

NEW ZEALAND BOTANICAL SOCIETY

NEWSLETTER

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New Zealand Botanical Society

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Deadline for next issue

The deadline for the September 2018 issue is 25 August 2018.

Please post contributions to:
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Send email contributions to editor@nzbotanicalsociety.org.nz. Files are preferably in MS Word, as an open text document (Open Office document with suffix ".odt") or saved as RTF or ASCII. Macintosh files can also be accepted. Graphics can be sent as TIF JPG, or BMP files; please do not embed images into documents. Alternatively photos or line drawings can be posted and will be returned if required. Drawings and photos make an article more readable so please include them if possible.

Cover Illustration

Brachyglottis hectori by Eleanor Burton.

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NEWS

Regional Botanical Society News

▪ Auckland Botanical Society

March Meeting and AGM

At the AGM Ewen Cameron was once again elected President. As is traditional, our Lucy Cranwell grant recipient was our post-AGM speaker, this time Jo Carpenter, a PhD student from the University of Canterbury. Great interest was taken in her subject, assessing the ecological consequences of extinction and whether or not flightless birds are important seed dispersers in New Zealand. With 67% of our original 27 species of flightless birds now extinct, it is still unclear what mutualistic services these provided, as moa could possibly have been seed predators.

March Field Trip

The Port Waikato ephemeral wetlands, dune slacks and sand dunes were the site of this trip. The turflands included the usual suite of tiny plants, *Lilaeopsis*, *Limosella lineata*, *Samolus repens*, *Centipeda aotearoana*, *Salicornia quinqueflora*, *Triglochin striata* and *Carex pumila*.

April Meeting

Tim Curran from Lincoln University, along with colleagues, has been firing up a flaming barbecue in order to answer questions about plant flammability. Among the questions asked are the following. What is plant flammability? How do we measure it? Has it evolved? How can it help us reduce fire hazard? And how might it influence future vegetation change?

April Field Trip

A dozen people made it all the way out to the Awhitu Regional Park at the end of the Awhitu Peninsula. Once again we were indebted to Tricia Aspin, our Awhitu expert, for leading us around the areas of botanical interest, and she also introduced us to some of the history of this isolated point. A great deal of inappropriate planting has been undertaken over the years, so we mostly concentrated on the more natural wetlands. Swathes of the fern, *Hypolepis distans*, covered large parts of the semi-wet areas, a sight that is rarely seen around Auckland.

May Meeting

For Plant-of-the-Month Alison Wesley spoke of a threatened plant, *Pimelea orthia*, that she is monitoring where it grows well, on the Defence Force land at the end of the Whangaparaoa Peninsula. André Bellvé spoke of his studies, aided by a drone, of nest epiphytes (*Astelia* spp.) and the conditions they are providing or ameliorating, that allows other vascular epiphytes to establish and survive.

May Field Trip

On the Worsfold farm and nursery, on the Kaiwaka/Mangawhai road, large areas have been retained in second-growth bush that have long been fenced. Bot Soc takes a special interest in the many such protected areas, and is indebted to the farmers who willingly give us access. Kauri, up to a metre in diameter, grows on the ridges, and as elsewhere in this district, we were intrigued by the many different forms of the small-leaved *Alseuosmia*. We are hopeful that the genetic work currently being undertaken will give us some insight into this confusing genus.

Forthcoming Activities

16 June	Waterfall Farm, Waiwhiu
4 July	Yumiko Baba: Botanising here, there, and everywhere
14 July	Lichen workshop
1 August	Jessica Beever: Auckland moss stories
18 August	Motukaraka Island/Omana Regional Park

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■ Rotorua Botanical Society

March Field Trip - Big Swamp - Whakamarama

This area was visited in 2017, but we spent too much time in the upper reaches, so this time there was a "No Botanising" rule until we reached the target clearing - an open, boggy area with signs of an old logging camp. The clearing is now covered in *Glechenia dicarpa* but it appears to have also been burnt, with large, old burnt logs scattered around. The rush *Machaerina teretifolia* emerged from the fern in the boggy areas, and there were large clumps of *Ghania xanthocarpa* to be avoided. The forest around the clearing was dominated by *Phyllocladus trichonomoides*, with scattered large *Nestegis montana* on the higher ground and some remnant large rimu. Many of the trees were draped with *Metrosideros fulgens*, in full flower. Although there appeared many animal tracks through the clearing, there were *Griselinia litoralis* seedlings under many of the trees. The small *Podocarpus laeteus* scattered through the clearing were stunted through heavy browsing. A notable find was *Botrichium australe*; it looked odd with two very large sterile fronds (up to 25 cm) on each plant, instead of the usual one sterile and one fertile frond. Less welcome was a single plant of Royal Fern, *Osmunda regalis*, which was quickly despatched. Crossing one of the streams on the way back there was a lovely fresh growth of *Hymenophyllum atrovirens*, complete with sori - this fern is usually very tattered as it only grows within the flood-line of streams.

FUTURE EVENTS

June 10 Okataina Scenic Reserve bush walk
July 1 Waimungu Scenic Reserve
August 5 Ngamanuwa kauri
September 9 Maungatautari

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■ Whanganui Museum Botanical Group

For monthly meetings the Whanganui Botanical Group has merged with Birding Whanganui (local branch of OSNZ) and the Whanganui branch of Forest and Bird, under an umbrella name of 'Nature Talks'. Each group will arrange a speaker for about 4 meetings per year. Meetings will normally be on the 3rd Tuesday of each month. It is intended to continue with monthly botanical field trips to which members of the other two groups are invited.

President: Clive Higgie (06) 342 7857 clive.nicki@xtra.co.nz

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■ Wellington Botanical Society

October fieldtrip – Glenburn Forest and Saline Springs, Eastern Wairarapa

Twenty members travelled to the Saline Springs site, which is 400m a.s.l. and has recently been deer fenced for protection from trampling by animals using it as a salt lick. Above the saline spring was a seepage wetland dominated by areas of *Carex flagellifera* (unc), *C. geminata*, *C. virgata*, *Eleocharis acuta*, *E. sphacelata*, *Machaerina rubiginosa* and *Schoenus concinnus*. Despite being over 3km from the coast, there were turfs of *Samolus repens*/māakoako and *Selliera radicans*/remuremu.

Summer Camp, 5-11 January – Volcanic Plateau

Taurewa Loop Track - The forest was dominated by tall podocarps, with a canopy of thin-bark tōtara (*Podocarpus laetus*), miro (*Prumnopitys ferruginea*), mataī (*P. taxifolia*), and the occasional kaiwakawaka (*Libocedrus bidwillii*). Other podocarps included pink pine (*Halocarpus biformis*), manao (*Manoao colensoi*) and mountain toatoa (*Phyllocladus alpinus*).

Tupapakurua Falls Track - Huge tōtara, rimu, miro, and cedar tower over a diverse range of some 60 forest tree and shrub species e.g., *Beilschmiedia tawa*, *Nestegis cunninghamii*, *Quintinia serrata*, *Mysine salicina*. The tree ferns *Cyathea smithii* and *Dicksonia squarrosa* often grace a middle layer above the lush species of *Blechnum* (nine seen), both crepe ferns and the many other fern species

and seedlings. In the wetter environment towards the falls there were some of the largest *Blechnum colensoi* many of us had ever seen draping the bank, along with huge plants of flowering *Machaerina sinclairii*. When nearly back at the carpark, we admired a *Gastrodia cunninghamii* at least 75 cm high, with its 39 flowers and apricot smell, followed by a solitary fruiting body of *Aseroe rubra*.

Silica Rapids Walk – The lower part of the track started under a low canopy of *Fuscospora cliffortioides*/mountain beech and *Olearia aborescens*. We saw more than a dozen fern species along this section, but the highlight was very large examples of the greenhood orchid *Pterostylis patens* in flower. Following the impressive rapids it was a pleasant walk through the red tussock to the top end of the track, with large clumps of *Celmisia incana* being a feature.

Round the Mountain Track – A prominent feature of this track on the western scoria slopes below the snowy flanks of Te Maunga Ruapehu were the multitudes of clumps of *Racomyrium* moss. The perfume of the flowers of *Dracophyllum recurvum* and the crushed leaves of *Celmisia incana* delighted us.

Ohinetonga Scenic reserve – Large trees in this 148 ha reserve include kahikatea, miro, mataī, tawa and tītoki. NZ gloxinia, *Rhabdothamnus solandri*, was flowering with striking bright orange flowers. At the lagoon we saw a dabchick (NZ grebe) swimming amongst *Carex secta*, *C. maorica*, *Cyperus ustulatus* and *Eleocharis sphacelata* growing in deep water beside the boardwalk.

Taranaki Falls Walk - We set out on a well-made but busy track through sub-alpine scrublands with emergent mountain beech, *Fuscospora cliffortioides*. The scrublands included mānuka and *Olearia arborescens*, both in flower, *Raukaua simplex*, *Podocarpus nivalis*. The walk was notable for the number of orchid species we saw, including *Pterostylis montana*, *P. patens*, *Thelymitra cyanea*, *T. nervosa*, *Caladenia chlorostyla*, and the odd-leaved orchid, *Aporostylis bifolia*. Other highlights included many fork-leaved sundew *Drosera binata* and a flowering red mistletoe, *Peraxilla tetrapetala*.

February Fieldtrip – Te Kopahou Reserve

Members of the Wellington 4WD club kindly provided transport for the trip, allowing us to travel further than if we were on foot. Although much of the reserve had previously been used for cattle grazing we were able to locate some treasures including *Clematis afoliata*, *Korthasella clavata* on *Coprosma propinqua*, *Euphrasia cuneata* in flower and *Meliclytus crassifolius* agg.

March Fieldtrip – Boulder Hill, Kelson, Lower Hutt

The lower slopes of Boulder Hill were dominated by weeds but we found *Gaultheria antipoda*, *Carpodetus serratus*, *Cyathea cunninghamii* and large *C. medullaris*. Climbing higher we were impressed with the number of large *Lophomyrtus bullata* (thankfully free of myrtle rust), as well as flowering *Metrosideros fulgens* and *M. perforata*. Many emergent dead tree trunks indicated that the trees here were substantially larger in the past.

April Fieldtrip – Wainuiomata catchment

Because the deer stags had started the “roar”, there were hunters in the catchment, so we were required to botanise only along the side of the road on the valley floor. The valley contains forest that is regarded as the finest example of northern rātā-podocarp forest in the southern North Island. The 3km road walk to it passes tall kānuka forest on land cleared decades ago for farming, swamp forest with swamp maire, then forest dominated by majestic towering northern rātā, rimu, mataī, kahikatea and miro, some possibly over 30m tall. A highlight amongst the additions to the list was adder's tongue fern (*Ophioglossum coriaceum* agg.).

May Fieldtrip – Tanah Burung, South Karori Rd, Wellington

We botanised our way up a broad track on the steep 24.7ha private property of north-facing regenerating mixed broad-leaved native forest and pine forest. We were impressed by the number of species of fern, from ground dwellers to epiphytes and tree ferns. Of note was a spot near the top of the track near a barn where three *Polystichum* species were growing together in a clump on the bank.

FUTURE EVENTS

- | | |
|---------|---|
| 9 June | Fieldtrip to Paekawakawa Reserve & Oku St Reserve, Island Bay. |
| 18 June | Evening meeting: A Region Redesigned – South Marlborough, Flora Response to the Kaikoura Earthquake by Jan Clayton-Greene, DOC. |

7 July	Fieldtrip to Manawa Karioi, Island Bay.
14 July	Te Mārua Bush workbee.
16 July	Evening meeting: Update on the latest conservation status by Jeremy Rolfe, DOC.
4 August	Fieldtrip to DOC Covenant, Makara Farm.
20 August	AGM and AP Druce Memorial Lecture by Bruce Clarkson, University of Waikato.
1 September	Fieldtrip to Wainuiomata River West branch
17 September	Evening meeting: Living in the rainshadow: NZ's most distinctive and threatened ecosystems by Susan Walker, Landcare Research.

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■ Nelson Botanical Society

December Camp: Wanaka / Borland (part 2)

Wanaka to Borland Lodge - Most of the party stopped at the Wilderness Scientific Reserve on State Highway 94, which is a magnificent ecosystem of *Halocarpus bidwillii* interspersed with *Leptospermum scoparium*. Species present included the heaths *Pentachondra pumila* and *Gaultheria depressa* var. *novae-zealandiae*. The walk to the lookout revealed *Clematis marata* in seed with purple-silvery plumes. Orchids were well represented with *Thelymitra cyanea*, *T. pulchella*, *T. longifolia*, *Pterostylis banksii* and *P. australis*.

Mt Burns - We drove up to Borland Saddle to reach the large tarns at the base of Mt Burns. The track starts through gnarly silver beech forest where the forest floor was carpeted with *Hymenophyllum multifidum* and *Astelia nervosa*. In the forest we encountered *Coprosma cuneata*, higher up, *C. pseudocuneata* and into the tussock, *C. fowerakeri*. The shrub daisies were represented with *Brachyglottis revoluta* and *Olearia buchananii*. Mt Burns is the world centre for *Chionochloa*, with nine species of which *C. teretifolia* was the most common. It is also home to 20 species of *Celmisia* with *C. coriacea* being common. Among the tussocks were many *Anisotome haastii* and higher up we found *Hebe odora* and *H. pauciramosa*. At the first tarn we were excited to find *Ranunculus lyallii* in flower, along with *Ourisia caespitosa*. Dark-green cushions at the edge of the tarns were *Donatia novae-zealandiae* with cushions of *Oreobolus pectinatus* common in the wettest areas. On the banks of the tarns *Geum uniflorum* was flowering amid *Dracophyllum prunum*. We had our sandwiches among a big patch of *Euphrasia integrifolia*. The beautiful orange sheaths on the bracts of *Aciphylla pinnatifida* were much photographed. Comparisons were made between the similar-sized Fiordland endemics *A. congesta* and *A. crosby-smithii*. At two other tarns we were rewarded with flowering *Ranunculus buchananii*.



Ranunculus buchananii. Don Pittham

Green Lake Walk and Borland South Track - Our first stop was at the Grebe Valley Wetland. As we emerged from the forest, *Hebe odora* was widespread and, fossicking underneath, we found *Anemone tenuicaulis*, *Geum leiospermum*, *Viola filicaulis* and *Aporostylis bifolia*. At the edge of the basin *Olearia bullata* shrubs were in flower and there were a few flowers of *Bulbinella gibbsii* var. *balanifera*. Down among the *Chionochloa rubra* subsp. *cuprea* and *Hebe pauciramosa* there was *Myosotis tenericaulis*. In the swamp there were islands of *Drosera arcturi* and *Centrolepis ciliata* formed soft cushions. We saw numerous *Plantago triandra* at the margins, *P. lanigera* at the drier edges and *Coprosma elatirioides*. Dropping down to the margin of a lake, we found the grass *Deschampsia cespitosa* and we studied the sedge *Carex carsei*. In the forest were *Ranunculus membranifolius* and in the basin *R. ternatifolius*, with its fine, slightly blue-green leaves, *R. enysii*, *R.*

glabrifolius and *R. foliosus*. We returned to Borland Saddle and walked through some *Dracophyllum menziesii*, then found flowering *Alepis flavida* and *Parahebe lyallii*.

Mt Eldrig Tops - We drove up to the start of the Mt Eldrig Tops track and on the roadside found *Gastrodia minor* then, at the carpark, *Thelymitra pulchella*. We stopped to look at *Pseudopanax linearis* and *Hymenophyllum pulcherrimum*, hanging from a branch. It was a good day for orchid lovers with *Aporostylis bifolia*, *Waireia stenopetala*, *Chiloglottis cornuta*, *Adenochilus gracilis*, *Pterostylis montana* and *Townsonia deflexa*. Getting out into some patches of *Chionochloa rigida* var. *amara* and *Gleichenia dicarpa*, there were *Celmisia lyallii*, *C. angustifolia* and many *C. coriacea*. In the wetter areas we were able to compare *Drosera stenopetala*, *D. arcturi* and *D. spatulata*. Nearer the tops the tussock changed to *Chionochloa rubra* subsp. *cuprea* and the tangle fern to *Gleichenia alpina*. In wet seeps, tiny white-flowered *Liparophyllum gunnii* was common. Getting near the top, *Leucogenes grandiceps* and *Gentianella montana* were in flower. At the top we found a stunning landscape of granite surrounded by eroded golden sand and gravel. On these gravels were very hairy *Anisotome flexuosa*, *Hectorella caespitosa* and deep green *Luzula pumila*.



Waireia stenopetala. Don Pittham

Borland Lodge environs - Not far up the Burnt Ridge Track from Monowai Road we came across *Thelymitra cyanea* and patches of *Herpolirion novae-zelandiae* provided a beautiful display. On the Nature Trail we wound through mountain beech-silver beech forest with an under-storey of *Elaeocarpus hookerianus*, *Aristotelia serrata*, *Coprosma* species, *Carpodetus serratus*, *Pseudowintera colorata*, *Raukaua simplex*, *Griselinia littoralis*, *Pittosporum tenuifolium* and *Hoheria glabrata*. Excitement was caused by *Peraxilla colensoi* in huge clumps on the trunks of silver beech trees and *Alepis flavida* nearer the tips of mountain beech branches. *Ranunculus ternatifolius* was found to be common in wet patches along the stream margin, where it co-existed with *Carex megalepis*, *C. secta* and *Chionochloa conspicua* with *Raoulia tenuicaulis*, *Lobelia angulata* and *Epilobium rotundifolium*.

January Field Trip to Mt Starveall

Twenty Bot. Soccers left Richmond for a drive along forestry

roads to the start of the walking track. We were soon into beech forest, which later gave way to ultramafic vegetation with manuka and *Dracophyllum filifolium*. Other species noted here included: *Phyllocladus alpinus*, *Olearia avicenniifolia* and herbaceous species such as *Celmisia hieraciifolia*. On the way up a wet part of the track some sharp eyes spotted the small onion orchid, *Microtis oligantha* among some sedges. Other orchid species seen and added to the list include: *Aporostylis bifolia*, *Caladenia chlorostyla*, *Gastrodia sesamoides* and *Thelymitra hatchii*. Just above the hut there were some good patches of *Leucogenes leontopodium* in flower. Other species added to the list include *Libertia mooreae*, *Euchiton audax*, *Carex corynoidea* and *Geranium microphyllum*.

January Camp: Upper Clarence Valley

On Saturday morning we drove along the Maling Pass road with the aim of climbing up to Princess Bath. We headed down to the Princess Stream flats and identified *Euphrasia zelandica*, *Utricularia dichotoma*, *Glossostigma diandrum*, *Nertera balfouriana*, *Rytidosperma pumilum*, *Chaerophyllum "delicatum"*, *Epilobium cockayneanum*, *Euchiton laterale*, *Plantago unibracteata* and *Celmisia alpina*. As we progressed up-valley we passed shrublands of *Dracophyllum rosmarinifolium*, *Brachyglottis cassinioides*, *Hebe anomala*, *H. venustula* and copses of *Fuscospora cliffortioides* along with *Phyllocladus alpinus* and *Podocarpus nivalis*. The dry terraces supported an open heath flora of *Acrothamnus colensoi*, *Leucopogon fraseri*, *Pentachondra pumila*, *Gaultheria crassa*, *Dracophyllum rosmarinifolium* and herbs, including *Argyrotegium mackayi*, *Celmisia viscosa* and *C. durietzii*. We zig-zagged up the main stream, recording *Gingidia decipiens*, *Hebe pinguifolia*, *H. epacridea*, *H. cryptomorpha*, *Lobelia macrodon*, *Notothlaspi rosulatum*, *Celmisia lateralis*, *Epilobium porphyrium*, *E. melanocaulon* and *E. crassum*. Streamside flushes nurtured species, such as *Stenostachys gracilis*, *Epilobium macropus*, *Dolichoglottis lyallii*, *Azorella pallida* (= *Schizeilema pallidum*), *Carex edura*, *Poa dipsacea*, *Aciphylla colensoi* and *Hebe pauciramosa*. As we approached the cirque wall we were

surprised to find *Hebe ramosissima* on the debris cone. Negotiating the cirque wall, species included *Ourisia sessilifolia* and *O. simpsonii*, *Brachyglottis bellidioides*, *Pachycladon fastigiatum*, *Forstera purpurata*, *Notogrammitis crassior*, *Celmisia haastii*, *Raoulia eximia* and *R. bryoides*, *Azorella roughii* (= *Schizeilema roughii*) and *Anisotome pilifera*. Our climbing efforts were rewarded when we saw the Princess Bath. A few higher altitude species were discovered along the snow-banks including *Marsippospermum gracile*, *Chionochloa oreophila*, *Gaultheria nubicola*, *Caltha obtusa*, *A. imbricata* var. *prostrata* and *Phyllachne colensoi*. On the scree chute descent back down to the valley floor we saw *Epilobium pycnostachyum*, *Parahebe cheesemanii* and *Haastia sinclairii*.

Sunday 28 January We piled into vehicles and headed towards Island Saddle. Our first stop of the day was up a small hill to find *Argyrotegium nitidulum*. This little mat-forming daisy was found under overhangs in the gaps of *Chionochloa australis* carpets. Growing in the same area we found: *Rytidosperma setifolium*, *Poa colensoi*, *Gentianella corymbifera*, *Prasophyllum colensoi* and *Celmisia gracilentia*. The rock outcrops had a variety of plants including: *Raoulia bryoides*, *Acaena inermis*, *Aristotelia fruticosa*, *Colobanthus acicularis*, *Coprosma petriei* and *Helichrysum parvifolium*. Crossing the other side of the saddle, we encountered a few new species: *Raoulia apicinigra*, *Trisetum spicatum* and *Gingidia decipiens*. On the scree we found: *Wahlenbergia cartilaginea*, *Epilobium pycnostachyum*, *Stellaria roughii*, *Lobelia roughii*, *Leptinella dendyi*, *Poa buchananii*, *Epilobium porphyrium* and *Lignocarpa carnosula*. At the top of the scree we saw *Acaena glabra*. We stopped on top of the hill and discovered; *Pimelea mesoa* subsp. *mesoa*, *Anisotome imbricata* var. *prostrata* and *Phyllachne colensoi*. Some interesting finds of large *Ranunculus gracilipes* and *Liparophyllum gunnii* were made in one damp spot beside the creek. Hiding among the taller *Chionochloa* was *Trisetum youngii*.

Monday 29 January We headed up the Clarence River to the Peters Valley Track. From there, over the open country heading towards Waterfall Stream, shrubs seen included *Ozothamnus vauvilliersii*, *Dracophyllum rosmarinifolium*, *D. pronum* and *Pimelea traversii*. We also saw *Pimelea mesoa* subsp. *mesoa* and *P. oreophila* subsp. *hetera*. Lots of plants hugged the ground: *Brachyscome sinclairii*, *Brachyglottis bellidioides*, *Celmisia du-rietzii*, *Raoulia subsericea*, *Acaena caesiiglauca*, *Oreobolus pectinatus*, *Helichrysum filicaule*, *Anisotome filiforme*, *Bulbinella hookeri* and *Craspedia lanata* in flower. The dry landform was also home to a few orchids: *Prasophyllum colensoi*, *Thelymitra formosa* and *Microtis oligantha*. We also got some practice trying to recognise hebes: *Hebe macrantha*, *H. venustula*, *H. brachysiphon*, *H. traversii*, *H. rakaiensis*, *H. decumbens*, and *H. lycopodioides*. We encountered *Aciphylla aurea* and *A. monroi*. The find of the day, was the tiny succulent *Crassula multicaulis*, sparsely sprinkled through small depressions.

Sunday 18 Feb. Mt. Robert field trip

From the Mt Robert carpark we enjoyed the beech forest and its gradation into *Fuscospora cliffortioides* as we ascended. As we emerged at the treeline we saw a lovely patch of *Raoulia glabra* in flower. On a rock outcrop we saw *R. eximia* and *R. subsericea*. The only *Celmisia* we saw in flower was *C. du-rietzii*. In the alpine zone we enjoyed seeing clumps of *Euphrasia revoluta* in flower and were delighted to find a few *E. zelandica*. On a knoll we found *E. monroi* partially parasitic on *Gaultheria depressa*. We paused briefly to admire the scented flowers of *Lobelia macrodon*. After lunch we explored the scree slopes where *Notothlaspi australe*, *N. rosulatum* and *Lignocarpa diversifolia* were present. After searching, *Epilobium margaretae* was found at the top of the ridge.

April Field Trip to Uri o te Wai, Bishop's Peninsula

Bishop's Peninsula is a Māori reserve jutting out into the Delaware Estuary. We went to the edge of the estuary where the tide was low enough to see *Suaeda novae-zelandiae*, *Sarcocornia quinqueflora* subsp. *quinqueflora* and *Samolus repens* var. *repens*. Close to the high-tide line *Juncus kraussii* subsp. *australiensis* gave way to thickets of *Plagianthus divaricatus* and *Apodasmia similis* tangled with *Muehlenbeckia complexa*. Along the south side of the peninsula *Fuscospora solandri* and *Fuscospora truncata* were common. Three species of bush rice grass were encountered: *Microlaena avenacea*, *M. stipoides* and *M. polynoda*. Of many fern species seen, the first was *Hypolepis ambigua*, then *Hymenophyllum bivalve*, *H. dilatatum* and *H. sanguinolentum* and growing on tree-fern trunks, *Tmesipteris elongata*. At our morning-tea stop we saw *Earina mucronata* and just along the track we found *Pterostylis alobula* in bud. *Metrosideros fulgens* was scrambling up some of the taller trees and near its southern limit. *Geniostoma ligustrifolium* was common. We took the main track along the ridge and found the *Doodia australis*, which is also near its southern limit. Near the top of the peninsula were large trees of *Prumnopitys taxifolia*, and *Beilschmiedia tawa*. We went down to the

seashore on the northern side and found *Linum monogynum* var. *monogynum*, *Apium prostratum* subsp. *prostratum*, *Spergularia tasmanica* and *Tetragonia tetragonioides*.

FUTURE EVENTS

June 18: Talk by Rowan Hindmarsh Walls "The Unique habitats and plants of Ata Whenua /The Fiordlands."
July 15: Field Trip - Glen Covenant.
August 19: Field Trip - Abel Tasman National Park.
August 20: Talk by Brian Patrick: "Nature's Rainbow – discovering New Zealand's butterflies."
September 16: Field Trip - Booth's Cottage Howard Valley.
October 19–22: Labour weekend camp.

President: David Grinsted (03) 5424384, davidgrinsted@gmail.com Secretary: Don Pittham (03) 5451985, pitthamd@xtra.co.nz Treasurer: Uta Purcell (03) 5450280, mupurcell@xtra.co.nz

■ Botanical Society of Otago

Chairman: David Lyttle djlyttle@ihug.co.nz www.otago.ac.nz/botany/bsol/
Secretary: Allison Knight, P O Box 6214, Dunedin North. bsol@otago.ac.nz

FUTURE EVENTS

Wednesday 13th June, 5.20 pm: Conservation genetics and ecology of *Hardenbergia violacea*. Speaker: Dr Matthew Larcombe, University of Otago. Although first recorded in the early 1800s, there have always been questions about the native status of *Hardenbergia violacea* in Tasmania. The only putative native population occurs near Hobart, and some suspect it was an early introduction from mainland Australia, while others believe it is native. I'll describe a study that aimed to settle this debate. It involves some detective work, CSI style DNA analysis, and a beautiful little plant.

Wednesday 18th July, 5.20 pm: The vision of a Pest-Free Peninsula. Speaker: Rod Morris is current chairman of the Otago Peninsula Biodiversity Group. He will talk about reclaiming the biodiversity values of the Otago Peninsula, and how OPBG are promoting and enhancing these values through predator control.

Saturday 28th July, 2-4.30 pm. Joint BSO/Botany Dept. close-up photography workshop. For learners and experts alike the aim is to share, learn and pass on tips and techniques for botanical macro- and micro-photography. Bring your smart phones, compact or fancy cameras, tripods, hand-lens, macro lenses, microscopes, external lighting or any other aids. Also bring any small flowers, fungi, leaves, liverworts, lichens or other botanical specimens suitable for taking close-up photos. Meet in the Upstairs lab, Department of Botany, 464 Great King St. Register by Thursday 26th July. Contact Allison Knight, 027 4878 265.

Wednesday 8th August, 5.20 pm: Botanical experiences in the South. Speaker: Lloyd Esler inherited his botanical interest from his father Alan in Palmerston North. They explored the sand country, Tararua foothills and patches of bush across the Manawatu area. Later, in Auckland, it was the Waitakeres, West coast beaches and Hauraki Gulf islands.

Saturday 25th August, Saturday 25th August, 9.00 am: Sullivans Dam. Sullivans Dam was originally constructed as a reservoir to supply Dunedin with water. We will go to Sullivans Dam and explore the surrounding forest which contains extensive stands of *Libocedrus*. Meet at the Botany Department carpark 9am. Contact David Lyttle (03) 454 5470, email djl1yttle@gmail.com

Saturday 15th September, 9.00 am: Swampy Spur Wetland via Burns and Rustler Ridge Tracks. As well as looking at the vegetation on the eastern slopes of Swampy Summit, this trip will look at a significant wetland located on the flanks of Swampy Spur. Meet at the Botany Department carpark 9am. Contact Robyn Bridges 021 235 8997/472 7330

Wednesday 26th September, 6pm: 17th Annual Geoff Baylis Lecture: Reweaving species: the key role of mutualisms in ecological restoration. Speaker: Janice Lord, Department of Botany, University of Otago. Location: Castle 1, University of Otago (drinks and nibbles starting from 5.15 pm)

in the concourse). Recent years have seen native restoration and replanting projects popping up like mushrooms across the New Zealand landscape. Often the same suite of plants are used – *Pittosporum*, *Cordyline*, *Phormium*, *Coprosma*, *Hebe*. This talk will pull together current understanding of native plant mutualisms above and below ground, and ask how we can use this knowledge practically to move towards functional restoration of complex ecosystems.

■ Other Botanical Society Contacts

Waikato Botanical Society

President: Paula Reeves

Secretary: Kerry Jones

General contact: secretary@waikatobotsoc.org.nz

Website: <http://waikatobotsoc.org.nz>

Taranaki Botanical Society

Contacts: Barbara Hammonds 06 7597077; Email: barbara_ha@outlook.com

Janica Amooore 06 7520830. Email: waiongona@clear.co.nz

Hawke's Bay Botanical Group

<https://www.facebook.com/Hawkes-Bay-Botanical-Group-590670161140095/>

Manawatu Botanical Society

Jill Rapson: Massey University. Ph (06) 350 5799 Ext 7963; [G. Rapson@massey.ac.nz](mailto:G.Rapson@massey.ac.nz)

Canterbury Botanical Society

President: Gillian Giller (03) 313 5315

Secretary: Alice Shanks

Website: www.canterburybotanicalsociety.org.nz

Wakatipu Botanical Group

Chairman: Neill Simpson (03) 442 2035

Secretary: Rebecca Teele 027 314 2610

ANNOUNCEMENTS

■ John Child Bryophyte and Lichen Workshop Pureora Nov 2018

When: Thursday 8th of November to Tuesday the 13th of November 2018

Where: This year's workshop will be held at the Pureora forest lodge

Who: The workshop is open to anyone and everyone with an interest in the mosses, liverworts, and lichens of New Zealand, from beginner to expert.

Organisers: Thomas Emmitt, temmitt@doc.govt.nz and Dhahara Ranatunga, dranatunga@aucklandmuseum.com

Accommodation: Pureora forest lodge. <http://www.pureoraforestlodge.org.nz/facilities.html>

The lodge has been booked for our exclusive use during the workshop. There are five dormitories with a total of 50 bunks. If you would prefer other accommodation there are cabins and chalets available at Pureora Village (contact Pa Harakeke asap to book one) or there are other options in the surrounding area – Bennydale, Mangakino or Whakamaru are all less than 30 min away.

Getting there: Pureora is 3.5 hours from Auckland and 5 hours from Wellington. If you can offer transport for other people to the workshop please let me know.

Meals: Evening meals will be cooked at the camp for those staying at the camp and anyone else who wishes to eat with the group. We have hired a caterer.

What to bring: Be prepared for wet conditions. You will also need to bring a sleeping bag and pillow if you are staying in the bunkrooms. The usual list of field gear also applies – warm clothing, waterproof clothing, daypack, lunchbox, water bottle, etc.

Possible field sites: Potential field sites are a mixture of primary and secondary forest. Pureora Forest Park is 78,00ha and there are many well maintained popular walking tracks and roads that we can explore. The Waipapa Ecological Area is right on our back doorstep, which will provide many opportunities to go off track.

Costs: Accommodation at Pureora forest lodge will kindly be provided free of charge by DOC

Food: approx. \$25-\$45 per person per day - \$20-\$30 for dinners, \$5-\$15 for breakfast/lunch
Transport: for those riding in other vehicles, a mileage charge will apply, and for those who bring their own car and offer transport to others while at the workshop, a subsidy will be offered.

In previous years, the total cost has averaged around \$300, and this year is likely to be similar.

Tom Moss Award: This award is open to any student studying any aspect of Australasian bryophytes and/or lichens. See <http://www.wellingtonbotsoc.org.nz/awards/moss.html> for details.

Estimate of numbers: If you are interested in attending the workshop this year, please email Dhahara Ranatunga (dranatunga@aucklandmuseum.com) as soon as possible with one of the following:

1. Yes I will be attending the workshop and I'll stay at the Pureora forest lodge
2. Yes I will be attending the workshop but only for specific dates (please specify the dates in your email) and I'll stay at the Pureora forest lodge.
3. Yes I will be attending the workshop but I will find my own accommodation
4. I do not know if I can attend yet

NOTES AND REPORTS

■ The Unitec Herbarium (UNITEC) reaches a new milestone

Peter J. de Lange and Dan J. Blanchon, Department of Natural Sciences, Unitec Institute of Technology, Auckland, New Zealand (pdelange@unitec.co.nz) (dblanchon@unitec.co.nz)

The Environment and Animal Sciences Pathway at Auckland's Mt Albert Unitec Institute of Technology campus offers a Bachelor of Applied Sciences. For that degree, students undertaking environmental studies are taught a range of field skills, ecology and notably taxonomy (Fig. 1). To aid with teaching field ecology and taxonomy the then Department of Natural Sciences started what was initially intended to be a 'small' teaching herbarium in 2001. However, student and staff research interests have seen that herbarium grow rapidly. The herbarium was registered with Index Herbariorum with the code 'UNITEC' in 2012. In April UNITEC accessioned its 10,000 specimen, notably a lichen, *Usnea inermis*. Interestingly, UNITEC must also be one of the few herbaria in New Zealand to be located in proximity to the type locality of a lichen - *Cladia blanchonii* (Fig. 2, 3) the isotype of which it holds. As UNITEC is a relatively 'new' herbarium in New Zealand we thought it would be useful to document its history, holdings and activities.



Fig. 1. Unitec Students and Staff undertaking field studies of mushroom diversity in a regenerating kauri (*Agathis australis*) / tanekaha (*Phyllocladus trichomanoides*) forest at Mataia, a QE II Covenant near Glorit, Kaipara (image: Dan Blanchon)

UNITEC Herbarium

Founded: 2001

Index Herbariorum: UNITEC (Registered 2012)

Curator: Dr Dan Blanchon FLS

Other staff: Dr Peter de Lange FLS, Dr Mark Large FLS, Hayley Nessia, Matt McClymont.

Holdings: 10,000 specimens including 44 algae, 184 fungi, 165 liverworts, 5438 lichens, 216 mosses, 375 ferns and fern allies, 266 gymnosperms, 3312 flowering plants.

Types: *Buellia insularicola* (Holotype) (Fig. 4), *Lecanora kohu* (Holotype) (Fig. 5), *Cladia blanchonii* (Isotype) (Fig. 2)

Scope: The Flora and Lichenized Mycobiota of New Zealand. UNITEC has an emphasis on the northern part of New Zealand particularly the lichens of the Kermadec Islands, Northland, Kaipara (Mataia), Waitakere Ranges, urban Auckland, Auckland Regional Parks, Hauraki Gulf Islands (notable collections from Rangitoto, Motukaikoura and Tiritirimatangi), Waikato and Chatham Islands. Herbarium collections also reflect participation in Auckland Bioblitz (Auckland Domain, Auckland Botanical Gardens, Dingle Dell, Kepa Bush/Pourewa, Miranda, Smiths Bush, and Twin Streams (Opanuku Stream Catchment)). Invasive plants are also well represented reflecting staff research interests and the courses taught by the faculty.



Fig. 2 *Cladia blanchonii* Parmen et Lumbsch in the wild, Unitec Campus. UNITEC holds the isotype of this species. (image Peter J. de Lange).

The herbarium also holds DNA vouchers linked to the Applied Molecular Solutions Research Group (www.unitec.ac.nz/ams) and associated laboratory, and international lichen research consortia (PhyloRamalina, Lecanomics, Parsys).

The earliest collections are those donated collections from 1965 (Judy Nicholson, mainly South Island), with other later donations from the 1980s and 1990s, before active collecting began in 2001.

History: UNITEC was founded by Carol Elliott (nee Lockett) and Dan Blanchon in 2001. It is a teaching and research herbarium, supporting the studies of an active lichen group, as well as ongoing investigations of invasive and native plants. Students learn herbarium specimen collection and preparation in three different courses in the Bachelor of Applied Science, and students volunteer in the herbarium to assist with accessioning and curation. The herbarium supports taxonomy education, particularly in lichenology, mycology, botany and biosecurity.

The herbarium focus on lichens was greatly encouraged by the late Dr David Galloway FLS, FRSNZ we also contributed to its collections. Currently the herbarium lichen collections reflect key research links with Otago University, Ngāti Whātua Ōrākei, Auckland Museum, Auckland Council, Department of Conservation, Wildland Consulting Ltd, the Berlin Botanical Gardens and Museum of Natural History, Germany; the Field Museum of Natural History, Chicago, USA, and Universidad Complutense de Madrid, Spain.

Active research linked to the herbarium includes a revision of the New Zealand members of the lichen genus *Parmotrema* and *Ramalina*, the New Zealand members of the Lobariaceae – notably the *Pseudocyphellaria crocata* complex and *Sticta*. Voucher specimens are also held from a study of the lichen diversity of New Zealand mangrove (*Avicennia marina* subsp. *australasica*) forests, and those found in Auckland Council permanent monitoring plots (both continuous forest and urban bush fragments).

Lichen checklists for the Kermadec and Chatham Islands groups are also being prepared. Outside New Zealand Herbarium staff are also engaged with the Field Museum in research on the Cook Islands bryophytes and lichens and New Zealand *Frullania*.

UNITEC currently does not have containment status.

Key Collectors: Peter de Lange (c.1400 algae, bryophytes, flowering plants, fungi and lichens), Dan Blanchon (c.1300 algae, bryophytes, flowering plants, fungi and lichens), Andrew Marshall (lichens), Carol Elliott (nee Lockett) (lichens), Carol West (c.300, lichens), Christy Reynolds (lichens), Orhan Er (lichens, vascular plants), Marley Ford (lichens, flowering plants), Jacqueline Margetts (flowering plants), Sue Wake (flowering plants), Leslie Haines (flowering plants), Neil Davies (flowering plants), Rick Kooperberg (lichens), Glenys Hayward (lichens), Jennifer Bannister (lichens), Allison Knight (lichens), Nathan Solomon (flowering plants), Jan Weaver (flowering plants), Vicki Sergeant (fungi), Hayley Nessia (fungi, lichens), Tim Martin (lichens), Robert Lücking (lichens), Bibiana Moncado (lichens), Judy Nicholson (nee MacDuff) (flowering Plants), Linden Moyle (ferns).



Fig. 3. Dr Dan Blanchon points out the type locality of *Cladia blanchonii* Parmen et Lumbsch on the Unitec Campus, Mt Albert, Auckland.

The herbarium also holds some collections from Catherine Beard (bryophytes, lichens), John Braggins (bryophytes), David Galloway (lichens), David Houston (bryophytes, lichens), Matt Renner (bryophytes) and Matt von Konrat (bryophytes).

Recent Publications linked to UNITEC collections

- Blanchon, D.J.; de Lange, P.J.; Galloway, D.J. 2015: New records of *Ramalina* (Ramalinaceae, Ascomycota) for mainland New Zealand. *New Zealand Journal of Botany* 53: 192–201.
- de Lange, P.J.; Blanchon, D.J. 2015: Lichen notes from the Kermadec Islands. II. *Ramalina*. *Bulletin of the Auckland Museum* 20: 171–181.
- Elix, J.; de Lange, P.J. 2017: A new species and new records of buellioid lichens (Physciaceae, Ascomycota) from the Kermadec Islands. *Australasian Lichenology* 80: 41–45.
- Elix, J.A.; Knight, A.; Blanchon, D. 2017: New species and new records of buellioid lichens (Physciaceae, Ascomycota) from New Zealand and Tasmania. *Australasian Lichenology* 80: 46–52.



Fig. 4. *Buellia insularicola* Elix et de Lange – image of type material from Cheeseman Island, Kermadec Islands group. UNITEC holds the Holotype. (image: John (Jack) Elix)

- Er, O.A.H.; Reynolds, C.L.; Blanchon, D.J. 2015: Additional lichen records from New Zealand 49. *Pertusaria puffina* A.W.Archer & Elix. *Australasian Lichenology* 77: 28–31.
- Hayward, G.C.; Blanchon, D.J.; Lumbsch, T. 2014: Molecular data support *Ramalina ovalis* as a distinct lineage (Ramalinaceae, Ascomycota). *The Lichenologist* 46: 553–561.
- Large, M.F.; Farrington, L. 2016: The *Nephrolepis* cv. Boston fern complex (including *Nephrolepis exaltata* L. Schott), Nephrolepidaceae, naturalised in New Zealand. *Unitec ePress Perspectives in Biosecurity Research Series 2*: online.
- Large, M.F.; Nessia, H.; Cameron, E.; Blanchon D. 2017: Changes in stomatal density over time (1769–2015) in the New Zealand endemic tree *Corynocarpus laevigatus* J. R. Forst. & G. Forst. (Corynocarpaceae). *Pacific Science* 71: 319–328
- Marshall, A.J.; Blanchon, D.J. 2017: Additional lichen records from New Zealand 50. *Australasian Lichenology* 80: 58–61.
- Nessia, H. R., Dale, A. R., Perrott, J. K., Waipara, N.W., Aguilar, G.D., and Blanchon, D. J. 2014. Comparison of species richness and frequency cover of forest floor plants and lichens in sites invaded and uninvaded by the invasive club moss *Selaginella kraussiana* (Kunze) A. Braun. *Plant Protection Quarterly* 29: 66–77.
- Printzen, C.; Blanchon, D.J.; Fryday, A.M.; de Lange, P.J.; Houston, D.M.; Rolfe, J.R. 2017: *Lecanora kohu*, a new species of *Lecanora* (lichenised Ascomycota: Lecanoraceae) from the Chatham Islands, New Zealand. *New Zealand Journal of Botany* 55: 439–451.
- Ranft, H.; Moncado, B., de Lange, P.J.; Lücking, R. 2018: The *Sticta filix* morphodeme (Ascomycota: Lobariaceae) in New Zealand with the newly recognized species *S. dendroides* and *S.*



menziesii: Indicators of forest health in a threatened island biota? *The Lichenologist* 50:185–210.

Reynolds, C.L; Er, O.A.H.; Winder, L.; Blanchon, D.J. 2017: Distribution and community composition of lichens on mature mangroves (*Avicennia marina* subsp. *australasica* (Walp.) J.Everett) in New Zealand. *PLoS ONE* 12(6).

Sparkes, J.H.; de Lange, P.J.; Blanchon, D.J. 2014: Notes on *Caloplaca allanii* Zahlbr. (Teloschistaceae) a poorly known West Auckland, North Island, New Zealand endemic. *New Zealand Journal of Botany* 52: 304–309.

Fig. 5. *Lecanora kohu* Printzen, Blanchon, Fryday et de Lange – images from the Holotype (held at UNITEC) collected from Rangatira (South East Island), Chatham Island group (image: Jeremy R. Rolfe)

■ Obituary – John Donald Lovis (24 April 1930 – 5 September 2017)

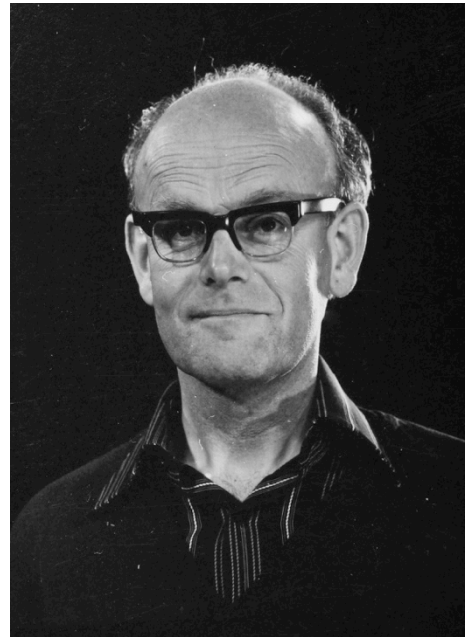
Patrick Brownsey, Museum of New Zealand Te Papa Tongarewa Patrick.Brownsey@tepapa.govt.nz
Reprinted with permission from the *British Pteridological Society Bulletin*

John Lovis was born in Clapham in England, and had an older brother, Frank, to whom he remained close throughout his life. As with many children of that time and place, John's early secondary school years were dominated by the Second World War, and the need to spend lengthy periods in air-raid shelters. However, in his sixth form year at Whitgift School in Croydon, Surrey he was fortunate to come under the tutelage of Cecil Prime, a teacher of remarkable ability. John had always had an interest in insects and anticipated becoming an entomologist, but his future took a defining turn when he was introduced to botany, chromosomes and the secret life of plants.

He went on to Queen Mary College at the University of London to study Botany. There he met Joan Valerie van der Smagt, and they married in 1953. Valerie had been born and bred in Ceylon – her

mother being a Dutch Burgher and her father a British tea planter. John developed an enduring interest in Sri Lanka and they spent time together in the country on more than one occasion.

After graduating, John moved to the University of Leeds where he did his PhD with the formidable Professor Irene Manton, who had pioneered research on the cytology and biosystematics of European ferns. Appointed to the Chair of Botany in 1946, but hindered by the war years, Manton published her accumulated results in 1950 in the seminal work *Problems of cytology and evolution in the Pteridophyta*. This inspired a generation of British and overseas students to work with Manton during the next two decades and extend their fern research world-wide. John was just one amongst a group of young British students that included Stanley Walker, Molly Shivas, Trevor Walker, Tony Braithwaite and Anne Sleep, working alongside overseas students such as Jagadananda Ghatak, Gopinath Panigrahi, Sisir Roy and Gabor Vida. Manton herself teamed up with Arthur Sledge for a University of Leeds expedition to Ceylon where, in a single visit, they made cytological samples of 70% of the fern flora.



John Lovis. Photo: University of Canterbury.

John chose to work on *Asplenium trichomanes* for his PhD – an extremely variable and widespread species throughout the northern hemisphere. Very quickly he discovered that it was even more complex than he had realised because Garth Brownlie at the University of Canterbury, who had pioneered fern cytology in New Zealand, published a chromosome count showing that it was hexaploid in New Zealand – quite different to the diploid and tetraploid populations in Europe. So, John applied for and won a DSIR Postgraduate Fellowship to study in New Zealand for a year. He and Valerie set sail in 1955, narrowly avoiding national conscription that was still in force in Britain at the time. They were met in Wellington by an enthusiastic Lucy Moore, Assistant Director of Botany Division, DSIR, who had a car (a rarity in the New Zealand of 1955), and who offered to take them wherever they wanted to go. They headed for the limestone country of Hawkes Bay, and practically the first plants that John collected later turned out to be tetraploid. Everywhere else in New Zealand the plant is hexaploid. In fact, even now, very few plants of this tetraploid form have ever been found, and few botanists have seen it in the wild. Unfortunately accurate documentation of collections was not common practice in the 1950s, and John was just off the boat, had no proper maps and certainly no GPS, so the exact locality where he found the plant remains unclear to this day. Nevertheless John had a very successful stay in New Zealand, developing a strong desire to return. He stopped in Australia on the way home and found all three cytotypes growing there, albeit the hexaploid only from a single population.

Using this plethora of new data to good effect, John was able to submit his PhD in 1958. Thereafter he was appointed to a lectureship at the University of Leeds and so began perhaps the most productive period of his career. He quickly established good working relationships with people such as Clive Jermy at the Natural History Museum in London, and with European collaborators such as Helmut Melzer, Helga and Kurt Rasbach and, above all, with Tadeus Reichstein – a Nobel prize winning organic chemist from the University of Basel who in his retirement had taken up the study of fern cytology. Almost half of John's published papers came in the next 20 years at the University of Leeds where he and his collaborators unravelled the complexities of evolution through hybridisation and polyploidy in the genus *Asplenium*. Amongst many other achievements, he was able to effect the first artificial reconstruction of a naturally occurring polyploid fern, *A. adulterinum*, and later to synthesise a completely new and artificial allopolyploid species unknown in the wild. This work culminated in his *magnum opus* – 'Evolutionary patterns and processes in ferns' – published in *Advances in Botanical Research* in 1977, which summarised all the work that had been done up to that time based on cytology and breeding systems in ferns. In 1978, he was awarded the degree of Doctor of Science from the University of London, recognising his tremendous contribution to our understanding of fern evolution.

It was also at the beginning of this period when his two children, Graham and Pamela, were born. Their modest house in Headingley was a fascinating place to visit because, in addition to the usual paraphernalia associated with young children, John retained his interest in insects, breeding moths in their dining room, keeping numerous cats and beginning to accumulate the piles of pressed ferns in newspaper that became a hallmark of his occupation wherever he went.

It was in 1967, as a very naïve second year student at Leeds, that I first met John. The Botany Department in those days was broadly based, providing an excellent all-round course in many disciplines. But, for me, it was John's courses in plant taxonomy, evolution, and especially in plant biosystematics, that took Botany to a new level. I was fascinated by the ways one could study evolutionary origins by growing plants in experimental gardens, conducting artificial crosses, and looking at chromosomes to investigate polyploidy and species relationships. John was a knowledgeable, patient and inspiring teacher with a very dry sense of humour.

In those days we had extensive practical labs. We learned how to use keys and classify flowering plants based on floral diagrams. We had regular field courses to various parts of England. In the third year we had a field course in the mountains of Yugoslavia. John was always one of the leaders on these trips, and we learned a huge amount, both from his knowledge of European plants, and in long informal conversations in the evenings. The Yugoslavian trip was almost sabotaged when we came across a bunch of Yugoslav partisans enthusiastically celebrating some of their war-time exploits. Protocol demanded that our leaders participate in the celebrations, quickly resulting in some seriously impaired lecturers. Somehow John was the only one who managed to stay sober and safely extract us all from further damage.

When I decided to do a PhD, I wanted to work on the cytology and biosystematics of European ferns and I became the first of John's students, and amongst the third generation of fern systematists at Leeds (which, with John's involvement, has now expanded to fourth and fifth generations in New Zealand). John introduced me to a wonderful experimental garden, deep in the heart of Headingley. He patiently taught me how to grow ferns, collect spores, generate prothalli, make crosses, and undertake the whole intricate process of generating chromosome preparations and working out the relationships of European *Asplenium* species. He introduced me to his European collaborators, leading to trips to the Italian Abruzzi region and to the island of Crete.

When the time came to find to find a job, John had no hesitation in recommending that I go to New Zealand if the opportunity arose, and in 1973 I took up a postdoctoral Fellowship at Victoria University of Wellington, and eventually a permanent position at the National Museum. When the Chair at the University of Canterbury became vacant in 1977, the chance for John and Valerie to move back to New Zealand was too good to miss, and they subsequently travelled across the world and settled in Christchurch. Although the move effectively marked the end of the Leeds University school of fern research, there were opportunities for John and I to work together again; we published a checklist of New Zealand ferns, a list of chromosome numbers for ferns, and papers on *Tmesipteris* and a new species of *Pellaea*. John's work also expanded into biogeography, and he briefly locked horns with the exponents of panbiogeography and vicariance biogeography who were very vocal in New Zealand in the late 1980s. More satisfyingly, he spent a lot of time botanising on the Port Hills and Banks Peninsula close to Christchurch, eventually publishing several papers expanding the known fern flora of the area. He also undertook many field trips with Jo Ward, his partner in the latter part of his life, looking for everlasting daisies that were the subject of her research. However, although he had Honours students at this time, notably Martin Daellenbach and Tony Huber, he trained no further PhD students in fern biology.

In fact, he changed tack once again and became involved in fossil botany, spending more and more of his time in the Clarence Valley and other parts of Marlborough and Canterbury where there was a rich Cretaceous fossil flora. John had always been interested in fossil botany, being well-acquainted with the Jurassic flora of North Yorkshire, and the work of his colleagues at Leeds on this and other deposits. He had even published a paper himself on *Aspidities thomasii*, a fossil fern that he related to the family Thelypteridaceae. In New Zealand, he became a serious palaeobotanist, supervising two postgraduate students, Ian Daniel and Liz Kennedy. Their work generated massive numbers of specimens, these initially vying for space with the tottering heaps of newspaper containing ferns, but they have since found permanent repositories in the Canterbury Museum and the Institute of Geological and Nuclear Sciences, Lower Hutt. Undoubtedly the highlight of this work was the

discovery of a Cretaceous angiosperm flower, something never before found in New Zealand. Significantly, the School of Biological Sciences at Canterbury University listed him as “Emeritus Professor Palaeobotany”, indicating that he was better known there for his work on Cretaceous fossil plants than for his expertise in fern evolution.



John with Gabor Vida and Irene Manton at Leeds in 1964

In fact, John was one of an increasingly rare breed in University circles – a true polymath. He researched and taught University undergraduate courses in every aspect of botany, completing the full range shortly before his retirement with an advanced course in phycology. At postgraduate level, while fellow academics were content to provide part of a single course, he ran four on Pteridophytes, Palaeobotany, Evolution and Biogeography entirely on his own.

I was immensely fortunate to come across someone like John in my formative years. In the 1960s, at Leeds, his work was innovative and inspiring. He gathered a small group of budding biosystematists around him and gently steered us in the right direction, instilling in us the need for nit-picking accuracy in everything we did in the lab. He had a keen eye in the field, and a reputation for finding interesting fossils amongst the discard piles of his colleagues. But he was the world’s worst procrastinator – sadly much of his work on New Zealand *Asplenium trichomanes* is still not published, and may need to be completed by those with access to his collections.

He was a man of many talents – in his younger days a handy left-arm spin bowler in school and university cricket teams, a surprisingly good goal-keeper in hockey, and a tenacious conservationist who almost single-handedly saved the lady’s slipper orchid from extinction in Britain. He was a serious student of wines, collecting and learning about them from his undergraduate days onwards; he ran wine appreciation courses for Canterbury University’s Department of Continuing Education, and sometimes took part in competitive tastings. He was equally devoted to quality and excellence in his other passions including philately, photography, rugby, classical music, cheese, Ceylon tea and growing species of *Fritillaria*. He passed on to his children Graham and Pamela a love of science, plants, and an inbuilt love of collecting.

But one of my abiding memories of John is that, despite mastering at least two quite different academic disciplines and several different hobby interests, he never owned a computer in his life. He usually communicated by letter in an elegant and distinctive hand, only rarely condescending to send a note written on a type-writer. He was certainly never driven by numbers of publications, citation indices, the need to attend frequent conferences, or even the need to maintain an up-to-date *curriculum vitae*. In fact, he pursued whatever stimulated his interest, and always to the very best of his considerable abilities, developing expert knowledge in many disparate fields. He was a wonderful mentor to anyone whose interests intersected with his own, and even after his own contributions had ceased, he never lost enthusiasm for hearing about the discoveries that others were making.

He lived a full, happy and healthy life, apart from knee problems, which frustrated him greatly as they reduced his mobility in the last part of his life. In the end, after a short illness, he was overtaken by kidney failure and died peacefully at Nurse Maude Hospice, Christchurch in the company of his daughter Pamela and partner Jo. He had been alert and attentive until the last couple of days, living at home, continuing his passion for wine and enjoying his friends and family. He will, of course, be sadly missed by them, but also by pteridologists and palaeobotanists around the world.

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BIOGRAPHY / BIBLIOGRAPHY

■ Biographical Sketch – David Landsborough (1779 – 1854)

Val Smith, 80 Mill Road, New Plymouth 4310.

David Landsborough (formerly McLandsborough) was born on 11 August 1779 in Dalry, Glenkens, Kirkcudbrightshire, Scotland, the only son and eldest of four children of John McLandsborough and Isabel Hugan. His parents were of humble circumstances, but did their utmost to provide scholastic opportunities for their son. David attended the parish school and Dumfries Academy before entering Edinburgh University in 1798. He was a talented violinist with the potential for a career in music, but studied theology - always with a flute at hand, ready to play. His love of music was shared with John Thomson, another student from Dalry, and later minister of Duddingston; they became very good friends, and from him Landsborough developed an appreciation of landscape painting. After distinguishing himself at college, he was for several years resident tutor in the household of influential Lord Glenlee at Barskimming. Licenced for the ministry of the Church of Scotland in 1808, and for a short time assistant in the old church of Ayr, Landsborough was ordained minister of Stevenston in 1811 and remained pastor of the parish for the next 32 years.

He not only ministered to his parishioners' religious needs, but also set out to improve conditions in the area, teaching evening classes, establishing new schools and carrying out a regular census of the parish, while also maintaining his scholarship by daily reading of Latin, Greek, Hebrew, French or Italian. On 18 March 1817 he married Margaret McLeish, daughter of James McLeish of Port Glasgow, and over the next few years made several visits with her to the neighbouring island of Arran for the invigorating fresh air. His interest in natural history, which seems to have commenced around then, led to the publication in 1828 of a poem in six cantos about Arran, and consequently, honorary membership of the Irvine Burns Club. Seven children: four sons and three daughters were born, but his wife, to whom he was devoted, died in 1834, at the age of 37. A few years later three of their sons, barely out of their teens, immigrated to New South Wales, Australia, where they took up land and ran sheep. John, the oldest, later came to New Zealand and engaged in stockbreeding and agriculture at Otipua Valley, near Timaru, and William became a noted explorer and plant collector in Queensland. The youngest son David, who was also interested in natural history, became a minister in Kilmarnock.



Landsburgia quercifolia

Meanwhile, their father participated in the Disruption of 1843 when many ministers broke away from the established Church of Scotland to form the Free Church. He became minister at Saltcoats, but with a reduction in income and loss of his beloved garden. The seashore took its place, and under his direction children prepared and sold numerous sets of algae to raise funds for the church and schools. His botanical studies progressed successively from flowering plants to lichens, fungi, mosses and algae, especially those of Ardrossan and Arran. Several of his discoveries are recorded in William Henry Harvey's *Phycologia Britannica*, and in gratitude for his contributions Harvey named a new species *Ectocarpus landsburgii* after him. On Harvey's recommendation, Landsborough wrote *A Popular History of British Sea-weeds* (1849), and a similar publication in 1852 on British zoophytes or corallines. Other works include *Excursions*, on the natural history of Arran, and *Ayrshire Sketches*, a small volume of religious biographies. In 1849 he was elected an associate of the Linnean Society, and the next year he promoted the establishment of the Ayrshire Naturalists' Club.

On ministerial visits to Scotland and Ireland, and a tour of England and France, Landsborough made a point of making personal contact with his correspondents and other naturalists, such as phycologist Amelia Griffiths of Torquay. In 1852 he was appointed to the General Assembly of the Presbyterian Church in Gibraltar, where he served for four months and was also chaplain to the 26th or Cameronian Regiment stationed there. During the second of two severe outbreaks of cholera in Ayrshire, Landsborough ministered to the dying until he, too, became ill and died on 12 September 1854, in his 76th year. In New Zealand, his name is recognised in the endemic seaweed *Landsburgia quercifolia*, the generic name bestowed by Harvey in 1855 "in honour of our excellent friend the Rev. Dr Landsborough, author of 'Popular British Seaweeds', etc., an accomplished naturalist and most amiable man". The species features on the \$1.40 stamp in a native seaweeds series issued by New Zealand Post in February 2014. The remote Landsborough River in South Westland, known by Māori as Ōtoatahi - 'the place of the toatahi' (male weka), was named for William Landsborough, the minister's explorer son in Australia.

Landsburgia quercifolia

Landsburgia is a brown alga genus endemic to New Zealand. Two of the three species are very restricted in distribution, while *L. quercifolia* is widespread. *Landsburgia quercifolia* is a large plant up to 1.5 m high, with a cylindrical main stem and alternate branches. The oak-shaped flattened leaves (Latin *quercus* 'oak'; *folium* 'leaf') are quite distinctive, and the smaller reproductive ones easily recognised. The dark chocolate brown colour becomes black when dry. The holdfast is a solid conical disc. The species is usually submerged on rock in subtidal to deep water on open coasts throughout New Zealand. The type locality is the Bay of Islands.

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PUBLICATIONS

■ **Publications Received**

Canterbury Botanical Society April 2018 Upcoming trips and meetings, meeting report on kanuka management, trip report for Lake Heron.

Canterbury Botanical Society May 2018 Upcoming trips and meetings, meeting report on *Cardamine* taxonomy, Lake Clearwater Bioblitz.

Wellington Botanical Society May 2018 Upcoming trips and meetings, submissions made, awards and grants available, trip reports for Glenburn Forest, Volcanic Plateau, Te Kopahou Reserve, Boulder Hill, Wainuiomata catchment and Tanah Burung.

The New Zealand Native Orchid Journal 148, May 2018 *Caladenia minor*, research news, *Pterostylis porrecta*, wild orchids in the Wakatip, *Caladenia pusila* and *C. chlorostyla*.

- **Book Review - New Zealand Lichens** (2018 Revision). Bill and Nancy Malcolm, Micro-Optics Press. 307 pp, A5 (see ad for purchasing details)

By Allison Knight

This is a brilliant revision, with much more depth and breadth than its title implies. Over 300 pages are packed full of surprises for anyone interested in lichens, from novice, to teacher, to expert. There are more than 700 superb photographs, drawings, microscopic and even SEM images. Use of fresh material, clever stacking techniques and close up photography makes the lichens leap off the page and reveals minute features. Clear line drawings and micrographs throw fresh light on microscopic or internal structures ranging from cross-sections of fertile and non-fertile material, green algae and cyanobacteria, sexual spores and ascus tips, asexual campylidia and conidiophore reproductive structures and much more, such is the wide range and depth of detail. Yet all this complexity of life form is written about in such an entertaining and accessible style that any interested reader could follow it.

A brief forward and introduction give a first taste of the essence of the lichen lifestyle, the richness of New Zealand's over 2000 species of lichens and the value and uses of lichens worldwide. The next 200-odd pages are divided into 22 wide-ranging sections full of fascinating detail. This is relevant to anyone anywhere in the world keen to know more about lichens. That the illustrations are mainly of New Zealand examples is largely irrelevant.

The quirky section headings cry out to be explored further. '*Home is almost anywhere*' explores the reasons why lichens can live in a greater variety of places than any plants, and why New Zealand has so many leaf-living lichens, typically found only in the tropics. '*You scratch my back and I'll scratch yours*' delves into the complexity of the lichen symbiosis, including the recent discovery of a basidiomycete yeast that rocked the established view of lichen species each containing one unique fungus, nearly always an ascomycete. The accompanying yeast appears to play an important role in the cortex of Parmeliaceae, one of the largest family of macro-lichens world-wide, yet it remained undetected for over 140 years. '*Origins*' covers 10 pages on the evolution of the lichen lifestyle, while '*Dog-eat-dog competition*' adds another 4 pages on how species evolve. '*Growth forms*' is self-explanatory and the main forms are illustrated over 18 pages, with '*Some exceptions*' devoting another 10 pages to deviations from the three core growth forms.

Two sections on '*Light-trappers*' deal with the green algal partners and then the cyanobacteria, while '*Getting the best of both worlds*' devotes 5 pages to the cosy arrangements of tripartite lichens, which contain both green algae and cyanobacteria. '*Gas exchange*' describes and illustrates various adaptations developed to aid the diffusion of gases essential for photosynthesis, and notes their taxonomic importance. '*Drying out*' investigates the miraculous ability of lichens to survive levels of desiccation that would kill other plants, and how this contributes to astonishing longevity and ability to live in extreme conditions. '*Identity crisis*' considers the conundrum that arises when a single species of lichen can associate predominantly with either a green alga or with a cyanobacterium, and sometimes switches between the two forms.

The long-standing mystery of how the various partners in a symbiotic relationship can come together over and over again to form a consistently recognisable 'species' deserves to be thoroughly investigated and the book does this admirably. Fully 30 pages are devoted to sexual reproduction, another 4 pages to unravelling the dispersal and relationships of consistently sterile lichens, followed by sizeable sections on asexual spores and on vegetative reproduction. '*Lichen substances*' turn out to be the myriads of unique chemicals that lichens are capable of manufacturing and this 10 page section discusses the biologic intricacies and taxonomic implications of the major substances. '*Spot*

tests' continues the chemical theme for another 10 pages, showing how simple tests can help discriminate between lichen species, and explaining the chemistry behind them.

Have you ever wondered what uses lichens have? The 18 pages on '*Uses worldwide, past and present*' offer plenty of answers. '*Braving the elements*' is not quite the response to a hostile environment that you might first think. Lichens have an astonishing capacity to concentrate and survive levels of radioactivity, copper, iron, zinc, sulphur and the gas form of nitrogen that would be toxic to other organisms. '*Pollution damage*' discusses lichens as sensitive indicators of pollution and elaborates on the remarkable rise and fall of populations of acid-tolerant *Lecanora conizaeoides*. The challenge and history of giving binomial species names to a disparate collection of organisms from different kingdoms that live together in symbiosis is treated superbly in the last of the 22 sections, '*Lichen names*'.

The Gallery of images of New Zealand lichens that follows is further testimony to Bill's consummate skill as a photographer and artist. Over 300 species are displayed in colour in the next 79 pages. These are a godsend to New Zealand lichenologists but should also have broader appeal. The New Zealand lichen flora contains a good sprinkling of cosmopolitan lichens as well as many with bipolar, subtropical or temperate distributions. Even the endemic species are mostly in genera that occur overseas. A very thorough index covering 13 pages helpfully gives both old and new names and to round it all off there are two pages of further reading to further whet the appetite.

Thoroughly recommended – a wonderful book with something for every biologist to marvel over.



New Zealand Lichens

by Bill and Nancy Malcolm, 2018, Micro-Optics Press

Fungi can't make their own food, but nonetheless they thrive because they've evolved reliable ways of getting food from other creatures by what we humans call theft and barter. Some of them take on algal and/or bacterial partners that can make food by trapping sunlight. That "life style" is called a lichen. This book explains how a lichen's partners interact, shows what lichens look like on the outside and how they're built on the inside, and recounts the bizarre uses that they've been put to over the centuries.

307 pages, illustrated with more than 700 colour photographs, microscope views, drawings, and diagrams.

Price NZ\$69 (includes GST and shipping inside New Zealand). Order from Bill by **e-mail** at nancym@micro-optics.press.com or by **post** at P.O. Box 320, Nelson 7040, or by **phone** at 03-545-1660. Payment options PayPal or direct credit.

