*Melianthus major*) and butterfly bush (*Senna septemtrionalis*).

April Meeting

Dan Blanchon's "Plant of the month" talk brought us up to date with the work he has done on describing a new species of *Libertia* – *L. flaccidifolia* – so far found only on Mt Tamahunga, near Leigh. The writings of Lucy Moore had directed his attention to this taxon, as she had found that it had a different chromosome number from other species in the genus. This was followed by a fascinating talk by our Central Otago guide, Neill Simpson, outlining his friendship with Tony Druce and his family's long involvement with the Wellington Bot. Soc. Photographs of people and places were interspersed with those of some of the wonderful plants found along the way.

April Fern Workshop

John Braggins very ably convened the workshop at Massey University, giving a PowerPoint slide presentation covering the diversity of lycopods and ferns. People brought along fern samples and we used dissecting binocular microscopes to check out the fine points of sporangia arrangement and indusia. New Zealand has 29 families (lycopods, 3 families; ferns, 26 families) and we looked at representatives of most of them. We followed a new classification by Smith, Pryer, Schuettpelz, Korall, Schneider & Wolf (2006).

May Meeting

Christine Major chose the family Stylidiaceae for her Plant of the Month talk. None of our three NZ genera (*Forstera*, *Phyllachne* and *Oreostylidium*) has the trigger mechanism that is found in some in Australia. Mike Wilcox's talk comprehensively covered the conifers of the world and the botanical features, distribution, and ecology of this most economically important group of woody plants. Mike's wide travels during his career in the forestry sector admirably prepared him to illustrate, and speak authoritatively, on this subject.

May Field Trip

Last year the Native Forest Restoration Trust purchased a new reserve on South Kaipara Head, and named it the Marie Neverman Reserve in honour of a generous donor. A number of our members ignored the gloomy weather forecast to attend the field trip, and under a bright sun we set off around the edge of the artificially enhanced pond to check out some of the plants that remain in the modified vegetation there. The two that surprised and interested us were a few trees of *Nestegis montana* and *Dracophyllum sinclairii*. As the promised heavy rain shower approached we headed down into a large swamp area that is in the process of being added to the reserve, and there we saw the mistletoe *Ileostylus micranthus* and patches of an interesting forest type containing ngaio, kowhai (*Sophora*

chathamica), *Coprosma propinqua*, *Muehlenbeckia complexa* and *Parsonsia heterophylla*. Although we returned drenched, coffee at the Macadamia Café helped with the drying process.

Forthcoming Activities

2 June	Ewen Cameron - "Wild vascular flora of Tiritiri Matangi Island."
19 June	Mt Pleasant bush, Pine Valley Rd, Silverdale.
7 July	Mark Bellingham - "Restoring the sand dunes at Te Henga."
17 July	Lakes Kawaupaku & Wainamu, Bethells/Te Henga.
4 August	Lucy Cranwell Lecture, Art Whistler - "Ethnobotany of the Pacific."
21 August	Kauri Glen Park, North Shore.

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President: Mike Wilcox **Secretary:** Kristy Hall

■ Rotorua Botanical Society

February trip report: Motu weekend

Friday 26 February 2010 7 RBS members and associates met in Motu township for a three day exploration of DOC reserves along the Motu Rd. Our first visit was Motu Scenic Reserve, a stunning 20 ha DOC reserve just across the road from Motu School. Motu SR is predominantly kahikatea forest around an old cut-off river loop of the Motu River. We progressed clockwise around the edge of the river loop noting a good range of divaricating shrubs including *Neomyrtus pedunculatus*, *Melicope simplex*, *Raukaua anomalus* and *Lophomyrtus obcordata*. *Leptopteris hymenophylloides* and *Leptopteris superba*, and their hybrids were also common in the understorey. As water levels were low in the river loops we were able to botanise the edges of the river loops. The margins were dominated by *Coprosma tenuicaulis* and *Carex virgata* on wetter margins. Where raupo (*Typha orientalis*) wasn't present, the open water areas were fringed with abundant *Persicaria hydropiper* with some *Galium palustre*, *Bidens frondosa*, and *Ludwigia palustris*.

After a night camping at Motu School we headed to the nearby Whinray Scenic Reserve. Following the track downhill through the reserve we passed through predominantly emergent rimu and rewarewa over tawa on the hillslopes with kahikatea more common towards the gully bottoms and lower slopes. Kamahi was common in the subcanopy with tawari also present. A few minor additions were made to the species list including *Hymenophyllum scabrum* and *Blechnum vulcanicum*. In the afternoon we headed north along Motu Rd to the Takaputahi River and the DOC Whitiakau campground where we set up camp for the second night.

On Sunday morning we headed on foot up the Otipi Rd, a 4WD drive track which leads to the Motu River in the Raukumara Forest Park. The vegetation was predominantly scattered emergent rimu and northern rata (*Metrosideros robusta*) over a canopy of tawa and kamahi on very steep slopes. Hard beech (*Nothofagus truncata*) was also scattered throughout but formed denser stands including pole stands on ridges with toatoa (*Phyllocladus toatoa*) in places. Species of significance included *Orthoceras novaezelandiae* and *Libertia ixioides*. Weed species invading along this remote road included Himalayan fairy grass (*Miscanthus nepalensis*) and *Selaginella kraussiana*. In the late afternoon we returned to the car and made our way back out to the relative civilisation of Opotiki.

March trip report: Endean Rd

The Rotorua Bot Soc trip in mid March was to Endean Rd, an area on the rim of the Rotorua cauldrea. The main part of the trip was to show off *Dicksonia lanata* at its only site in the Rotorua ED, and *Blechnum nigrum*, but the real interest turned out to be a small remnant on a rocky knob not more than 30 m across isolated in recently felled pine forest. John Hobbs had found 60 species there and we added a further 20 including *Brachyglottis kirkii*, terrestrial *Pittosporum cornifolium*, *Blechnum novae-zelandiae* and *Raukaua edgerleyi*. The large species complement was a result small banks providing niches and an apparent lack of browsing, perhaps because of pest control in the plantation.

April Trip report: Marawaiwai

13 members of the Rotorua Botanical Society gathered a few km south of Opotiki on a beautiful autumn day and set off on a loop track alongside a stream through young kahikatea. Here Japanese

walnut and Chinese privet had been recently sprayed damaging some large trees. Discussions evolved around several grasses, *Cyperus* species, climbing ratas, and distinguishing *Coprosma areolata* with its pointed leaf tips from *C. spathulata* its winged petiole and flat leaf and *C. tenuicaulis* with a blunt tip and hairy under surface. *Melicope simplex* and several large small leaved milk trees were also noted. We soon left the track and headed off up the hill, at first through a large clearing of blackberry and bracken with an exceptionally large tree of terrestrial puka on the forest edge across a into high forest in a steep gully filled with nikau towards a spur with a tall puriri stand. Here an extensive patch of *Schizaea dichotoma*, and *Peperomia tetraphylla* growing in the roots of a tawa – both not common in the Bay of Plenty – defined a spot for lunch.

It was magnificent puriri forest with a few kohekohe and a very large rimu towering above the puriri canopy laden with epiphytes. On the main ridge vegetation changed abruptly to young forest with tall kanuka, rewarewa and small tanekaha as we sought a spur leading towards hard beech forest and the second stream. Here epiphytic *Adelopetalum pygmaeum* and *Drymoanthus adversus*, and a large terrestrial *Pittosporum cornifolium* were noted. Along the stream we searched a small of raupo and *Carex geminata* wetland for swamp maire noted in 1989 by Clarkson and Regnier, without success. Our return, after a steep climb through low scrub and *Blechnum novae-zelandiae*, took us via a broad ridge through more stunning puriri with nikau beneath. One particularly large puriri tree had two huge descending puka roots. Later a windfall revealed masses of *Peperomia tetraphylla* in flower, and the descent back to the clearing and soon the track and cars.

FUTURE EVENTS

13 June	Carmichael Reserve
21 June	AGM
11 July	Mangapouri SR
8 August	Pataua Is Ohiwa
12 September	Whirinaki

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

Secretary: Sara Crump

■ Wellington Botanical Society

New web site: www.wellingtonbotsoc.org.nz. Check for details of meetings, up to date trip arrangements and past newsletters.

Trip reports: 17 January. Druce QEII Covenant workbee

Helen had listed, in advance, priorities to assist the party of 11 volunteers on this steep Pinehaven hillside planted and maintained by Helen and Tony over 6 decades. Allison Druce deputised for Helen on the day. Many shrub species and beautiful grasses such as red tussock, *Chionochloa rubra*, were in flower. Seedlings of kōwhai, rimu and tānekaha were noted. Overgrown shrubs were carefully trimmed and the creek was cleared of debris. Helen always used to ask for a report on the health of the spindly, c. 30-year-old *Metrosideros bartlettii* high up on the hill track. Despite its better foliage density (possibly a response to fertilizer) it is still shaded by surrounding beeches and, like all rata, would prefer more light. Mention will be made to the Queen Elizabeth II Trust representative of this and the fact that gorse, broom and pines invading from the north need eradicating.

25 January – 3 February. Coromandel Peninsula

Day 1. Mount Te Aroha. There being 34 of us, we split into three groups; one taking the direct route to the upper area of Mt Te Aroha, 953 m, via the spur from the valley and the Waiorongomai incline, one group covering the lower Waiorongomai valley, and another investigated the Tui mines trail up from Te Aroha Domain. To access the incline meant skirting the bush for a way. There, the upper group had to distinguish *Deparia petersenii* from the more familiar *Paesia scaberula* growing next to one another. Further up the old rail incline *Adiantum fulvum* and *A. viridescens* were together. Then we went past an avenue of *Gahnia lacera*, and under a canopy that included mangeao/*Litsea calicaris* and tawari/*Ixerba brexioides*. Understorey highlights included *Rhabdothamnus solandri*, *Brachyglottis kirkii*, the pygmy cabbage tree/*Cordyline pumilio*, beds of *Asplenium lamprophyllum*, *Blechnum fraseri* and paukarimu/*Lycopodium deuterodensum*. At least seven *Hymenophyllum* species were dotted along the moist banks of the cuttings. The fern allies *Tmesipteris lanceolata* and *T. elongata* hung

from the trunks of tree ferns. The moister, higher, beech forests were dominated by mixtures of the familiar *Nothofagus truncata* and *N. menziesii*. Mount Te Aroha has the northernmost stand of red beech, *Nothofagus fusca*.

The second group, returning via the lower "Buck Rock Track", were disturbed to note the extent of invasive weeds including montbretia, hawthorn, ivy, Japanese honeysuckle, pines, gorse, blackberry, grey willow, creeping buttercup, selaginella and tree privet. However, they also noted *Anarthropteris lanceolata*, *Adiantum hispidulum* and *Sticherus cunninghamii* in addition to the many other trackside observations of the first group. It proved to be a refresher course on adventives for the third group as they left the Te Aroha Domain and moved around the northern side of the mountain into regenerating bush with many recent native plantings. They ended the day with a visit to the recently planted Howarth Memorial Wetland originally a town rubbish tip site.

Day 2: Opoutere Beach Recreation Reserve. An extended walk through mangroves and a mature Pine plantation with lots of interest was followed by further walking along dunes with healthy spinifex and pīngao, dotterels, Caspian terns and variable oystercatchers. The end point was a stunning coastal remnant forest featuring the rare tawapou, *Pouteria (Planchonella) costata*, with pōhutukawa, pūriri, kohekohe, *Pseudopanax lessonii* and coastal flax.

Day 3: Long Bay Scenic Reserve; 309 Kauri Reserve. Long Bay near Coromandel town is a small but good example, in parts, of northern coastal bush, dominated by smaller trees such as kohekohe/*Dysoxylum spectabile*, taraire/ *Beilschmiedia tarairi*, mamangi/*Coprosma arborea* and two areas of young kauri rickers, c. 80- 100 years old with one large, mature tree. Discussion centred on the differences between *Coprosma spathulata* and juvenile *C. arborea*, and the adult and juvenile forms of *Nestegis lanceolata*. Other understorey plants of interest were *Corokia buddleioides*, *Coprosma macrocarpa* subsp. *minor*, *C. spathulata*, *C. rhamnoides*, *Brachyglottis kirkii* var. *angustior*, *Mida salicifolia*, *Alseuosmia macrophylla* and *Olearia furfuracea*. Of the smaller plants, *Ichthyostomum pygmaeum* and small, non-bifid plants of *Schizaea bifida* under kauri caused considerable interest, as well as *Trichomanes elongatum* along the upper valley and creek-side in dark bush. The kauri grove on the 309 road to Whitianga is a remnant of the original kauri bush that somehow escaped the destruction of 100 years ago. The main understory trees are nīkau/ *Rhopalostylis sapida*, kahikatea/ *Dacrycarpus dacrydioides*, māhoe/ *Melicetyus ramiflorus*, Hall's tōtara/ *Podocarpus cunninghamii*, tree ferns and occasional tāwheowheo/ *Quintinia serrata*. Under the kauri is a different plant community, the ground being thickly covered with kauri grass/ *Astelia trinervia*, and some terrestrial *Pittosporum cornifolium*. Fan fern/ *Schizaea dichotoma*, in the bark litter at the base of the trees, attracted interest along with *Tmesipteris sigmatifolia*, found on one plant of *Dicksonia squarrosa*.

Day 5. Webb Creek and Billy Goat Track. It was overcast as the large group set off for the bluffs and high plateau shrubland of the Pinnacles. Highlights of the slow walk up Webb Creek Track included *Celmisia adamsii* var. *adamsii*, *Lindsaea viridis*, *Hymenophyllum minimum*, *Brachyglottis myrianthos*, *Gaultheria paniculata*, *Pittosporum huttonianum*, *Metrosideros albiflora*, and the sundews *Drosera binata* and *D. spathulata*. With the summit of the Pinnacles, 759 m, engulfed in mist, and rain imminent, most returned via Billy Goat Track where there were good views of Waterfall Creek where the effects of early kauri logging were most obvious.

Day 6. Kauaeranga valley. This day began so wet, some had to wade to breakfast. The day began at the visitor centre looking at the informative displays of the valley's natural and human history, and the remarkable film of the kauri logging era. Improving weather allowed most to botanise many of the short walks in the valley. Up 'Outlook 67' Track were tawa and northern rātā, but also many other invaders including Himalayan honeysuckle, purple pampas and tree privet. Catleys Track, along river terraces on the true left side of the Kauaeranga River, featured numerous kahikatea, miro, tōtara and mataī to 50 cm diameter.

Day 7. Miranda; Kopuatai Peat Dome. Our timing was perfect for the high tide at Miranda when the godwits, stilts, red knots and a substantial proportion of NZ's remaining wrybills had moved onto the shell banks and ponds. With the aid of a viewing scope we were able to see all the birds; especially the now plump godwits, many already showing their rosy/brick red mating colour on their fronts. Later,

Keith Woodley, author of the recently published *Godwits: long-haul champions*, told us the riveting story of E7; a satellite-tagged female godwit, tracked on a 29000 km round trip from Miranda in 2007. We then drove across the plains past dairy farms and stunted maize crops sunken below the level of the former swamp forest to the Kopuatai Peat Dome. Our access to the 10,000 Ha wetland was via Awaiti Canal Road and across a weir system designed to regulate the water levels within the wetland. A new weed to us greet us was American fireweed, *Erechtites hieracifolia*, before we entered a short track overgrown with *Hypolepis distans*, and an avenue of *Dianella haemata* resplendent with masses of blue berries. We saw, under *Epacris pauciflora* and *Coprosma tenuicaulis*, large *Drosera binata* and the rare *Lycopodiella serpentina*. The track ended amid a bed of *Empodisma minus* fringed with *Sporodanthus ferruginea* towering above us.

Day 8. Pauanui Trig Track. From the beach at the south end of Pauanui, the track led through a remnant of pūriri and kohekohe coastal forest before climbing steeply through scattered pine trees and scrubby vegetation. The 387m summit was covered in recovering forest, moist enough for filmy ferns to grow and dominated by northern rātā. The track then led down the eastern face towards the sea through secondary vegetation. *Olearia townsonii* was flowering, and orchids and lycopods grew amongst the rocks. Rengarenga, *Arthropodium cirratum*, hung from banks above the beach that featured platforms of hexagonally jointed basalt. As we exited the track, not 20 m from the edge of a heavily used part of the reserve, we found the nationally endangered native oxtongue, *Picris burbridgeae*. It was good that Graeme Jane could add this to his ever-growing plant lists, without which the trip would not have been nearly as enjoyable for the rest of us.

20 Feb. Tapu Te Ranga Marae Harvest Festival.

This festival was partly in honour of the Sisters of Compassion, who had “forgiven” the loan they originally gave the Trust to purchase adjacent land for the whare, and partly in honour of Sir Michael Fowler who was instrumental in getting the marae established in the 1980s. About a hundred manuhiri, among them several botsocers, were honoured with a pōwhiri. Marae plantings feature natives of threatened status such as *Carmichaelia stevensonii*, and on the bank was a Chatham Island nikau/ *Rhopalostylis* aff. *sapida* with a fan of flower buds uncurling near ground level, and several *Hebe elliptica*. A flourishing collection of plants of Far North origin features *Pouzolzia* (*Boehmeria*) *australis*, *Tecomanthe speciosa*, *Pisonia brunoniana*, *Pennantia baylisiana*, *Elingamita johnsonii*, *Streblus smithii* and *Pouteria costata*. Also flourishing was the pūriri/*Vitex lucens*, planted by Tony Druce in July 1992; now c. 6 m tall.

6 March: Karehana Bay Scenic Reserve, Plimmerton.

Greater Wellington RC has declared this recovering forest remnant a Key Native Ecosystem and possum control has assisted a recovering understory with many seedlings. It also includes many weeds including eleagnus, climbing asparagus, Darwin’s barberry and tradescantia. Nineteen set off into the lower reserve and thence to the top boundary following a rough route up a stream-bed. Numerous kohekohe seedlings were present as well as adult trees to 80 cm diameter, some with last year’s fruit, and some with flower buds. Thread fern provides dense groundcover in some areas, and wharangi/*Melicope ternata* trees up to 30 cm diameter were noted. Out in the sun was coastal tree daisy/ *Olearia solandri* with almond-like scented flowers. Next door is the proposed 11ha Brew family QEII Covenant. This too is kohekohe forest with wharangi, tree ferns, and occasional kahikatea, rimu, mataī, miro and nīkau in the canopy. *Metrosideros perforata* and *M. fulgens* were in flower here. A black maire sapling and the saprophytic black orchid—*Gastrodia cunninghamii* were added to a comprehensive list.

FUTURE EVENTS

- 5 June: Field trip Brew Covenant, Plimmerton. Wellington contact: Sunita Singh 387 9955.
- 21 June: Evening meeting: Fungi from the forests infecting birds and man
Speaker: Dr Mark Jones, Wellington School of Medicine.
- 3 July: Field trip Midwinter bryophytes, Otari. Co-leaders: Rodney Lewington 970 3142;
Peter Beveridge 237 8777.
- 19 July: Evening meeting. Mechanisms of mast seeding; why seed crops are so variable in
NZ. Speaker: Prof. Dave Kelly, University of Canterbury.
- 7 August: Field trip Coastal cliffs, Breaker Bay to Tarakena Bay. Leader: Frances Forsyth 384
8891

16 August: AGM and AP Druce Memorial Lecture: Northland Plants: Lisa Forrester, Biodiversity officer, Northland Regional Council.

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

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■ Nelson Botanical Society

February Field Trip: Mt Murchison

The top of the mountain is covered in *Chionochloa australis* (carpet grass) through which grow *Aciphylla anomala*, the hook sedge *Uncinia nervosa*, and NZ's only (small) population of *Hebe societatis*, so named because members of our society discovered it in November 2000. Rocky and gravelly gaps contained *Gentianella montana*, *Forstera mackayi* and *Pentachondra pumila* in flower, *Coprosma cheesemanii*, *C. fowerakeri* and *C. perpusilla*. There were plenty of mountain daisy species: *Celmisia incana*, *C. monroi*, *C. hieracifolia*, *C. lateralis*, *C. sessiliflora*, *C. laricifolia* and *C. similis*. A seep on the southern flank of the mountain supported *Drosera arcturi*, *Gaimardia setacea*, *Centrolepis ciliata*, *Epilobium pernitens*, and a tiny dark-leaved gentian. The grass *Zotovia colensoi* was common in disturbed areas along the roadside, along with *Raoulia glabra* and *R. grandiflora*. A small holy grass, *Hierochloa* species, was found, as was *Ranunculus verticillatus* with its highly variable leaf shapes.

March Field Trip: Maitai Caves Track

A stretch of regenerating scrub/forest (holding many exotics) was the first focus of the day, providing, among other plants of interest, examples of grasses, sedges and rushes (e.g. *Baumea rubiginosa* and the tussock-forming sedges *Carex secta* and *C. virgata*). The wet area also disclosed a good specimen of *Astelia grandis*, which was not previously recorded there and is a regionally threatened species. Later, the group encountered *A. fragrans*. The native forest held all four species of beech, Hall's totara, matai, kahikatea, rimu and miro, and had an understorey with good fern populations including a whole army of *Dicksonia fibrosa* with attendant *Cyathea smithii* in places. *Blechnum vulcanicum* and *Hymenophyllum demissum* were common on the ground and we found a clump of *H. scabrum*. *Grammitis ciliata* was compared to neighbouring *G. billardiarei*. *Dianella nigra* was loaded with beautiful blue berries and a very small-leaved *Hydrocotyle dissecta* patterned the forest floor.

April Field Trip: Sherry River DOC Covenant

Jeff Lukey's covenant on the Sherry River supports lowland beech forest and the nationally endangered *Olearia polita*. Although now extensively propagated, this species is confined naturally to a few sites in the south-eastern part of NW Nelson. Eleven species of small-leaved *Coprosma* were found as well as numerous forms of *Raukaua anomalus*. *Alseuosmia pusilla* was tucked amongst *Pseudowintera colorata*, which it closely resembles. There were some magnificent clumps of the scarlet mistletoe *Peraxilla colensoi* on silver beech hosts, and the other species of *Nothofagus* were present, as were many podocarps, including rimu, matai, kahikatea and *Podocarpus hallii*. *Cyathea colensoi* graced the stream banks and a few specimens of the primitive fern *Botrychium biforme* were seen. On a drier ridge, *Pittosporum rigidum*, still holding some tiny seed capsules, was found. The only hebe (apart from *H. stricta* which had obviously been planted along the streambank) seen was *H. leiophylla*.

April Meeting: "A Wander over the Wilds of Iceland with a little bit of Botanising". Andy Dennis

Andy has been going to Iceland for 35 years and for every summer since 2001, "for the landscapes and the people". He presented views of the country's diverse landscapes, putting the recent volcanic activity in context. Although only 20% of this country is vegetated and less than 1% is wooded, the flora slides were plentiful. Interestingly, the blue-flowering lupins that had been planted to stabilise the sand during the sandstorms are now proving problematic.

FUTURE EVENTS

June 20: Split Apple Rock Beach. Leader Cathy Jones (03) 546 9499
July 18: Plant nurseries tour. Leader Pamela Sirett (03) 542 3414
Aug 15: Jimmy Lee Ck, Richmond. Leader: Rebecca Bowater (03) 545 1260
Sept 19: Sunday Ck covenant, Dovedale. Leader: Sue Hallas (03) 545 0294

Evening meetings

June 21: Alpine plants of Otago. Speaker David Lyttle

July 19, Aug 16 and Sept 20: Speakers and topics to be confirmed.

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Waikato Botanical Society

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

Wanganui Museum Botanical Group

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Manawatu Botanical Society

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Wakatipu Botanical Group

Chairman: Neill Simpson (03) 442 2035

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ANNOUNCEMENTS

■ Wellington Botanical Society Jubilee Award 2010 – applications sought

Wellington Botanical Society invites applications for an Award of up to \$2500 to encourage and assist applicants to increase knowledge of New Zealand's indigenous flora, and to commemorate the Society's 50th Jubilee in 1989.

Purpose of the award

The Award is open to anyone working in New Zealand. It will be granted for: fieldwork; artistic endeavour; publication; research; propagation or cultivation of NZ native plants for educational purposes and/or other studies which promote the better understanding of NZ's indigenous flora and vegetation.

The interpretation of these conditions will be flexible, except that the main criterion will be the furtherance of knowledge or promotion of the intrinsic value of NZ's indigenous flora and vegetation. The Award may be used to defray costs such as travel, accommodation, materials or publication.

Applications for the Award

Applications should be made in typescript to:

Secretary, Wellington Botanical Society, PO Box 10 412, Wellington 6143 by 15 November 2010.

There is no prescribed application form, but the following must be provided:

- the applicant's name, postal address, telephone number
- any relevant position held
- a summary statement of the applicant's accomplishments in the field of botany – no more than one page
- an outline and timetable for the proposed project for which the Award is sought
- a proposed budget for the project

Selection

The Award will be made to one or more applicants selected by a subcommittee nominated by the general committee of Wellington Botanical Society. Award(s) will be made, and applicants informed of the results in writing, by 24 December 2010. Successful applicants will be required to provide, at an agreed time, a short report on what they have achieved, and an account of their expenditure of Award funds.

The names of the Award recipients, the value of the Award(s), and a synopsis of the project(s), will be published in the Annual Report of Wellington Botanical Society.

Barbara Clark, Secretary

■ **2010 Australian Systematic Botany Society Conference**

2010 Australian Systematic Botany Society Conference

“Systematic botany across the ditch: links between Australia and New Zealand”

Including palaeobotany, biogeography, phylogeny, algae, hybridisation, and biosecurity/weeds

When? Monday 29 November – Friday 3 December 2010

Where? Lincoln University, Lincoln, New Zealand

More information: www.landcareresearch.co.nz/news/conferences/asbs2010/index.asp

for conference registration form, speakers abstracts form, accommodation, field trip details, and other information.

Organised by Landcare Research, Australian Systematic Botany Society and the New Zealand Plant Radiation Network.

Email: ASBS2010@landcareresearch.co.nz

NOTES AND REPORTS

- **Pollination, fruiting and spread of Moreton Bay fig (*Ficus macrophylla*) in New Zealand, with notes on other *Ficus* species**

Colin and Robyn Ogle, 22 Forres St, Wanganui 4500, robcol.ogle@xtra.co.nz

Moreton Bay fig (*Ficus macrophylla*) is native to Australia, growing naturally in coastal New South Wales and southern Queensland. It has been grown in warmer parts of New Zealand since early European settlement, having been brought in as seed or young plants. In the Wanganui district these figs have flowered for many years, producing small hard green syconia, the so-called ‘fruit’,¹ but, until recently, these always dropped off without ripening. In 2007, in Moutoa Gardens in the central city and at Bason Botanic Reserve about 8 km west, towards the coast, there were many ripe fruit and seedlings.

Figs and their pollinators

The reproduction of figs is complex but fascinating. Because the spread of *F. macrophylla* depends upon the species' pollination, some details are given here, with special thanks to John Early,

¹ We use the term ‘fruit’ is used in this article, knowing that the young fruit of a fig is really a deep, concave, fleshy structure derived from the end of the flower stalk (receptacle) and lined on the inside with hundreds of tiny flowers. It is, in effect, an inside-out flower cluster, called a syconium.

entomologist at the Auckland Museum, for much of this information. Each immature fig fruit (syconium) contains both female and male flowers. In Moreton Bay fig, the female flowers are ready to be fertilised well ahead of pollen maturation in the male flowers. (They mature simultaneously in some other *Ficus* spp.). Female flowers are mature when the syconium is very small and when the bracts have just opened enough to expose the pore (ostiole) at the end of the syconium. Pollination occurs when a female wasp, covered in pollen from a mature fig fruit where she hatched, flies to a young syconium and enters the ostiole. She deposits pollen while crawling among the female flowers, lays eggs in the ovaries of several female flowers, and then dies. The wasp eggs hatch into grubs that feed inside the syconium, where gall tissue grows as a response to the grubs' presence. Eventually the grubs develop into adult wasps that mate inside the syconium, as the fruit ripens. Male flowers also mature and shed their pollen when the fig ripens. This can be several months after the female flowers mature. The female wasps crawl over ripe male flowers, and, covered in pollen, exit by chewing through the wall of the fig and fly off to find new young figs to enter. The male wasps die in the fig where they were hatched. In some *Ficus* spp. the newly emerged female wasps leave the fruit through the ostiole but, in Moreton Bay fig, the ostiole has grown over by the time the females are ready to leave.

Fig fruit development can be even more complex than this. In addition to pollinator wasps, most *Ficus* spp. are known to have non-pollinator wasps. Some of these are parasitic on the pollinating fig wasp larvae; others feed on galled ovary tissue or fig seeds. Whatever their mode of feeding, they all lay through the wall of the fig, unlike pollinator wasps. Most will not lay eggs until after the fig has been pollinated but there are some which do it in advance. Their egg-laying stimulates the expansion of the syconium wall, so if no pollinating wasps are present, the fruit develops but is seedless. Cultivated varieties of the common edible fig (*Ficus carica*) have only female flowers and ripen without pollination (i.e., are parthenocarpic) and, furthermore, the ripening is not initiated by a non-pollinating fig wasp. As John Early said to us, much of the pleasure of eating these figs is not encountering the hard seeds normally present in the fruits of *Ficus* species.

Fruiting of Moreton Bay figs in New Zealand

The Moreton Bay fig's pollinating wasp, *Pleistodontes froggatti*, was found in Auckland in April 1993 (Gardner and Early 1996), on Great Barrier Island in 1994, at Napier in 1998 and in New Plymouth in 2000 (Early 2000). Presumably, *P. froggatti* wasps were blown to New Zealand from Australia. This wasp was not found in Napier or New Plymouth in 1994 (Early 2000) and in June 1997 Early examined the large Moreton Bay fig tree in Moutua Gardens, Wanganui, but found no evidence of *P. froggatti*.

In November 1995, the first juvenile plant of Moreton Bay fig was found in Myers Park, Auckland, high in a tall *Phoenix canariensis* palm; a specimen was collected in July 1996 (Cameron 1996, 1997). A seedling of Port Jackson fig (*F. rubiginosa*) had been collected considerably earlier. It came from Cornwell Park in Auckland (Gardner 1983), following which Cameron & Cameron (1996) received information of a seedling being brought into cultivation in Northcote, Auckland, in about 1966.

In 1997, Moreton Bay fig seedlings were found growing on phoenix palms and other trees around Auckland and as far north as Kawau Island, all within 100 m of adult fig trees (Cameron 1997). Other specimens since then have come from several islands of the inner Hauraki Gulf and one (AK 281141, Feb 2003) from Great Barrier Island. Two collections of Moreton Bay fig seedlings in the



Figure 1. *Ficus macrophylla* on Sel Peacock Drive Bridge, Henderson.

past decade by P. J. de Lange were more distant from known fruiting trees, namely AK 300434 (29 Jul 2007) from Port Waikato, where the nearest known potential parent was 500 m away, and AK 287542 (22 June 2003) from Mt Albert Primary School in Sandringham, Auckland, 600 m from a known potential parent tree.

Moreton Bay figs have been found growing terrestrially around Auckland and are quite common now on rock or brick walls (E Cameron, pers. comm., 4 Feb. 2010). We discovered and photographed (Fig. 1) a shrub about 1 m tall on outer side of a bridge support on Sel Peacock Drive, over Opanuku Stream in Henderson, West Auckland, on 28 Jan. 2010 (E. Cameron, 6 Feb. 2010; AK 309527)

Moreton Bay figs in Wanganui

In Wanganui, on 25 April 2007, we found two fig seedlings, both < 20 cm tall, one on a *Jubaea chilensis* palm with a one-metre trunk in Moutoa Gardens (AK 299765) and one on a 1.5 m trunk of *Phoenix canariensis* across Bates Street from the large Moreton Bay fig in Moutoa Gardens (AK 299766). These fig seedlings were 40 m and 20 m away, respectively, from the only likely parent tree.

We found many more seedlings of Moreton Bay fig in a survey on 17 June 2007 of palms at the Bason Botanic Reserve ('the Bason'), a District Council park and arboretum 8 km west of Wanganui. A solitary *Jubaea chilensis* palm with a trunk about 1.5 m tall was about 20 m from the nearest adult fig. It supported 21 fig seedlings (AK 299745). Four *Butia capitata* palms, planted in a line parallel to the pergola that leads to the conservatory, were no more than 15 m from the nearest adult fig tree. One *B. capitata* specimen had 37 fig seedlings, the tallest about 0.5 m (AK 299746). This same palm had seedlings of karo (*Pittosporum crassifolium*), lemonwood (*P. eugenioides*), puka (*Meryta sinclairii*), various hybrid five-fingers (*Pseudopanax crassifolius* X *P. lessonii*) and *Euphorbia mellifera* (AK 299769 Ogle #5197). All four *Butia* palms had fig seedlings. Epiphytes on the Bason's *P. canariensis* palms were harder to assess, because most had crowns well out of reach. A few fig plants could be seen from ground level, the largest being 1 - 2 m tall (Fig. 2). Small fig seedlings were found on the lower trunk of several *P. canariensis* (AK 299744), along with seedling puka, karo, blackberry (*Rubus fruticosus* agg.),



Figure 2. *Ficus macrophylla* on *Phoenix canariensis*, Basin Reserve, Wanganui

thistles (*Cirsium* spp.), *Oxalis chnoodes* and ferns, including *Rumohra adiantiformis*. The greatest distance we found for a seedling fig from a potential parent fig tree was 50 m. Judging by the age of similar figs in Auckland, a 1 - 2 m shrub could be four or five years old (E Cameron, Auckland Museum, pers. comm.). This means the pollinating wasps had been in Wanganui at least two or three years earlier, making the time of their arrival no later than 2002 or 2003.

Having found indirect evidence that the pollinating wasp, *Pleistodontes froggatti*, for Moreton Bay fig had reached Wanganui, we gathered several lots of ripe fruit from below the Moreton Bay fig from Moutoa Gardens in June 2007. In them, John Early found *P. froggatti*, elongated and black with long heads. He also reported (pers. comm.) finding a second fig wasp species, *Sycoscapter australis*, which is not a pollinator. He stated that it is a beautiful metallic green and females have a long ovipositor but what the wasp does inside the fig fruits is unknown. It requires a partly grown, pollinated fig and lays its eggs through the syconium from the outside. Early (pers. comm.) suspects that its larvae feed on gall tissue that forms in response to the pollinator's presence.

On 8 March 2009, one of us (RO) found mature figs on a tree of *F. macrophylla* in our own garden at the base of Durie Hill, Wanganui. At the Auckland War memorial Museum, *P. froggatti* wasps were found in these fruits

(J Early, pers.comm., 13 March 2009). In a direct line, our tree is < 400 m from Moutua Gardens, where we had found the first ripe fruits and seedlings of Moreton Bay fig in April 2007.

During the winter of 2009 we surveyed several Moreton Bay fig trees in Kilbirnie and Seatoun in Wellington, but found no ripe fruits or seedlings.

Other *Ficus* spp. near Wanganui

On 17 March 2009, Clive Higgie brought us specimens of several different *Ficus* spp., some with fruits, from his 'Paloma Gardens', north-east of Fordell. 'Paloma' lies some 17 km east of Wanganui. We forwarded these *Ficus* specimens fresh to the Auckland War Memorial Museum herbarium (AK) where John Early reported finding *P. froggatti* in two fruits of *F. columnaris* (*F. macrophylla* ssp. *columnaris*; C N Higgie, AK 304644), a taxon from Lord Howe Island and a new host record for New Zealand. The specimen from *F. rubiginosa* had tiny immature fruits in which John Early found no evidence of fig wasps. However, on 1 May 2010, Clive Higgie showed us the tree of *F. rubiginosa* from which the 17 March 2010 collection had been made. We sent a twig with one enlarged but green fruit fresh to AK (AK 312889). Fragments of the female pollinating wasp, *Pleistodontes imperialis*, were found in this fruit by John Early (pers. comm. 25 May 2010).

Until recently, most research suggested that each fig species is pollinated by a single wasp species. Now, however, it appears that at least some figs may be pollinated by more than one wasp species, and some wasp species may pollinate more than one species of fig. Hawaii has some 60 species of introduced figs, but only four of the wasps that fertilize them have been introduced and only four species of figs, including Moreton Bay fig, produce viable seeds in Hawaii (Wikipedia 2010).

The future?

Many figs, including Moreton Bay fig, can begin life from bird-dropped seed high in another tree, from where they send roots to the ground. The fig branches overtop the host and its woody roots surround the host's trunk. Eventually the host tree dies. Overseas these have been called strangler figs or banyans. Technically the host has not been 'strangled' but died through being out-competed by the fig for light, water, minerals, or any combination of these. Pre-emptive removal of Moreton Bay fig seedlings from trees has already been done in city parks in Auckland and Wanganui. Establishment of Moreton bay figs on man-made structures like walls, bridges and buildings could lead to expensive repairs or, at least, costs in removing the fig plants.

The threat of Moreton Bay figs spreading into our native forests is more worrying. Most seedlings of figs have been found up to 100 m from adult fig trees in Auckland (Cameron 1997), suggesting that birds are digesting figs close to where they feed. However, there are seedling collections for which the nearest potential fruiting tree is up to 600 m. Around New Zealand, are all Moreton Bay fig trees more than 600 m from native forest? And how far might a constipated, fig-eating bird fly?

Acknowledgements

We thank Clive Higgie for identifying the Wanganui palm hosts of *Ficus* for us and for collecting other *Ficus* samples from his gardens, to Ewen Cameron (Auckland Museum) for additional plant identifications and information on self-establishing figs in the Auckland region, and to John Early (Auckland Museum) for identification of the fig wasps and for very generously allowing us to include his research information about them in this article. Thanks, too, to Ewen and John for their valuable comments on drafts of this article.

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■ Pimelea News

Colin Burrows, Research Associate, Biology School, University of Canterbury

Final Stages of the Revision

In late March 2010 work on *Pimelea* 4 and 5 (the last two papers towards the taxonomic revision of the genus in New Zealand) is drawing to a close. Rebecca Wagstaff is completing the drawings and the texts have been peer-reviewed by kind (but critical!) botanical friends, Cathy Jones, Bryony Macmillan, Mike Thorsen and Josephine Ward. Scripts are now being tidied up before being sent to the New Zealand Journal of Botany.

In ways affecting their evolution and taxonomy, hairy-leaved *Pimelea* entities have proved to be complex. In *Pimelea* 3 (Burrows 2009b), six species with abaxial leaf hair, mainly from coastal to lowland sites, were examined. Most of the remaining hairy-leaved entities live in mountain regions. Classification of these plants has been made difficult by phenomena unimagined by the early taxonomists (Cheeseman 1925; Allan 1961). There has been considerable resultant confusion, judged by the labelling on herbarium specimens. Regional variants and widespread introgressive hybridisation (sometimes involving three parents) have been among causes of classificatory problems. Superficial similarities between entities have also caused confusion.

Pimelea 4 deals with ten species that have leaf hair restricted to abaxial surfaces. In *Pimelea* 5 five species that have both adaxial and abaxial leaf hair are covered. In *Pimelea* 5 there are also: A key for all of the hairy-leaved New Zealand *Pimelea* species; a summary of informal species groupings in the whole genus in New Zealand; a brief summary of character contrasts between species in the New Zealand and Australian *Pimelea* floras; and an outline of the evidence for migration of the progenitors of New Zealand *Pimelea* from Australia.

Some specimens from the Hooker Herbarium at Kew have been important in relation to revision of a few of the species. Jeremy Bruhl and Tony Orchard have been very helpful in this respect. However, most of the information upon which *Pimelea* 4 and 5 are based comes from the New Zealand collections. I am extremely grateful to many kind people at CHR, AK, WELT, OTA, CANU, SCION and DOC-NM (and also Mike Thorsen) for help with access to the material in their care.

Some species live in remote localities. One of the most difficult parts of the whole study has been getting access to fresh material, especially of flowers, fruits and seeds. These are, of course, needed for my examinations, and for the art work. I am deeply indebted to field workers who have contributed specimens, photographs, or new records (Pat Enright in Wairarapa – Wellington; Shannel Courtney, Cathy Jones, Jan Clayton-Greene, Simon Moore and Rebecca Bowater in Nelson – Marlborough; and Mike Thorsen in Otago). Without the brilliant art work of Rebecca Wagstaff, photography by Debby Redmond and patient support from Vivienne Benzie-Burrows, these papers could not have been prepared.

Errors in *Pimelea* 2

In Burrows (2009a), a complex paper dealing with glabrous-leaved entities in the *Pimelea prostrata* and *P. urvilleana* species-groups, there are two substantial errors. I had used the spelling *urvilliana* for this now scarce coastal species described by Richard (1832), (and subspecies *nesica*), because that was how Richard had spelt it. However, Peter de Lange (2009) pointed out that we should use the form spelt with an “e”, as Allan (1961) and earlier authors had done, to conform with the ICBN rules for Latinisation of surnames used as specific epithets. Presumably we should pronounce the specific epithet urville-ana.

The second error is that on pages 207 and 208 in *Pimelea* 2 there is mutual misplacement of the scatter diagrams and their legends. On p.207 the information for *P. carnos*, *P. prostrata* subsp. *prostrata* and hybrids between them should be depicted, while on p.208 the information for *P. carnos*, *P. prostrata* subsp. *ventosa* and hybrids between them should be depicted.

An error in *Pimelea* 3

In this paper (Burrows 2009b), on p.334 in the middle of the right hand column, reference to Fig. 8 should be expunged. Regrettably, my proof-reading has been inadequate for this and the second error in *Pimelea* 2.

Additional Information for *Pimelea ignota*

This rare species has been recorded from low, windswept heath shrubberies above the coast between Cape Farewell and the North Westhaven Inlet Heads. Shannel Courtney and I found one plant near Greenhill Stm in December 2007. Simon Walls found another two or three plants nearby in 2009 (Burrows 2009b). Shannel has more recently found one more specimen a little further south, beneath the sheer cliffs of the Mt Lunar ridge.

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■ **Herbarium Report**

Auckland Museum Herbarium (AK) report: 1 July 2008 to 30 June 2009

Ewen K. Cameron, Botany Department, Auckland Museum, Private Bag 92018, Auckland

The major Museum staff restructuring which began earlier in 2008 saw the split of the Collection staff (curators, conservators and technicians) into Research (curators) and Collection Management (conservators and technicians), and overall one-third of the Museum staff leaving (to be replaced by a similar number). The result was that the curators no longer had a specialist technician each, instead the technicians were pooled and their numbers were reduced. For botany Mei Nee Lee resigned (25 July 08) and the technical support was reduced to an equivalent of 1-2 days per week. Some of the short-fall of technical support was covered by the curator and extra volunteer time.

Public Relations

During the year herbarium staff answered some 79 public and 536 professional enquiries, and Ewen Cameron led/co-led 3 field trips, and gave 10 lectures (3 internal, 7 external) including one to Nelson Botanical Society on 'Northern offshore islands', two-joint conference papers to Ecological Society Conference (Tiritiri Matangi / island stability); and invited guest lectures for two stage III University of Auckland courses in Biogeography and Conservation Ecology. Other involvement included contributing to *Secrets* Exhibition which opened Jul '08, and being the lead curator for *Wonderland – the mystery of the orchid* which opened July '09; a member for the Master Plan review of the Auckland Botanic Gardens; re-elected as one of the vice-Presidents of the Auckland Botanical Society; member of the new ARC's Weedspotters (launched Jun '09) and provided herbarium weed data for them grouped in the 12 Auckland Ecological Districts (extracted by Mei Nee Lee on ARC funding) – this community project will aim to provide new records and fill in the missing herbarium

voucher gaps; wrote the foreword for Tricia Aspin's book '*Maoro to Manukau Heads – a botanical journey through Awhitu District*' (2008) – a wonderful publication documenting the botany of Auckland's previously poorest known Ecological District, and during the time of writing Tricia increased the herbarium's holdings from that area from a paltry 250 in 2000 to now over 1,170 specimens. Currently the only herbarium data available on-line via the Auckland Museum website is the vascular types – we are working towards making more data available in the near future. Approved requests for large amounts of specimen data were passed onto collection management.

Caring for the collection

Contract technician Frances Duff, funded by the Lottery Grants Board, continued throughout the year working 4 days/week transferring the 22,000 donated vascular plant specimens of the Auckland University herbarium (AKU) into the Museum herbarium – she standardised and verified each electronic record, printed new labels and an army of volunteers attached labels, cut down sheets (most AKU sheets were 10 mm too long), added flimsies and filed the specimens into the main herbarium run. At the end of June some 17,000 AKU specimens have been fully transferred, and inferior or superfluous specimens were discarded (some requiring de-accessioning). This project is continuing.

In June the herbarium finally acquired PC1 Containment status from MAF, in line with most of the other New Zealand herbaria so that it could continue to operate local and overseas loans and exchanges.

Fieldwork/Research

Fieldwork for Ewen Cameron included trips to Pakihi Island (1 day Oct, 1 day Jan), Aldermen Islands (3 days, Nov), Whatipu (1 day Feb), and Great Barrier Island with the Auckland Botanical Society (4 days, Feb). Herbarium staff and research associates published 17 articles/papers – topics included vascular floras of several Hauraki Gulf islands or parts of larger islands, threatened plants, collections of Dan Hatch, sex of flowers, and a key to grasses of the central Pacific.

Acquisitions and donated specimens

In March 2008 a Museum-wide moratorium was put on all new acquisitions until a new policy was developed – during this period new acquisitions required Trust Board approval. However, existing backlog specimens could still be processed.

Numbers were down on previous years, however, specimens were received from: Tricia Aspin, Jessica and Ross Beever, John Braggins, Ewen Cameron (134), Paul Champion, Pat Enright (33), Rhys Gardner, Graeme Jane, Peter de Lange (662), Lisa Forester, Tim Martin, Colin Ogle, Barbara Parris, Jeremy Rolfe, Bec Stanley, Mike Wilcox (588), Anthony Wright, Maureen Young (40), and Biosecurity Officers of Auckland, Northland and Bay of Plenty Regional Councils, and DoC staff of Northland and Auckland.

Totals for the year were 2,440 overall - made up of: lichens (332), mosses (221), liverworts (410), algae (296), pteridophytes (62), gymnosperms (21), and angiosperms (dicots 836, monocots 262). Some 20% were specimens from AKU – these ones required new accession numbers unlike the bulk of the AKU vascular plants that were on a separate AREV database that was migrated onto Vernon in February 2003 and given AK numbers at that time. Some 23% were from the Chatham Islands and most of these were collected by Peter de Lange often jointly with Peter Heenan – the bulk being lichens, liverworts and mosses. There was also a collection of mainly liverworts (93) from Raoul Island collected by Peter de Lange and David Havell. Most of the algae specimens were collected by Mike Wilcox as part of his ongoing marine seaweed survey of the Auckland region.

Staff

Curator	Ewen Cameron
Honorary Research Associates	John Braggins, Rhys Gardner
Botany technician	Mei Nee Lee (July)
Collection management technicians (shared)	Finn McCahon-Jones, Vasiti Palavi
Botany contract staff	Frances Duff (4 days/week)

Volunteers

Chris Ashton, Jan Butcher, Jocelyn Day, Shelley Heiss-Dunlop, Morag Macdonald, and Meryl Wright all worked 0.5-1.0 day/week for another year; Joan Dow rejoined us (Feb-); and Linda Bethell (Aug-), Louisa Morgan (Sep-), Sandra Jones (Oct-), Danielle Parke (Apr-) all joined the team, giving a grand total of 1384 volunteer-hours for the year. A Unitec undergraduate student, Lisa Te Maro, carried out 10.5 days work experience in the herbarium (Jul-Oct) towards her Bachelor of Applied Science (Biodiversity Management). Rhys Gardner, Peter de Lange, John Braggins, Jessica Beever, Dan Blanchon, Wendy Nelson and Mike Wilcox all assisted with difficult or specialist identifications.

Visitors

There were 37 visiting researchers; 8 postgraduate students; 3 groups of undergraduates totalling 113 students – 47 Auckland University Pacific Biogeography students mapping mistletoe distributions, 34 Unitec biodiversity and 32 South Pacific College of Natural Therapies students visited; 7 visits by 5 special interest groups totalling 63 students; and 5 members of the public. Overseas visiting researchers included Elizabeth Brown and Endymion Cooper (NSW, liverworts); Anne Gaskett (from Cornell/AKU, *Tayloria*); and Irish artist Isobel Nolan, who sketched and painted NZ lichen specimens for two weeks.

Statistics

The moratorium on new acquisitions led to an increase of outgoing exchanges to clear the shelves, and incoming exchanges put on hold to await the new policy. Although there were 2,440 new accessions, plus some accessions of existing foreign herbarium specimens, the total increase to the database was only 2,412 specimens – this shortfall is explained by de-accessions of superfluous AKU material (see above).

New accessions:		(2007-08)
30 June 2009	305,280	
30 June 2008	<u>302,840</u>	
	2,440	(3,064)
Records on Vernon database:		
30 June 2009	214,496	
30 June 2008	<u>212,084</u>	
	2,412	(3,145)
Total records linked to images:	3,655	(3,235)
Loans of specimens		
Inwards:	3 [31 spec.] from 3 institutions	(5[99] from 5)
Outwards:	31 [1805 spec.] to 14	(37[1002] to 12)
Exchange specimens		
Inwards	74 specimens from 3 institutions (158 from 1)	
Outwards	648 specimens to 15 institutions (168 to 4)	
Total number of specimens out on loan:	6,643 to 42 institutions	(6,282 to 38)

Thanks to Chris Jones and Vasiti Palavi (Collection Management) for assistance with extracting the annual figures from the Vernon database.

BIOGRAPHY / BIBLIOGRAPHY

■ Biographical Notes (76) Captain Sir James Everard Home (1798–1853)

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

I should acknowledge, straight away, my debt to Mr Rhys Gardner of the Botany Department at the Auckland Museum. Through his interest in our native geraniums (1,2) he accumulated a lot of information, including the portrait used herein, about James Everard Home, who is commemorated in *Geranium homeanum*. This information he generously handed over to me and it forms the basis of the present note. I have added items from the Home-Grey letters in the Auckland City Library and background information about the war in the north.

James Everard Home (whose surname, I gather, is pronounced Hume) was born on 25 Oct. 1798. His grandfather was Robert Home Esq. of Greenlaw Castle, County Berwick. His father was Sir Everard Home, Sergeant-Surgeon to George the Third, Surgeon to Chelsea Hospital, Vice-President of the Royal Society and President of the Royal College of Surgeons. And he was the nephew of John Hunter Esq., Surgeon-General to the army (3,4). A descendant in another branch of the family, Alec Douglas-Home, surrendered his peerage as the 14th Earl to become the British Prime Minister in 1963 (3,4,5,6).

On 10 April, 1810, Home joined the navy as a midshipman and served consecutively in the Mediterranean, Ireland, and on the home station. He was elected to the Fellowship of the Royal Society of London in 1825, *aet.* 27, but of his contribution to science at that relatively young age I know nothing. Promoted to captain in 1837 he was given command of the frigate *HMS North Star* in 1841, and fought on her in the Opium War in China. While stationed near Shanghai he made observations (which he published) of the solar eclipse of July, 1842. He was then appointed Senior Naval Officer to the Australian Station (3,4,5,6).

New Zealand 1843 *HMS North Star*
Buick (7) has written, "The *North Star*, a frigate of twenty-eight guns, and the *Haszard*, a corvette of eighteen guns were both on the China station before being ordered to Australian waters. The *North Star* was sent from Sydney to assist in the installation of Governor Fitzroy and to take him south to enquire into the circumstances surrounding the affair at the Wairau." The Wairau affair was on 17 June, 1843 and Fitzroy arrived in Auckland in Dec. 1843 (8). In addition, Home and *North Star* visited Wellington in late August, 1843, and relieved a threat to the town by Te Rauparaha's forces (6). This was probably a separate visit.

New Zealand 1845 *HMS North Star*
Because of Maori unrest in the north Governor Fitzroy had, for some time, requested military and naval assistance from Sir George Gipps, Governor of New South Wales. To this end reinforcements arrived in Auckland from Sydney on 23 March, 1845 including the *North Star*. In the meantime Kororareka had been



**Captain Sir Everard Home Bart. RN,
from Curtis's Botanical Magazine Dedications 1827-1927.**

sacked on 11 March. On 27 April the *North Star* left Auckland with a force under Lt. Col. Hulme. It showed the flag at Kororareka next day before moving on to the Kawakawa River. Here Pomare's pa was destroyed on the suspicion of his disloyalty. "Pomare did not evince much reluctance to go on board the *North Star* and during his semi-captivity he and his family were treated with much kindness by Sir Everard Home" (7). There is an excellent drawing of *HMS North Star* anchored outside Pomare's pa in the first volume of Cowan's "History of the New Zealand Wars". On 12th May the *North Star* took Lt. Col. Hulme to Auckland and from there set out for Sydney, leaving despatches at the Bay of Islands en route (7). From Sydney Home took *North Star* to England via the Cape of Good Hope (7).

The next indications of his whereabouts are given by his letters to Sir George Grey which were written from:

1. "Pah on Kawa Kawa": 4 Jan. 1845
This is a peculiar date, because neither Home or Grey were in New Zealand at the time.
2. "HM Ship North Star, Auckland": 20 Nov. 1845
3. "HM Ship North Star, Bay of Islands": 1 Dec. 1845
4. "HM Ship North Star, River Kawa Kawa": 9 Dec. 1845
5. "Pah": 30 Dec. 1845
6. "HM Ship North Star, Auckland": 20 Jan. 1846
7. "HM Ship North Star, Sydney": 16 Feb. 1846

It is considered that *Geranium homeanum* was collected during this period. According to Carolin (9) the label on the Homes material states "loco dicto Perakiteri" but gives no dates, but according to Gardner (2) the type "was collected in 1845 by Sir James Everard Home at a place supposedly called Perakiteri. No such locality is known, but Home, a British naval officer and captain of *HMS North Star* was taking part in military operations in the Bay of Islands in that year, and it can be assumed that this plant was got somewhere near the Punakitere River." [This river is a little inland from Kawakawa]. Since publishing this, Mr Gardner has written to me: "But now I realise this probably refers to a Maori name, cf. Pinakitere for *Anisotome* sp. and *Geranium australe* (Allan, 1961)".

New Zealand 1845–46 North Star

The *North Star* was back in Auckland on 18 Nov. 1845 attendant at Capt. George Grey's official landing and swearing in. The new Governor and the new military commander, Colonel Despard, then went north on 27 Nov. to assess the military situation. They arrived at Kororareka next day, where Grey worked from the *North Star* which had accompanied them. He returned to Auckland about 4 Dec. after assuring Colonel Despard of his intention to pursue the war with vigour. To this end the *North Star* moved to the Kawakawa river on the 5th; and Colonel Despard and Sir Everard "made a flying visit to the navigable head of the Kawakawa river" and found a suitable base for the attack on Ruapekapeka (the Bat's Nest), Kawiti's pa some 18 miles inland. This was taken on 11 Jan. 1846 and during the siege the *North Star* helped guard the soldiers' embarkation point. On 28 Jan. 1846, with peace declared, Sir Everard visited the Mission Station at Paihia, and met Hone Heke; and on 29 Jan. he visited Kawiti and Pomare at Kawakawa. He also visited inland Ohaewai, and by 16 Feb. 1846 the *North Star* was back in Sydney.

England 1846–1850

In the two letters from England the following matters are relevant to New Zealand. From West Odiham on 18 Mar. 1848 Sir Everard tells Grey that Professor Owen desires specimens of the moa; and from Ham in Surrey on 6 June, 1850, he writes "that Prof. Owen thinks the moa will be found alive in the South Island" and that Sir William Hooker is anxious to know whether Governor Grey has commenced a botanical garden. There is another letter which is dated 9 March 1848, when he was in England but inscribed as written in Port Cooper, New Zealand.

New Zealand 1852

On 28 Nov. 1850 Sir Everard assumed command of *HMS Calliope*. But while the ship was being towed to sea, bound for Australia, he suffered head injuries when the capstan bars flew loose. This accident undoubtedly shortened his life. Thus, not until the 2nd March, 1851, did the *Calliope* set sail (7) and by 27 July had arrived in Sydney when he wrote to Sir George "when able to visit New Zealand with pleasure will visit Sir George Grey: has fallow deer on board for New Zealand given by Mr Edgecomb." He further wrote, on 13 Sept. 1851, that he was "anxious to get away from Sydney = held up by refitting of the *Bramble*."

In the New Year of 1852, Home, as Senior Naval Officer in this region, made a swing around from Sydney through New Zealand, the Auckland Islands, Van Diemen's Land (Tasmania) and back to Sydney. This voyage can be roughly dated as follows:

1. Auckland. There are 2 specimens of *Spinifex hirsutus* in AK, "ex Herbario Museo Britannici" collected by Home at Wai-he-ke Island (near Auckland) in January, 1852.
2. Port Cooper (Lyttelton). The letter written to Sir George Grey from the *Calliope* at Port Cooper is included here despite the fact that it is dated 9 March, 1848, when Home was in England. It

would fit perfectly if dated 9 March, 1852. The summary begins: "Movements of Sir James Everard Home and his ship – his exploration with observations on places, their potentials etc. from Kapiti to Nelson, Queen Charlotte Sound and per Tory Channel to Wellington." After remarks on Akaroa and Port Cooper he notes that he desires to visit the Timaru roadstead, that the Bluff Harbour is important, and that he has to visit the Aucklands.

3. Auckland Islands. A letter written from Hobart on 22 April, 1852, mentions "has visited the Auckland Islands."
4. Tasmania. In the letter written from Hobart, Home states that he has been asked by the Commander-in-Chief, India, to purchase and send to Trincomalee spars from New Zealand for the dock. He requests advice. From Sydney on 28 June, 1852 Home thanks Sir George for his trouble re spars, and for his kindness to the officers of the *Bramble*.

In the latter part of 1852 Home cruised to Norfolk Island, Tonga, Fiji, the New Hebrides, and several other groups, returning to Sydney on 19 Dec. 1852 (3). A full account of this voyage is given in a letter to Sir George Grey from Sydney dated 2 Jan. 1853. Despite declining health Sir Everard made another cruise later in 1853 "to the neighbouring colonies and islands" (3) and it is probable that New Zealand was revisited. Back in Sydney, Sir Everard was "struck by paralysis" and on 2 Nov. 1853 he died. He was buried in the Camperdown Cemetery, and there is a memorial to him in St. James's church in Sydney.

As far as I can see Britten and Boulger (5) were wrong to give 1854 as the year of death of Sir Everard.

Eponymy

1863 *Geranium homeanum* Turezmaninov in Bull. Soc. Imp. Nat. Hist. Soc. Mosc. 36: 591.

Acknowledgments

I am particularly grateful to Mr Rhys Gardner, as indicated earlier, for giving me an easy start to this note; and also particularly grateful to Ms Kate de Courcy of Auckland City Libraries for sending me the summaries of the Home-Grey letters in its collection. I am also very grateful to Ted Doonerwind (librarian, Landcare Research, Lincoln) and Ms Pam Knox and Ms Elizabeth Jensen (both of Christchurch) and to Wendy Weller (also of Christchurch) for her typing.

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PUBLICATIONS

■ New Book

Illustrated guide to New Zealand sun orchids, *Thelymitra* (Orchidaceae)

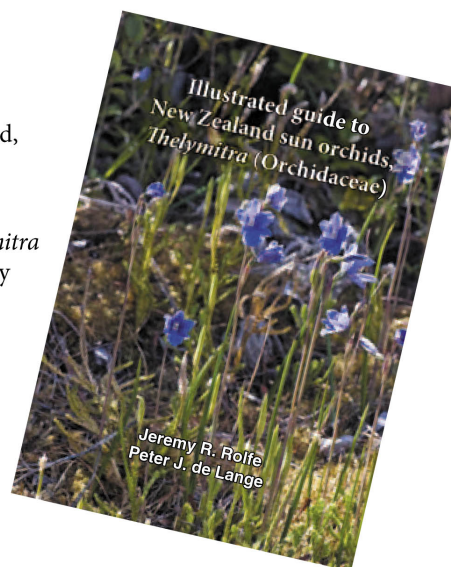
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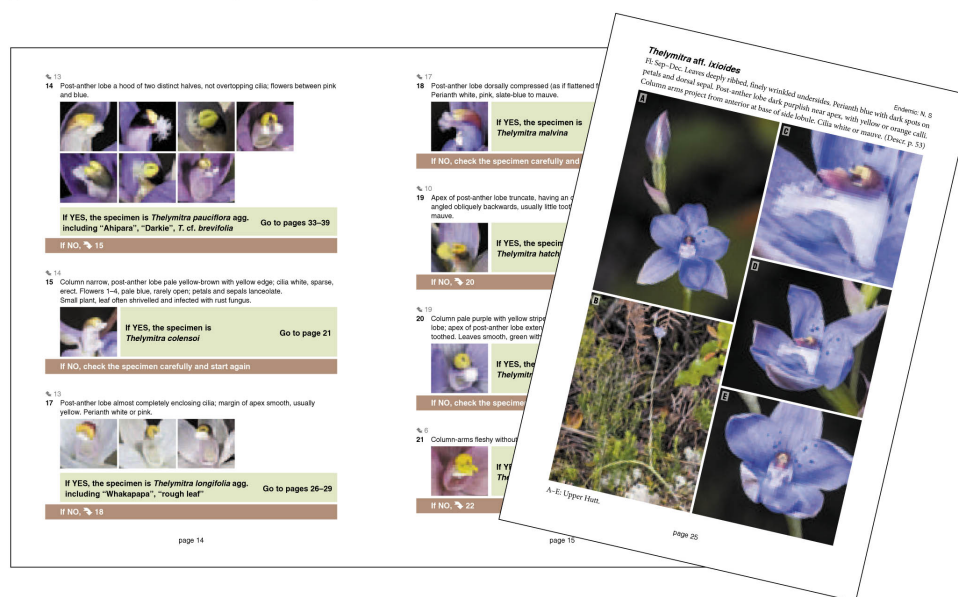


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■ Book Reviews

Threatened Plants of New Zealand

By Peter de Lange, Peter Heenan, David Norton, Jeremy Rolfe and John Sawyer
Published by Canterbury University Press, Christchurch, 2010
Hardback, 472 pages, 267 × 200 mm, ISBN 978-1-877257-56-8
Available from Touchwood Books and Manaaki Whenua Press \$NZ99.95

Reviewed by Murray Dawson

Threatened Plants of New Zealand is a comprehensive and up-to-date account of New Zealand's six extinct and 184 severely threatened native flora.

The front cover illustrates the outstanding flowers of the iconic and popular garden plant *Clianthus puniceus* (kaka beak) and it is a shock to learn (p. 89) that it is so endangered that only one plant is known in the wild. Another 24 species in the book are known in the wild from fewer than 200 plants. We are also told (p. 33) that nearly 8% of our flora is regarded as threatened with extinction.

These facts are not widely known by the public so this new book is a most welcome and much needed reappraisal of New Zealand's rare and endangered native plants. Earlier books on New Zealand's threatened plants were authored and co-authored by the late David Given and date back to the 1980s (Given, 1981; Williams and Given, 1981; Wilson and Given, 1989²); these are now out of print and outdated.

Botanical, ecological and conservation research during the intervening decades has changed the taxonomic and conservation status of our threatened plants and this is comprehensively captured in the new book.

The layout is excellent and follows much the same format as the field guide *Wild Orchids of the Lower North Island* (reviewed in the *New Zealand Garden Journal*, 2008, Vol. 11(1): 32–33). Jeremy Rolfe, John Sawyer and Peter de Lange are the three Department of Conservation authors of both books.

Jeremy Rolfe is a botanist and photographer. He provided the layout concept for *Threatened Plants of New Zealand* and took most of the close-up and studio photographs. John Sawyer is a plant ecologist and the current secretary of the New Zealand Plant Conservation Network (NZPCN, www.nzpcn.org.nz). John and Peter de Lange promoted the idea of this book back in 2004 and John secured the funding for its production.

Peter de Lange is a threatened plant scientist based in Auckland, and Peter Heenan is a plant taxonomist at Landcare Research, Lincoln. The two Peters are among New Zealand's most productive botanists and they often collaborate (as evidenced in the book's reference list). They were responsible for the comprehensive botanical text (pp. 42–429) which is copyrighted to them.

The remaining author, David Norton, is a botanist and ecologist at the New Zealand School of Forestry, University of Canterbury. All five authors are deeply involved with New Zealand's threatened plants and this combined depth of knowledge is apparent throughout the book.

As explained in the Sponsor's Foreword (p. 11) MWH is an infrastructure and environmental company that sets aside some of its profits towards conservation projects. This enlightened company should be fully acknowledged for supporting the production of this worthy book.

The main Foreword (pp. 12–13) is suitably crafted by immediate past-President of the NZPCN Ian Spellerberg, and is followed by a Preface (pp. 14–15) and Acknowledgements (pp. 16–17).

² David Given's obituary was published in the *New Zealand Garden Journal*, 2006, Vol. 9(1): 19–20. Wilson and Given's (1989) book bears the same title as that reviewed here, *Threatened Plants of New Zealand*.

The Introduction (pp. 18–37) was written by David Norton, Peter de Lange and John Sawyer, and ably sets the scene for the main body of the book. The only lack here is discussion of the taxonomic and phylogenetic (DNA-based) concepts used (e.g., the classification followed for the family names or mention of debate surrounding use of *Hebe* versus *Veronica*).

Under the heading 'The New Zealand flora and its origins' it is mentioned that there are some 2370 native vascular plant species of which 82% are endemic (found nowhere else). Biogeography and the age of the New Zealand flora are also touched upon. The heading 'What is threatening New Zealand's threatened plants?' is answered by discussion of habitat loss, predation, competition, reproductive failure, and (sadly) human ignorance. Competition of invasive weed species with threatened native plants is one of the largest problems.

The Introduction usefully explains the New Zealand Threat Classification System, upon which all plants featured in the main body of the book (pp. 42–429) are arranged. We are told that the Threat Classification System is unique to New Zealand and has been developed to be more meaningful to the patterns of rarity encountered here. The system is a distinct departure from the IUCN (International Union for Conservation of Nature) categories followed in the pioneering books by David Given and his co-authors.

The New Zealand Threat Classification System was first developed by Molloy et al. (2002), revised by Townsend et al. (2008) and followed by regular lists of threatened and uncommon plants now published in the *New Zealand Journal of Botany*. As mentioned in the Introduction, the most recent list (de Lange et al., 2009) provides the following categories and numbers of taxa (e.g., species, subspecies, varieties):

- Extinct (6)³
- Threatened (180; comprising 91 Nationally Critical, 45 Nationally Endangered, 44 Nationally Vulnerable)
- At Risk (651; comprising 83 Declining, 6 Recovering, 20 Relict, 542 Naturally Uncommon)
- Vagrant or Coloniser (25)
- Data Deficient (35).

This book covers only the first two categories; plants are grouped by the six extinct taxa and the 184⁴ threatened taxa, subcategorised in three groups as above. Different colours are used for the headings of each threat category and within each group the plants featured are arranged alphabetically by genus and species.

This arrangement by threat category is appropriate but it does mean that related taxa (typically species in the same genus) are dispersed between categories. Under Recognition (where related species are discussed) a cross-reference by page number would have helped locate near relatives.

Two pages are devoted to each species except for Cook's scurvy grass (*Lepidium oleraceum*) (pp. 390–393), which is deservedly featured in four pages to explain the recent research and diversity of growth forms.

Each plant featured contains the following information: botanical name (the main heading), family, common and Māori name(s, if any), conservation status (and qualifiers), description (including flowering and fruiting months), recognition (as coloured text boxes), distribution (and a distribution map), habitat, and threats.

Few non-experts will closely read the exacting botanical descriptions. However, these are essential to help describe and identify each plant. The authors (the two Peters) have obviously laboured to get them consistent and complete, and the sources of their descriptions are well referenced. Perhaps they

³ The extinct species are *Lepidium obtusatum*, *Logania depressa*, *Myosotis laingii*, *Myosotis traversii* var. *cinerascens*, *Stellaria elatinoides* and *Trilepidea adamsii*.

⁴ 184 in this book rather than 180 in de Lange et al. (2009) because four new threatened species have since been formally described (see Preface). This Preface also acknowledges that there are about 400 informally recognised vascular plant entities, many of which will also be threatened.

could have used a smaller font for the descriptions and expanded some of the other information which may appeal to a wider readership?

The distribution maps clearly show how restricted some of the plants are. Extinct species have open circles denoting historical records and threatened species have closed (colour-coded) circles showing the extant (current) distributions. In my opinion, addition of open circles to map former distributions of the extant, threatened species would have provided a valuable comparison.

All plants are well illustrated with informative and interesting captions. The more than 600 photographs used in this book are credited to over 70 photographers. While a few of the threatened species are showy and well known in gardens (such as *Carmichaelia stevensonii*, *Clianthus puniceus* and *C. maximus*, *Hebe speciosa* and *Myosotidium hortensium*), it would be fair to say that most are less photogenic and rather inconspicuous. Nevertheless, the authors have done well to assemble a superb collection of photographs that show them at their best.

The book concludes with References (pp. 430–435), an Appendix with new combinations (new botanical names or ranks; pp. 436–439), an extensive Glossary explaining terms used (pp. 440–454), About the Authors (pp. 455–456), and a combined Index of common and scientific names (pp. 457–471).

The Appendix publishes new combinations for seven new names used in the book. In my view, it would have been better to formally publish these combinations beforehand and elsewhere in a scientific journal. Some of the other botanical names and combinations used in the book are relatively new and may not be familiar to all readers. In some circumstances it would have been useful to add key synonyms – not a whole list, just the earlier name for which a plant was widely known previously (e.g., *Carmichaelia stevensonii* was previously known as *Chordospartium stevensonii*).

The text is largely free from errors. Page 4 misspells the plant name depicted on the cover (*Clianthus* rather than *Clianthus*). My quibbles are only minor and greatly outweighed by the strengths of this book.

The clean presentation and abundant photographs make *Threatened Plants of New Zealand* work well as a semi-popular, even ‘coffee table’ style book, yet at the same time it contains detailed information. Although not particularly cheap at nearly \$100, I consider this book a worthwhile investment considering that it is a hardcover volume approaching 500 pages.

As mentioned in the Introduction, the public still perceive threatened plants to be less sexy than endangered birds and other animals. *Threatened Plants of New Zealand* should help address that difference in perception by raising the profile of New Zealand’s threatened flora and help the fight to protect our unique plant heritage.

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This book was launched 25th March 2010 at the Department of Conservation in Wellington.

■ **Publications Received**

Auckland Botanical Society Journal Volume 64 (2), December 2009, ISSN 0113-4132, 177pp. Hall's totara, Mexican fan palm, *Pittosporum pimeleoides*, *Schoenus* and *Lepidosperma*, Waitemata and Manukau frontages, Pakihi Island, Rangitoto remembered, Muriel Fisher, Lucy Cranwell lectures.

Wellington Botanical Society Bulletin Number 52, April 2010, ISSN 0110-6708, 94pp. Otari-Wilton's Bush, Elsie Craig Gibbons, *Pseudopanax*, *Uncinia*, *Ourisia*, *Simplicia*, out-of-place native plants, Geoff Nicholls Park, diatoms, Steeple Rock and Pinnacles, *Coprosma* hybrids, *Fissidens berteroi*, Carillon landscape.

Wellington Botanical Society Newsletter April 2010 ISSN 1171-9982, 17pp. New website, Jubilee Award, Island Eradications Conference, Whitirea Park fire, new covenants.

Botanical Society of Otago Newsletter Number 59, March 2010, 31pp. *Korthalsella lindsayi*, wall bryophytes, American botany student impressions, *Cotoneaster*, *Crassula alata*, Tautuku Forest.

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