

Wellington Botanical Society

Te Rōpū Manāki i Ngā Tamariki a Tāne,
o Te Whanganui a Tara



NEWSLETTER

April 2019

Previous issue: December 2018

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From the President

On 15 March, Aotearoa suffered one of its darkest days when 50 worshippers died in the Christchurch mosque shooting. The response by the people of Aotearoa has been very heart-warming. It has shown a great outpouring of love and acceptance of our many cultures. I hope that this response turns a corner in improving race relations in this country.

For BotSoc it has been a time for submissions. Wellington City Council's Outer Green Belt Management Plan Review—what a mouthful!—has been ably tackled on the committee by Chris Horne (for BotSoc), Bev Abbott (Ōtari-Wilton's Bush Trust) and Richard Herbert (Friends of Tawa Bush Reserves). This belt of reserve land runs from Te Kopahou Reserve on the Wellington South Coast at Red Rocks, northwest to Wright Hill, Makara Peak, northeast to Ōtari-Wilton's Bush and Mt Kaukau and on to Tawa.

Porirua Adventure Park is a mountain-bike park and goldola development proposed adjacent to Rangitui / Colonial Knob Scenic Reserve. Bikers and their bikes will be transported to the summit by gondola, then descend via a track network. A helicopter will transport tourists from cruise ships (and other locations?) to the gondola base where they can ascend to the café at the top for great views. I recently spoke for BotSoc at the Porirua City Council hearing, voicing our concerns, Richard Herbert spoke for Friends of Tawa Bush Reserves and Chris Horne made a personal submission.

Jon Terry, President

New member

We welcome Megan Ireland to our membership.

Lea Robertson, Treasurer

Articles for web site

We welcome articles for consideration for inclusion on our web site:

www.wellingtonbotsoc.org.nz

Please send your article to:

Richard Herbert

e-mail herbert.r@xtra.co.nz

Writing for the Bulletin

Do you have a botanical observation, anecdote, or insight that you could share with others in BotSoc? If so, please consider contributing it to the Wellington Botanical Society Bulletin. There is still plenty of space in the next issue. For more details and assistance, contact Eleanor Burton at esmereldadoris93@gmail.com or 479 0497.

BotSoc on Facebook

<https://www.facebook.com/groups/322939557873243/>

This is an unofficial page for Wellington Botanical Society.

Wellington Botanical Society

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Send your subscription to Treasurer, WBS, Box 10 412, Wellington 6143 or to our bank account 020536 0017812 00.	
New subscribers: Please complete form at the back of this newsletter.	

Meetings

BotSoc meetings are usually held at 7.30 p.m. on the third Monday of each month at Victoria University, W'gton – Lecture Theatre MYLT101, ground floor, Murphy Building, west side of Kelburn Parade. Enter building about 20 m down Kelburn Pde from pedestrian overbridge. No meetings December and January.

Field trips

Day trips to locations in the Wellington region are usually held on the first Saturday of each month.

Extended excursions are usually held at New Year, at Easter and the first weekend in December.

DEADLINE FOR COPY FOR NEXT ISSUE – 31 August 2019

Articles may be edited for clarity and length

ATTENDING FIELD TRIPS AND MEETINGS

Ideas please

We welcome your ideas about:

- places to visit on field trips, and potential leaders of those field trips.
- topics and speakers for evening meetings

Please send your ideas to Barbara Clark, PO Box 10 412, Wellington 6143, ph 233 8202.

Field trips—single day

A field trip, usually lasting 4-5 hours, is an opportunity to learn how to identify native plants and adventive plants (weeds). During the trip, experienced participants record the species seen. After it, a new or updated plant list will be produced for the site. This list will be published on the NZ Plant Conservation Network web site, and copies sent to trip participants, landowners and managers.

If you intend to join a field trip, PLEASE phone or e-mail the leader at least TWO DAYS beforehand, so that he / she can tell you of any changes and / or particular requirements. If you cannot ring or e-mail in advance, you are welcome to join on the day. If you e-mail your intention, the leader will send you a copy of the draft plant list, so that you can print it out to bring with you. If you do not have a printer, tell the leader. At the meeting place, the trip leader will ask you to write on the registration form your name, e-mail address (so that you can receive the updated plant list), and a phone number for the leader to ring your next-of-kin in an emergency.

What bring—clothing

Choose from the following items, according to the weather forecast, and your personal needs: sun hat, woollen or polyprop beanie or balaclava, waterproof / windproof raincoat (parka) and over-trousers, long-sleeved cotton shirt*, singlet*, thermal or woollen top, woollen jersey or fleece jacket, nylon shorts or trousers*, polyprop long-johns, underclothes, thick socks, boots or walking shoes, gloves / mittens.

*Note: In wet, cold weather, do not wear cotton shirts, singlets, t-shirts and trousers.

What to bring—gear and food

Day pack with lunch, biscuits or scroggin, hot or cold drink, spare clothing, personal first-aid kit, note-book, pen, pencil, cell-phone, wallet. Optional: walking pole, clipboard, map or park brochure, camera, binoculars, hand-lens, sun-block, sun-glasses, insect repellent, whistle, toilet paper.

Field trips—overnight

Field trips usually last two days; at Easter, three days. We may be based at a camp-ground with or without cabins, or a rented house, or a private bach. The field trip may last 4-7 hours each day.

Overnight trip gear and food

Add to the day-trip gear, food and drink listed above: breakfast, fresh fruit, torch, spare bulb and batteries, candle, mug, plate, knife, fork, spoon, small towel, soap, tooth brush. If accommodation is not provided for, bring tent, fly, poles and pegs, groundsheet, sleeping mat, sleeping bag, sleeping-bag liner and stuff bag. Optional: matches in waterproof container, water purification tablets, pocket knife, large plastic survival bag to line pack, gaiters. Note: dinners may be 'pot-luck'—ask the leader to suggest what your contribution might be.

Summer camps

These field trips last 7–10 days. Full details will appear in the newsletter.

Health and safety

The leader will bring BotSoc's comprehensive first-aid kit, a topographic map, a cell-phone, and give a health and safety briefing.

The leader will describe the route, and approximate times for lunch, tea breaks and the end of the trip.

Bring your own first-aid kit. If you have an allergy or medical condition, bring your own anti-histamines and medications, tell the leader of any problems you may have, and how to deal with them.

Before the trip, if you have any doubts about your ability to keep up with the party, discuss this with the trip leader, who has the right to restrict attendance.

If you decide to leave a trip early, you must tell the leader, and be confident that you know your way back to the start. Enter your name on the 'register' under a wind-screen wiper on the leader's car, or other agreed place, to record your safe return.

Fitness and experience

Our field trips are mostly on established tracks, and at a leisurely pace, but vary considerably in the level of fitness and tramping experience required. Although our main focus is botanical, our programme sometimes offers trips which, in the pursuit of our botanical aims, are more strenuous than others. Although leaders take care to minimise risks, you participate at your own risk.

Transport

When the use of public transport is practical, details will appear in the newsletter.

We encourage the pooling of cars for trips. If you need a lift, tell the trip leader.

Passengers: Pay your driver your share of the running costs. We suggest 10c per km / passenger. If a trip uses the inter-island ferry, pay your share of the ferry fare. If you change cars mid-trip, leave a written note for your driver, under a wind-screen wiper on her or his car, and check that your new driver adds you to her or his list.

Drivers: Ensure that you know the route to the start of the trip, and that you have a written list of your passengers. Zero the odometer at the start, and agree on a return time. Check from your list that all your passengers are in the car. Collect contributions towards transport costs.

Trip leaders

Draft a trip report for the newsletter, including a list of participants, and send it to the editor.

Other matters

If after your first BotSoc field trip, tell the leader if you think there is information newcomers would appreciate seeing about future trips, in the newsletter, on the web site, or on Wellington Glean Report.

If you would like to offer to lead a field trip, or be a deputy leader on a field trip, contact our programme organiser, Sunita Singh, sunita@actrix.co.nz

Meetings

Public transport to meetings

The following bus services stop on Kelburn Parade, about 50 m up it from Victoria University's Murphy Building

Lecture Theatre MYLT101:

TO MEETINGS

No. 23 Mairangi: depart Houghton Bay 6.30 p.m., Hospital 6.42, Courtenay Place 6.49, opposite Supreme Court 7.00, University 7.05.

No. 23 Mairangi: depart Southgate 7.00 p.m., Hospital 7.17, Courtenay Place 7.22, opposite Supreme Court 7.34, University 7.39.

No. 22 Southgate: depart Mairangi 7.00 p.m., University 7.13.

No. 17 Railway Station: depart Karori Park 6.35 p.m., University 6.52.

Cable Car at 00, 10, 20, 30, 40, 50 min past each hour from Lambton Quay terminus. Alight at Salamanca Station.

FROM MEETINGS

No. 23 Southgate: 9.12 p.m. from University.

No. 23 Southgate: 10.10 p.m. from University.

Cable Car at approx. 01, 11, 21, 31, 41, 51 minutes past each hour from Salamanca Station.

Last service 10.01 p.m.

For further information ring Metlink, 0800 801-700.

FIELD TRIPS & EVENING MEETINGS: JUNE – SEPTEMBER 2019 & JANUARY 2020

The following programme IS SUBJECT TO CHANGE. If you wish to go on a field trip, PLEASE help with planning by giving the leader 2 days' notice before a day trip, MORE notice before weekend trips, and SEVERAL WEEKS' notice before the New Year's trip.

Non-members are welcome to come to our meetings and to join us on our field trips.

Saturday 4 May: Field trip

See December 2018 newsletter.

Rallywoods, Akatarawa Forest

Monday 20 May: Evening meeting

See December 2018 newsletter.

MEMBERS' EVENING

Saturday 8 June: Field trip

Botanise the Northern Forest's Cheviot Rd & Howard Rd tracks. **Meet:** 9.45 a.m., corner of Marine Pde & Cheviot Rd, Lowry Bay. Bring morning tea, lunch, drinks, walking shoes or boots, wet weather gear. **Bus:** No. 83 Eastbourne bus 8.45 a.m. from Courtenay Pl to Lowry Bay. **Lifts:** If you need one, ring the leaders. **Plant list:** If you would like one to work from e-mailed to you, ask the co-leaders. All welcome – come and get to know an interesting part of our region. **Maps:** NZTopo50-BQ32 Lower Hutt; street map. **Visit:** GWRC: www.gw.govt.nz/eastharbour/about; F&B: www.forestandbird.org.nz/branches/lower-hutt/east-harbour-regional-park-wellington; Eastbourne Forest Rangers: www.govt.nz/Eastbourne-Forest-Rangers/; MIRO: www.miro.org.nz/; **Co-Leaders:** Jill Goodwin 021 211 7720; jilljillgoodwin@gmail.com; Ian Goodwin 021 519 461 ianianguodwin@gmail.com.

East Harbour Regional Park—Northern Forest

Monday 17 June: Evening meeting

Unique habitats & plants of Ata Whenua—The Fiordlands
Speaker: Rowan Hindmarsh-Walls, Ranger-Biodiversity monitoring, DOC, Hokitika, will introduce us to some of Fiordland National Park's special sub-alpine and alpine habitats, and a sample of some of the unique and endemic plants found only in Fiordland and western Southland, e.g., *Pachycladon crenata*, *Epilobium mathewsii*, *Celmisia markii* and *Chionochloa acicularis*.

Saturday 22 June: Field trip

In partnership with Greater Wellington, BotSoc has been committed since 1989 to do weed control and revegetation in this important matai/tōtara/black maire remnant in Kaitoke Regional Park. Our biennial workbees must continue so that we keep ahead of re-invasion by weeds, particularly around the plantings, so *please* come to help with this important work. Bring weeding gear: gloves, kneeler, weed bag, and your favourite

Te Mārua Bush workbee, Upper Hutt

weeding tools, e.g., trowel, hand fork, grubber, loppers, pruning saw, jemmy. There may be some planting as well. **Meet:** 9.30 a.m. at Te Mārua Bush. (250 m north of Te Mārua Store and then left off SH2 for 50 m, on Twin Lakes Rd, Kaitoke Reg. Pk. **Train:** 8.05 a.m. Hutt line train WN to Upper Hutt - ring the leader to arrange to be met at Upper Hutt Station. **Maps:** NZTopo50-BP32 Paraparaumu; street map. **Co-leaders:** Glennis Sheppard 526 7450, Sue Millar 526 7440.

Saturday 6 July: Field trip

Te Ahumairangi—Tinakori Hill

Botanise mainly native plant communities at the south end of this section of the Wellington Town Belt. **Plant list:** If you would like one to work from e-mailed to you, ask the co-leaders. **Bus:** No. 22 Mairangi bus 9.31 a.m. from Stop C, W'n Station. Alight at last stop on Northland Rd., then walk 10 minutes via Orangi-kaupapa Rd to meeting place. **Meet:** 10 a.m. at end of Puketiro Ave. **Maps:** NZTopo50-BQ31 Wellington; street map. **Co-leaders:** Michelle Dickson 972 2350, 022 635 0193; Chris Horne 475 7025, 027 474 9300.

Monday 15 July: Evening meeting

Nature's Rainbow—discovering NZ's exciting butterflies

Speaker: Brian Patrick, Senior Ecologist & Entomologist, Wildlands Consultants Ltd. Although NZ's endemic butterfly fauna contains just two of the world's five major butterfly groups this fauna is the biodiversity centre for both admiral and copper butterflies. Of the 57 recorded butterfly species, c. 39 are endemic to NZ with a combination of introductions, both accidental and planned, and blow-ins and island-hopping species making up the rest. Different mixes of butterflies are found in coastal areas, forest edges through montane shrublands, alpine grasslands to high alpine screes. Above treeline a rich and colourful array of butterflies fly together. Continuing taxonomic work based on both morphology and DNA studies is revealing an extremely interesting butterfly fauna. The illustrated talk will also discuss butterfly life histories and note the plant groups our endemic species specialise on.

Saturday 3 August: Field trip

Whitireia Park bush remnant

Botanise Titahi Bay's Whitireia Park bush remnant. It has been improving in condition since grazing ceased in 2010. It was last visited by BotSoc in 2000. Plants of note previously found are *Lophomyrtus bullata* / ramarama and *Streblus banksii* / ewekuri / large-leaved milk tree. The bush is sheltered from the wind. **Meet:** 9.30 a.m. Onehunga Bay car-park, Whitireia Park. **Public transport:** none available. **Ride sharing:** If you can offer someone a lift, please contact Robyn who will pass your request on. **Side trip:** Weather permitting, we can also see one of the *Leptinella nana* (Nationally Critical) sites. **Maps:** NZTopo31 Porirua; street map. **Leader:** Robyn Smith 027 437 2497 robsmithii@xtra.co.nz.

Monday 19 August: Evening meeting **Druce think of Wellington today?**

AGM; AP Druce Memorial Lecture: What would Tony

Speaker: Tim Park, Environment Partnership Leader, Wellington City Council. Tony was a keen observer of nature, particularly around Wellington. Much has changed in how we measure, understand and manage nature since we lost Tony. Tim will talk about how things have changed.

Saturday 7 September: Field trip

Rangituhi / Colonial Knob Scenic Reserve

This is the site of the proposed Porirua Adventure Park (see Submissions Made section in this newsletter). Botanise near two old reservoirs in the valley of Mitchell Stream, and some of the last remaining native forest in the Tawa-Porirua basin. Most of its original cladding of rimu and rata was logged, although some mature trees survive in Porirua Scenic Reserve. The forest today comprises mainly kohekohe, tawa and some rewarewa. On the higher slopes it is dominated by māhoe with broadleaf, stinkwood and māpou. These species are often associated with higher altitudes, reflecting the influence of the weather on this environment. **Public transport:** none available. **Ride sharing:** If you can offer someone a lift, please contact Jon who will pass your request on. **Meet:** 9 a.m., Spicer Botanical Park carpark, 610 Broken Hill Rd. **Maps:** NZ Topo50 BQ31; street. **Leader:** Jon Terry 021 168 1176.

Monday 16 September: Evening meeting Wellington Outer Green Belt Management Plan Review

Speakers: Bec Ramsay and Shona McCahon, WCC, Parks, Sport & Recreation, will discuss the results of the recent public consultation including numbers of submissions received; proportion of submissions focusing on protection of natural values, compared with those focusing on recreational facilities; the key changes that arose from the review, when the different aspects will begin to be implemented; how these will be funded.

16–23 January 2020: Summer camp

Lonsdale Camp Outdoor Education Camp.

This camp is north of the Bay of Islands. Visit <https://www.lonsdalepark.org>. Expect to see some quite different plants from central Otago! Check the September newsletter for full details and registration form.

**Help raise funds for BotSoc's Jubilee Award Fund –
bring named seedlings/cuttings for sale at each evening meeting**

EVENTS

- *1st Saturday each month.* Otari-Wilton's Bush Plant Care. 160 Wilton Rd, Wilton. Meet at Te Marae o Tāne/Visitor Centre. No. 14 Wilton bus to Warwick St stop. *Wilbur Dovey 499 1044.*
- *18 May.* Restoration Day. El Rancho, Waikanae, Kāpiti Coast. Theme: *Caring for our coasts.* Keynote speaker: [Jim Dahm](#), an expert in coastal management and community restoration. *'Lightening Round'*—8 rapid-fire presentations covering topics from carnivorous land snails to myrtle rust. 'Pick your Brain' - delve deeper with your chosen expert into the topic of their 'Lightening Round' talk. 'Making Dreams Come True'—a workshop focussed on monitoring your project's success. Three field-trip options—including one double-length 2.5 hr excursion to the [Paekākāriki escarpment](#). Closing address: [Dr. Huhana Smith](#), a leader in research to address climate change concerns for coastal Māori lands. *Registration closes 19 April. More information on NatureSpace web site. Register at Eventbrite.*
- *14–15 August.* Through New Eyes: Rethinking landscape in Aotearoa. NZ's distinctive land and seascapes are an integral component of our wellbeing and identity. They provide deep cultural connections, physical and spiritual respite, and havens for biodiversity. Despite their importance, many of our special places continue to be degraded, e.g., the Mackenzie Basin and Milford Sound. Government is reviewing High Country policy. Managing NZ's landscapes into the future will be even more challenging given adverse biodiversity trends, the billion-trees initiative, tourism pressures, climate change and big policy-driven land use changes in prospect. We need new approaches and tools. *Through New Eyes* will critically assess the existing framework for land and seascape protection. We will delve deeply into new thinking. We will draw on local exemplars and fresh international models. We will explore a 'third way' – a new, innovative approach to better protect highly valued, private land. And we'll assess the future of our conservation estate. Register at [edsconference.com](#)
- *20–23 October.* Botanic Gardens Australia New Zealand. 9th congress. Theme: Plants from the past – Plants for the future. Te Papa, WN. The role of botanic gardens in science communication & story-telling, plant conservation, managing collections, displaying plants. <https://www.confer.nz/bgan2019/>
- *14–19 November.* 37th annual John Child Bryophyte & Lichen Workshop. Camp Taringatura, Southland. Base: [Camp Taringatura](#), beside Taringatura Reserve, between Dipton and Winton. Nearby are rare and interesting remnants of the original wetlands, tussock grasslands, shrublands, rock outcrops and diverse forests. The workshop is open to anyone and everyone with an interest in the mosses, liverworts, and lichens of New Zealand, from beginner to expert. A deposit of \$150 by 14 October will confirm your place.
- *24–28 November.* Taxonomy for Plant Conservation—Ruia mai i Rangiatea. Museum of NZ Te Papa Tongarewa, Wellington. Australasian Systematic Botany Society and NZ Plant Conservation Network. Visit Te Papa's herbarium and Ōtari Native Botanic Garden. Programme summary
24.11: Workshops; welcome reception at Te Papa; after-hours visit to new Taiao-Nature exhibition;
25.11: Presentations; evening: public lecture;
26.11: Talks; conference dinner, Te Papa;

27.11: Field trips;

28.11: Talks; conference closes; public lecture in the evening.

Australasian Systematic Botany Society (ASBS)

The ASBS is an incorporated association of over 300 members with professional and amateur interests in Australasian systematic botany. The aim of the ASBS is to promote the study of plant systematics in Australasia.

Plant systematics includes taxonomy and nomenclature. It is the science which unravels the relationships and evolutionary history of the flora. It provides the framework for all comparative biology. It is essential for the identification and conservation of threatened species, the management of native vegetation, and the detection of naturalised species.

Benefits of ASBS membership include reduced conference registration fees.

To learn more, or become a member, visit: <https://systematics.ourplants.org/> www.nzpcn.org.nz and <http://www.asbs.org.au/>

NOMINATIONS CALLED FOR

30 June. **Allan Mere Award 2019.**

- NZBS, c/- Canterbury Museum, Rolleston Av, CH 8013. www.nzbotanicalsociety.org.nz

GRANTS AVAILABLE

Tom Moss Award: This award is open to any student studying any aspect of Australasian bryophytes and/or lichens. See the [Wellington Botanical Society page](#) for details.

Botanical Society of Otago grants: \$100 each to assist two people who might otherwise not be able to attend the workshop. If you would like to apply for one of these grants, please email bso@otago.ac.nz by **1 September** with a paragraph summary, including:

- 1) Your background and why you would benefit from the grant;
- 2) What you can do to benefit the Workshop (e.g., give a talk, help set up a display table).

- angela.j.brandt@gmail.com

PUBLICATIONS

1. Farms, forests and fossil fuels: The next great landscape transformation?. 3/19, A4, soft cover, 182 p.

- *Parliamentary Commissioner for the Environment*, www.pce.parliament.nz PO Box 10 241, WN 6143 ph 04 471 1669.

2a. Open Space. 95 11/18. Lives of two Regional Representatives; royal recognition for covenants; Queen's Commonwealth Canopy Initiative; collecting *Lophomyrtus obcordata* seed for seed-banking; use of toxins and rat traps on Aotea/Gt Barrier Is; an Ōtatara covenant; teaching children conservation; native reforestation technique using agriculture-style seed-distribution; Brazilian beetles to control tradescantia; restoring a wetland; list of recent covenants; etc.

2b. Annual report 2018.

- *QEII National Trust*, Box 3341, WN6140 www.qeii-nationaltrust.org.nz

3. Reform of the Resource Management System. The Next Generation Synthesis Report. Two volumes: A4, soft cover, 342 p; Summary for policy makers: Same title plus "and Next Steps", A4 soft cover 34 p.

- *Environmental Defence Society*. www.eds.org.nz

4. Trilepidea. [181 12/18](#): Threat assessment for lichens published; *Elaeocarpus dentatus*; *Caladenia alata* voted favourite plant

in 2018 poll; NZPCN-ASBS conference 24-28.11.19; etc. [182 1/19](#): Dr Elizabeth Edgar 1929-2019; *Stylidium subulatum*; *Cardamine panatohea* named in central North Island; NZPCN-ASBS conference 24-28.11.19 – programme; etc. [183 2/19](#): *Hebe/Veronica armstrongii* failing to recruit - research; *Euphrasia cockayneana*; ANPC conference 2018: Moving House – A New Age for Plant Translocation; kauri dieback disease consultation; Seed Science Forum, April 2020, Australia; etc. [184 3/19](#): Seeking symbionts –fungi assist with germination studies of native terrestrial orchids; an afternoon with John Dawson; *Melycitus micranthus*; NZPCN-ASBS conference 24-28.11.19 updates re workshops, field trips; revision of *Above the Treeline* by Prof Sir Alan Mark; Botanic Gardens Australia New Zealand. 9th congress, Te Papa, 20-23 October; etc.

• NZPCN, c/- 160 Wilton Rd, WN 6012. events@nzpcn.org.nz

5. NZ Botanical Society. [134 12/18](#): *Celmisia prorepens*; Dr Ilse Breitwieser awarded Allan Mere 2018; regional botanical societies' news; B.E.V. Parham, botanist 1902-1987; Eastwoodhill herbarium added to Auckland Museum; Rachel Chisholm 1915-2017- biography; etc. [135 3/19](#): *Geum pusillum*; regional botanical societies' news; Rodney John Lewington 1935-2018; review of "The moss genus *Fissidens* in NZ" Beever, J.E., Malcolm, N.G., Malcolm, W.M.: DNA and plant classification – W. Arthur Whistler, Ph.D., Isle Botanica, Honolulu, Hawai'i; Piotr Ernest Jan Schleffera 1739-c.1809, biographical sketch;

• NZBS, c/- Canterbury Museum, Rolleston Av, CH 8013. www.nzbotanicalsociety.org.nz

6a. Auckland Botanical Society. Journal. Vol 73(2) 12/18. Trip reports; *Hymenophyllum bivalve*; frugivory and seed dispersal in Auckland region; etc.

6b. ABS Newssheet. [2/19](#): *Seaweeds of Auckland* by Mike Wilcox, launched; etc. [4/19](#): M. Wilcox now an Honorary Research Associate, Auckland Museum, Botany Dept.; kauri dieback update; find a Plant Pest app trial <http://www.findapest.nz>; etc.

• ABS, Box 26 391, Epsom, AK 1334. <https://sites.google.com/site/aucklandbotanicalsociety/>

7. Canterbury Botanical Society. Journal 49. 2018. Proceedings of the seminar *Leonard Cockayne at large*—Compilation of eight papers. Two articles about Dr Andrew Thomson; CBS Annual Report 17/18.

• CBS, Box 8212, Riccarton, CH 8440. <http://canterburybotanicalsociety.org.nz>

8. Ōtari-Wilton's Bush Trust News & Views. [12/18](#): NZPCN conference – see Events section; Rodney Lewington; glow-worms; Tongariro National Park garden; NZ Native Forests Restoration Trust buys 133 ha forest wetland in north Taranaki; *Metrosideros albiflora*. [3/19](#): Collecting trip in Ōtago (Eleanor Burton); *Celmisia densiflora*; etc.

• Ōtari-Wilton's Bush Trust, 160 Iton Rd, Wilton, WN. www.obwt.nz

9. Friends of the Wellington Botanic Garden. 12/18: Manager's report; extending ties with VUW School of Biological Sciences; botanical library – maintained by Eleanor Burton; etc.

• <http://www.friendswbg.org.nz/> FoWBG, 101 Glenmore St, Wellington

10. Common Ground – Supplement. Val Smith. A4. 122 p, soft cover. The stories of 100 more people commemorated in botanical names of NZ flowering plants, ferns, seaweeds, mosses, lichens, fungi \$20 incl. p&p in NZ. See flyer in this newsletter.

11. The moss genus *Fissidens* in NZ. Beever, J.E., Malcolm, N.G., Malcolm, W. M. \$36 incl. p&p in NZ

• nancym@micro-opticpress.com. Box 320, Nelson 7040. 03 545 1660; Paypal or direct credit.

12. Forest & Bird. 371 Autumn 2019: Conservation priorities for 2019; drylands park?; RMA reforms; monster mast; Te Kuha mine proposal, Buller; Ngaruroro Water Conservation Order; wetlands vanish; peat wetland mine proposal dropped; warming

forests warning; F&B's landscape-scale restoration project in South Auckland; fungi; youth hubs; carbon farming; 2018 climate summary; bird strikes; bats; concerns re plans for two national parks; myrtle rust; mangroves; Oparara development concerns: Wakanui Lagoon; etc.

• F&B, Box 631, WN 6011. office@forestandbird.org.nz

13a. Wakatipu Reforestation Trust – Restoring our Native Heritage.. A4 leaflet, illustrated.

13b. Growing native plants in the Wakatipu. Wakatipu Reforestation Trust. 2017. A5, 42 p, colour illustrations.

• info@wrtqt.co.nz www.wrtqt.org.nz

14. Tieke – Alerts and events. Weekly from Environment & Conservation Organisations of NZ Inc (ECO).

• eco@eco.org.nz.

15. Willdenowia. 48.3 11/18. Annals of the Botanic Garden & Botanical Museum, Berlin. Available on loan – contact jchorne15@gmail.com.

• Online edition (open access) <http://www.bione.org/loi/will>

SUBMISSIONS MADE

WCC'S Draft Outer Green Belt Management Plan 2018

Chris Horne prepared a very thorough submission on Wellington City Council's Draft Outer Green Belt Management Plan. He acknowledged the excellent maps and photos in the Draft Plan, and the work officers had put into its preparation, but also asked that the final plan be shorter, and easier to understand and use. (It's currently 236 pages).

Values, objectives, policies and actions are presented under seven themes in the first parts of the Draft Plan, including nature, landscape, recreation, flora and planting, culture and heritage, and community and identity. Over 100 pages are then devoted to more specific overviews and action statements for seven management sectors, e.g., Te Ngahere-o-Tawa /Redwood, Kaukau, Makarā Peak, and Te Kopahau.

The Society's submission supported a high proportion of the policies and action statements in the Draft Plan. Most of our reservations were associated with some of the proposals for more tracks and some of the restoration policies.

Tracks

The damage done to natural values done by the construction of new tracks and by-passes was a recurring theme throughout the submission. Here's the main arguments.

We note that construction of a track 1-metre-wide and 1 kilometre long requires the clearance of 1,000 m² of vegetation. Tracks are often up to 2 m wide, thus requiring the clearance of 2,000 m² of vegetation on a 1-km-long track. In the case of native plant communities, track construction disturbs the soil profile, surface water flows, sub-soil water flows, soil micro-organisms, and damages the roots and associated mycorrhizae of nearby native plants. Track construction facilitates:

- movement of weeds and pest animals into the adjoining indigenous ecosystem;
- ingress by the sun and wind into the ecosystem which may dry out the leaf litter, humus layer and subsoil,

potentially disturbing its stability. The wider the track the greater the canopy gap created in the ecosystem;

- reduction in the carbon-sink / carbon-sequestration capacity of the vegetation.

Some of the submission's strongest language was focused on 'guerilla track builders'. "Their earth-moving efforts and native plant felling in the pine block between Otari-Wilton's Bush and Johnston Hill Scenic Reserve are deplorable." The Society urged Council to do more to apprehend the offenders.

We argued that no new tracks are needed in Te Kopahau, but did support a track from the Kilmister Tops down to the junction of Makarā Rd and Takarau Gorge Rd, following the line of a historic Māori track.

Weeding and planting

The Draft Plan acknowledges (p.42) that "... available resources limit the extent of weed control that can be carried out". Our submission commented, "This problem is city-wide, not just on the OGB. WCC's councillors have failed over decades to fund adequately the control of invasive introduced plant species."

The Society's submitted that Council should spend more on pest control, and less on some of the proposed approaches to restoration projects designed to boost the diversity or distribution of plant species that are either under-represented or have disappeared locally as a result of competition and/or loss of habitat. The Society questioned the progressive enhancement planting of emergent canopy species in any reserve, and the trial planting of epiphytes in Huntleigh Park. We argued that intensive possum and rodent-poisoning, and associated secondary poisoning, would enable seeds of emergent canopy species and epiphytes to spread from seed sources close to or within particular reserves.

The submission also submitted that allowing exotic trees to age, fall over naturally, and then rot, was preferable to harvesting selected blocks of forestry plantations because

staged harvesting would damage emerging understorey natives and their supporting soils. Rotting would return nutrients to the soil.

Some other points in the submission

We opposed freedom camping anywhere on the Outer Green Belt, including on the coast at Te Kopahau because of the risk of fire.

John Wyndham Dawson PhD, FLS, Botanist. 1928–2019

We were saddened to hear of the death of John, the widely-known author and co-author of numerous botanical books, long-term lecturer at Victoria University of Wellington, supporter of Ōtari-Wilton's Bush and member of our society. We offer our condolences to Judy, his wife of 61 years, and to their family. We will publish a full obituary later.

The committee

Will the Porirua adventure park get the go-ahead?

When Jon Terry volunteered to prepare the Society's submissions on the application from Porirua Adventure Park Limited Partnership to establish and operate an adventure park near Porirua, he may not have appreciated the complexity of the decision-making processes when a proposed development will have effects on reserves and resources managed by different levels of government, in this case, Porirua City Council, the Department of Conservation, Greater Wellington Regional Council, and central government. Components of the proposed adventure park include a gondola on pylons, a zip-line, base-station buildings, top-station buildings, helicopter operations and new mountain-bike trails. Thanks Jon, for all the time you spent drafting submissions, consulting the BotSoc Committee, lodging the submissions by the due dates, attending a pre-hearing meeting, seeking additional information from the applicant's advisers, and speaking at the PCC hearing. As a result, the Committee now understands more about the relationship between Parliament's ratification of the COP21 Paris Accord which requires NZ to reduce greenhouse gas emissions, and the responsibilities of local decision-makers on resource-consent applications which may increase emissions.

Our submissions suggested that, if the application is approved, PCC attach conditions that would reduce future growth and spread of weeds, impacts on long-term research plots in the area, and freshwater fish passage.

NZ Post features alpine plants

The February issue of postage stamps depict *Ranunculus insignis*, *Notothlaspi rosulatum*, *Leptinella atrata* subsp. *atrata* (all \$1.20); *Craspedia incana* (\$2.40), *Ranunculus lyallii*, *Myosotis bryonoma* (both \$3.00).

Newsletter by e-mail?

If you would like to help us to reduce our postage costs by receiving your newsletter by pdf, please advise Lea Robertson: harlea@actrix.co.nz

DOC Wellington Visitor Centre

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ō Te Whanganui ā Tara*

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New Zealand Government



Department of
Conservation
Te Papa Atawhai

Will GWRC add wilding pines and feral deer to the proposed Regional Pest Management Plan?

In late 2018, BotSoc submitted on Greater Wellington Regional Council's (GWRC) proposed Regional Pest Management Plan and spoke at the hearings. Following the hearings, the Hearings Panel asked Council officers to prepare new cost-benefit analyses (CBAs) for wilding pines and feral deer in anticipation of including them in the final plan. The analyses which can be read on GW's web site, provide informative insights into factors considered in the CBA process.

For wilding conifers, officers have recommended progressive containment through its service delivery programme at an estimated cost of \$20,000 per annum, given that the current infestations are limited to about 800 ha. The socio-political risks of a "do nothing" approach were assessed as medium because if wilding pines were left uncontrolled, the public could regard increases in their range as a nuisance.

For feral deer, officers have recommended direct control through its service delivery programme on selected KNE sites. Identified socio-political risks were associated with the value iwi and some sectors of the public place on deer as a cultural, recreational and/or food provisioning resource. The control costs involved under site-led programme are relatively minor compared to the benefits to the regional biodiversity and natural environments.

A final decision on the new plan is expected from GWRC within the next few weeks.

*Bev Abbott
Submissions Coordinator*

Letters to the editor

We would welcome your comments on any aspect of BotSoc's activities:

- places you would like to visit on field trips
- topics you would like to have covered in evening meetings
- topics you would like covered in BotSoc's Bulletin and Newsletter
- other matters of concern or interest to you.

If you would like to offer to lead a field trip, or be a deputy leader on a field trip, please contact our programme organiser, Sunita Singh, sunita@actrix.co.nz

*Thank you,
The committee*

Jubilee Award 2018—Applications sought

The Wellington Botanical Society invites applications for an Award of up to \$2,600 to encourage and assist applicants to increase knowledge of New Zealand's indigenous flora, and to commemorate the Society's 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, or by e-mail to lara.shepherd@tepapa.govt.nz by **6 September 2019**.

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

1. your name;
2. postal address, telephone number and e-mail address;
3. any relevant position you hold;
4. a summary statement of your accomplishments in the field of botany – no more than one page;
5. an outline and timetable for your proposed project for which the Award is sought;
6. a proposed budget for your 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 **6 October 2019**.

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.

The committee

Newsletter postage increase 1 July 2019

Consider joining the 50% of BotSoc members who currently help reduce administrative costs, and see colour photos, by receiving your next newsletter as a PDF. E-mail harlea@actrix.co.nz if you are ready to make the change.

Wellington Botanical Society—Grant to post-graduate students

Each year the Wellington Botanical Society provides small grants to assist post-graduate student in the VUW School of Biological Sciences.

These grants can be used for travel, materials and other costs related to research projects undertaken as part of the course of study. Grants to any one student will normally be not more than \$600.

Application should be made initially through your supervisor to Prof. Kevin Gould by **6 September 2019**.

Applications should be brief and to the point. (Say two A4 pages).

They should state:

- Your name and e-mail address
- Your current education qualifications.
- The course of study you are undertaken.

- The nature and aim of your research project.
- The name of your supervisor for this project
- The budget for your project.
- The expenses that the grant is proposed to cover.

You will be advised of the results of your application by **6 October 2019**.

Grants will be made through the Research Trust of Victoria University of Wellington.

Names of successful applicants will be published in the Society's newsletter.

It is condition of the grant that you make a short presentation to the Society on your project and / or provide a one-page summary on the nature and results from your project to be included in the Society's newsletter or bulletin.

The small print

7. Grants will normally be to post-graduate students. Consideration may be given to applications by undergraduates where the supervisor considers that there is a special case to be made because the nature of the project is similar to that undertaken by graduate students.
8. Priority will be given to projects involving native New Zealand vascular plants and cryptogams. Consideration may be given to those projects involving other vegetation. With the anticipated competition and limited funds it is unlikely that applications for projects involving algae, fungi and coral would be successful.
9. The primary purpose of the grant is to cover field expenses—transport and accommodation but not rations. Financial assistance towards the cost of chemicals and chemical and DNA analysis will be entertained. The Society is reluctant to fund capital items but will consider applications for these.
10. Applications for grants made after the closing date may be entertained if the Society has not already allocated the funds available for the Student Grant. Priority will be given to applications received before the close off date.
11. The funds available are limited and priority will be given to those applications and those expenditures that agree with the main criteria set out above and are most in line with the aims of the Wellington Botanical Society.

The committee

The Mosses of NZ, 2nd edition, edited by Jessica Beever 1992

This book, now out of print, remains the main and only piece of literature that allows easy keying and identification of NZ mosses. Attendees at the 35th John Child Bryophyte and Lichen Workshop realised the need for this book to be reprinted, as numerous beginners enter the field of bryology (the study of mosses and their relatives), and more organisations take an interest in the conservation of the smaller plants.

This book provides several useful means of moss identification. Species are classified by habitat, or by simple morphological features (p. 12-15), or may be identified via a comprehensive, but simple-to-use, dichotomous key (p. 155-196). The text is accompanied by informative and elegant illustrations of more than 80 common species. These aids to identification are still highly relevant today, despite the name changes for numerous species and some

genera. With the online search engine for the *Flora of NZ*, as well as the annually updated *Checklist of NZ Plants*, both now freely available on the Landcare Research web site, you can easily search for updates on moss species' classification and name changes. One page added to a facsimile of the 1995 2nd Edition could provide the links to these, as well as excerpts from reviews the 2nd edition received when it was published.

A good guide to moss identification is needed now by numerous organisations, e.g., DOC and local councils, which include bryophyte surveys in their monitoring, and whose staff increasingly require regular training.

If you support the reprinting of the 1992 edition, you may wish to write to:

University of Otago Press, PO Box 56, Dunedin.

inaturalist.NZ—a very useful web site for botanists

Many of us take photos of plants or animals, then wonder what to do with them, or what species they are. If you are willing to use a computer then the web site <https://inaturalist.org> is well worth joining. It covers most living organisms: plants, fungi, wild mammals, insects, arachnids and molluscs. It is an incredible resource with over 16 million observations for over 200,000 species and covers the world.

If you are interested in using it for NZ plants, then use inaturalist.nz. In June 2018 this site replaced www.naturewatch.org.nz, which began in 2005. It now has 226,000 observations of 5000 species of plants just for this country. According to the web site, 'It is a place where you can share what you see in nature, set up citizen science and community-based monitoring projects, meet other nature watchers, and learn about NZ's natural history.' It is run by the NZ Bio-Recording Network Trust, a registered charitable trust in NZ dedicated to bio-recording:

Aims of the NZ Bio-Recording Network Trust

1. To increase knowledge, understanding, and appreciation of NZ's natural history.
2. To engage and assist NZers in observing and recording biological information.
3. To develop and support online tools to assist individuals and groups to record, view, share and use biological information.
4. To collaborate with people and groups interested in bio-recording.
5. To promote and provide secure, open and ethical sources of biological information for the public.

How to use it

Like many web sites, you need a username and password. Once you have done this, uploading photos is relatively simple, but is easier if you have taken photos using the GPS and date functions on your phone or camera. Photos can be downloaded at full size and the information attached to the photo will be downloaded automatically. Try to name the plant to the best of your ability. If you know the genus or family, but not the species or common name, then use them.

Ideally, it is best to take several photos of the plant, e.g., one of the whole plant showing some of the habitat, as well

as close-ups of the leaves, flowers and fruit. Some plants are very difficult to identify without close-up photos of flowers and/or fruit.

There are many people who will help identify the plants you enter onto the web site. Sometimes you can get them identified very quickly, depending on who is logged in at the time and whether your photos are easy to identify.

The web site is ideal if you have a special area and want to build up a list of the plants growing there. You can easily set up your own project and allow others to contribute. For example, there is a project set up to record the plants and animals in the Brook Sanctuary, and any observations you add to the web site will automatically be added to this project if they are recorded from within the fenced area. There is another project titled 'Nelson City Weeds'.

If you want to do a species list for an area, it is possible to zoom in on the map, search for plants and then use the download function which can be found under the 'filter' option. I suggest that members try out the web site, and a workshop on how to use it could be organised if there is enough interest.

Chris Ecroyd

Reprinted from Nelson Botanical Society newsletter, April 2019

Subscriptions overdue for 2018/2019

Please deposit a cheque or pay online to: BNZ account 02 0536 0017812 00, including surname and Sub in reference fields.

Or post a cheque we can deposit for you to:
Wellington Botanical Society, PO Box 10 412,
Wellington 6143

Donations are receipted and tax-deductable.

Subscription rates remain:

- Ordinary membership \$35
- Group membership \$40
- Country membership \$30
- Student \$10

Botanical books for sale

The books listed below are offered to BotSoc members to raise funds for botanical research. They are all in very good condition, so e-mail harlea@actrix.co.nz today to make an offer on a title you have been waiting to add to your collection.

1. An illustrated guide to NZ hebes. 2006. M.J. Bayly & A.V.Kellow.
2. Wild plants of Mount Cook National Park. 1996. Hugh D. Wilson.
3. Eagle's 100 shrubs & climbers of NZ: botanical paintings & notes. 1978. Audrey Lily Eagle.
4. Roots of fire: A guide to the plant ecology of Tongariro National Park. 1987. Isobel Gabites.
5. A field guide to NZ native orchids. 1981. Dorothy Cooper.
6. NZ fungi: an illustrated guide. 1994. Greta Stevenson.
7. Lichens of NZ. 1972. William Martin & John Child

Lea Robertson, Treasurer

Lucy Cranwell and Lucy Moore

This article on the two botanists can be read at: <https://www.newsroom.co.nz/@summer-newsroom/2019/01/10/392399/the-two-lucys-kiwi-botanists-in-their-brothers-shorts>

Frances Forsyth

Wellington Botanical Society Bulletins back-issues

Expand your collection of our informative "flagship" publication.

Limited numbers of copies of the following back issues are available:

1950s: no. 23 (9/50), no. 30 (12/58).

1960s: no. 32 (12/61), no. 33 (2/66), no. 34 (11/67), no. 35 (10/68), no. 36 (12/69). *Index to Bulletins nos. 1-35.*

1970s: no. 37 (11/71), no. 38 (9/74), no. 39 (10/76), no. 40 (8/78).

1980s: no. 41 (9/81), no. 42 (9/85), no. 43 (4/87), no. 44 (11/88), no. 45 (11/89).

1990s: no. 46 (12/94), no. 47 (9/96).

2000s: no. 48 (9/02), no. 49 (12/05).

Cost \$5 per issue, incl. p&p; \$15 for any five issues incl. p&p.

Copies of more recent Bulletins, no. 50 (3/07), no. 51 (11/08), no. 52 (4/10), no. 53 (6/11), no. 54 (11/12), no. 55 (11/14), no. 56 (5/16) and no. 57 (10/18) are \$11 each incl. p&p, to members and other individuals, and \$21 each incl. p&p, to organisations, posted within NZ.

Contact Chris Horne to confirm availability: JCHorne15@gmail.com, phone 04 475 7025.

Please either:

- make your cheque payable to Wellington Botanical Society, PO Box 10 412, Wellington 6143
- or pay direct to the Society's bank account 020536 0017812 00, with your name and Bulletin as reference.

Many thanks

Lea Robertson, Treasurer

Regional Pest Management Plan (RPMP)

The RPMP will be presented to councillors in May 2019, then released to the public. A huge amount of work and resources have been invested into this process. The final document will be a testament to consultation and working together for future protection of Greater Wellington.

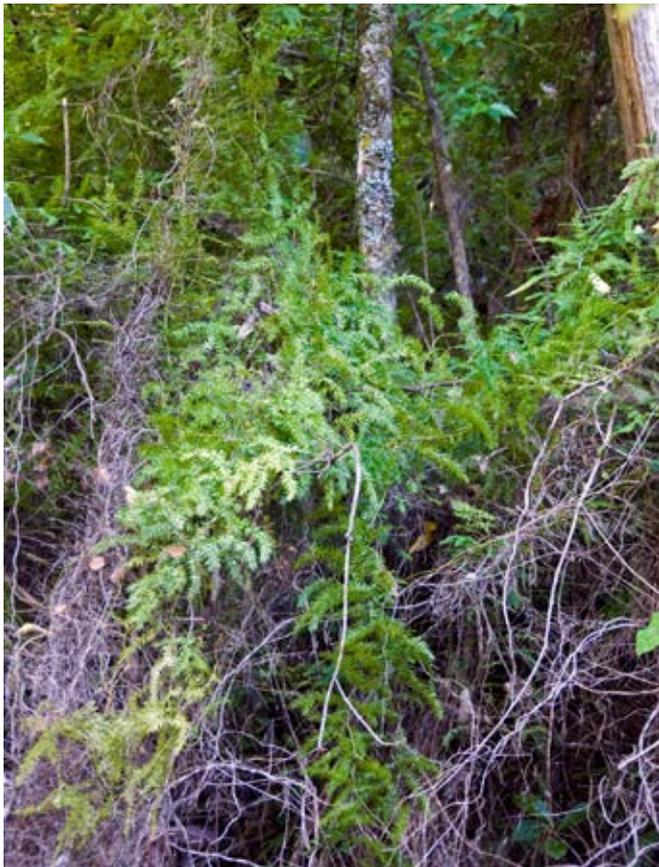
Weed control work is well advanced in our parks, Key Native Ecosystems (KNEs) and wetlands. Our focus has mainly been on blackberry, boneseed, climbing asparagus, wilding pines and tradescantia where required.

Woolly nightshade, perennial nettle, Senegal tea, purple loosestrife and moth plant inspections have been completed, and a few new sites found. Blue passionflower site inspections and control are now underway with a few sites left to control. In April our climbing spindle-berry control and inspections will continue with several sites being delimited (systemic search of surrounding area). We have been trialling the use of a drone RPAS (Remotely Piloted Aerial System) on some sites to help us find pest plants where ground search has been impractical or inefficient.

The MPI (Ministry of Primary Industries) eradication plant, Manchurian wild rice, has been controlled using aerial application with a reduction of approximately half the chemical used from last season to this season. *Tradescantia* rust has been further released at several sites in the region and green-thistle beetle monitoring was completed in March. The national monitoring of green-thistle beetle has shown variable results across the country.

*Mark McAlpine, Senior Biosecurity Officer – Pest Plants
Greater Wellington Regional Council
Te Pane Matua Taiao*

Climbing asparagus



Asparagus scandens was identified to be a threat to the bush in the Wellington/Hutt Valley region well over 20 years ago; unfortunately, warnings went unheard. Since 2001, East Harbour Environmental Association (EHEA), led by Felicity Rashbrooke, has organised weekly weeding parties, weather permitting. In summer and autumn we focus on cutting off the myriad berries as the seeds germinate prolifically, and can be transported considerable distances by birds.

The later it gets, the more urgent it gets to cut off the greenery, very carefully, as the riper the berries get the more easily they fall off onto the ground/hillside ready to start the next generation—a nightmare. We cut them off with secateurs, put them very carefully into plastic bags (without holes!), take them home and deposit them at a landfill, because if you put them into green waste, that would be the perfect distribution system. We don't trust mulching or composting!

When the berry season is over, we go back to digging up the plants, small and large. The small plants will grow into big plants, so it is well worth getting them out while

they are small. Alan Bagnall says he achieves good and fast results with a claw hammer. In some areas the plants have managed to grow huge root systems, up to 50 cm in diameter and over 20 cm deep. We broke more than one grubber handle by trying to yank out the root clumps - all the more reason to dig them up with a digger, claw hammer, fork or grubber while they are smaller. According to people in the know it is enough to get the crown out, but seeing how many little storage bulbs hang on the individual roots, we think it is better to be safe than sorry, i.e., we try to get the entire root systems out.

Trudi Bruhlmann, EHEA and BotSoc; Felicity Rashbrooke, EHEA

African clubmoss



If you have to deal with an infestation of *Selaginella kraussiana* spraying it with bleach is effective.

- Chlorine bleach acts as a contact herbicide, so full wetting of all parts of the weed is required for it to be killed.
- To ensure the effectiveness of a chlorine solution, prepare it fresh just before use.
- Chlorine is toxic to fishes and aquatic invertebrates, so avoid contact with open water.

*Chris Cosslett, Wellington Natural Heritage Trust,
owners of Long Gully Bush*

Further reading

Barton, J. (2005). Prospects for Biological Control for African Club Moss (*Selaginella kraussiana*). Landcare Research, Lincoln, NZ.

Raal, P (2014). The control of *Selaginella kraussiana* with chlorine bleach (Sodium hypochlorite), Internal DOC publication.

Taputeranga Marine Reserve

For any Conservation-related illegal activity,
call the 24-hour conservation emergency helpline

DOC HOTline
0800 362 468

For Search & Rescue—call 111

All other enquiries to your local DOC office or visit our
website www.govt.nz

Department of Conservation
Te Papa Atawhai

New Zealand Government

Weed control on Paekākāriki—Pukerua Bay Escarpment

Nga Uruora does ecological restoration on the escarpment. Weed control is one of our biggest challenges. Understanding how weeds spread is the key to successful control, so we are interested in their mechanisms of reproduction. Some weeds don't produce any seed and spread by sending out runners or fragments carried on people's or animals' feet. Examples are German ivy (*Delairea odorata*), Cape ivy (*Senecio angulatus*), and tradescantia (*Tradescantia fluminensis*). These three species were introduced to NZ as garden ornamentals. Probably very few plants actually crossed our border. So they went through a genetic bottleneck giving them very low genetic diversity, probably leading to non-viable seed. German ivy and Cape ivy reproduce by seed in South Africa, but Phillipa Scott proved that they produce no viable seed in NZ (VUW thesis 2001).



Senecio angulatus. Photo: Jeremy Rolfe.

Climbing asparagus (*Asparagus scandens*), periwinkle (*Vinca major*) and pelargonium (*Pelargonium ×asperum*) are also serious weeds. They are all ornamental garden plants which have escaped; periwinkle and pelargonium in the 1870s. Climbing asparagus arrived in 1970. They reproduce by seed and vegetatively, so can build up a seed bank. Periwinkle started from the North Island Main Trunk Railway above SH1 and grows up the escarpment killing any low-growing species such as muehlenbeckia / pōhuehue, but it is stopped by patches of bush which shade it out. Pelargonium originated from garden refuse dumped at the

Paekākāriki Hill Road Lookout. It forms a monoculture by growing over grasses and low-growing species.

Periwinkle and pelargonium are very difficult to control because of inaccessibility and resistance, so big monoculture areas have developed on the escarpment. Climbing asparagus seeds spread by the wind or birds, so we stop it travelling along the escarpment by trapping it in patches of bush.

Other bad weeds are boneseed (*Chrysanthemoides monilifera*) and banana passionfruit (*Passiflora mixta*), both spread by bird-carried seed.

Ken Fraser, Nga Uruora o Kāpiti and BotSoc

Written by Berton Braley, Science News Letter, 1929

There should be no monotony
In studying your botany;
It helps to train
And spur the brain –
Unless you haven't gotany.
It teaches you does Botany,
To know the plants and spotany,
And learn just why
They live or die –
In case you plant or potany.
You learn, from reading Botany,
Of woolly plants and cottony
That grow on earth,
And what they're worth,
Any why some spots have notany.
You sketch the plants in Botany,
You learn to chart and plotany
Like corn or oats –
You jot down notes,
If you know how to jotany.
Your time, if you'll allotany,
Will teach you how and what any
Old plant or tree
Can do or be –
And that's the use of Botany!

Waikato Botanical Society newsletter No. 43, 12/18.

Common Ground: who's who in New Zealand botanical names Supplement

A4 format, 122 pages, soft cover

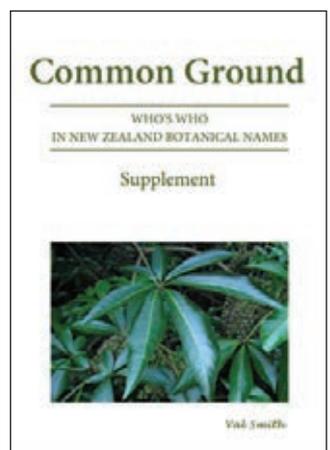
Published in a limited edition by Wordsmith, New Plymouth, assisted by Wellington Botanical Society's Jubilee Fund and the George Mason Charitable Trust
ISBN 978-0-473-45089-2

This supplement to *Common Ground* embraces the stories of a further hundred people commemorated in botanical names of New Zealand flowering plants, ferns, seaweeds, mosses, lichens and fungi. In a similar format to its predecessor, it is arranged chronologically from biblical times to the present day, each biographical entry on a separate page, together with relevant plant information and image.

Price: \$20 (includes delivery/postage within New Zealand)

Orders and enquiries to Val Smith valdsmit@xtra.co.nz Ph. (06) 758 3521
80 Mill Road, Lower Vogeltown, New Plymouth 4310

Val Smith



TRIP REPORTS

25 January–1 February 2019: Bannockburn, Central Otago

Thirty-three people made the trek south to the 2019 Wellington Botanical Society summer camp at Bannockburn in mid-January. Bannockburn School Camp was a superb base for our week-long camp, with plenty of bunks and tenting-space. The swimming pool proved popular for cooling off after hard days out in the field.

Ably guided by Neill and Barbara Simpson, we botanised a variety of sites from flat salt-pans to alpine ski-fields. The central Otago weather was superb for the entire camp, and we headed up the mountains, where the temperature was cooler, on the hottest days.

Thanks to Graeme Jane, Pat Enright and Neill Simpson for providing species lists and Richard Herbert for keeping track of transport costs. Thanks also to Melissa Jager and other members of the Wakatipu Botanical Society, who were able to join us for some of the day trips. Christine Galbraith of Food Fix Catering in Cromwell superbly catered our dinners.

The 2020 summer camp is to Lonsdale Camp Outdoor Education Camp, north of the Bay of Islands (<https://www.lonsdalepark.org>). Expect to see some quite different plants from central Otago!

Lara Shepherd, Mick Parsons (co-leaders)

26.1.2019: Chapman Road Scientific Reserve (a.m.)

This salt-pan area was honoured with our very first trip from our camp. Salt-pan soils are highly saline, and home to many endangered plants, and two rare moths. The DOC page for the reserve tells the sad story about the greatly reduced habitat for the salt-pans' distinctive flora and fauna which 'used to cover more than 40,000 ha within the Central Otago region. Today there are fewer than 100 ha remaining.' No wonder so many of these plants are threatened today. www.doc.govt.nz/parks-and-recreation/places-to-go/otago/places/alexandra-area/chapman-road-scientific-reserve/

Neill Simpson gave us an overview

before we headed over the fence, and Rachel and Melissa from the Wakatipu Botanical Society joined us for the day.

It was 'bottoms up' immediately as we discovered, hiding in plain sight on the otherwise bare ground of the salt pans, the cryptic *Atriplex buchananii* / Buchanan's orache. It was probably the most common of the rare plants we saw. We were lucky to find some patches in flower.



Atriplex buchananii.

We saw the rare *Puccinellia raroflorens* / saltgrass, but not in flower (see the link to the DOC web page below for a photo of the flower spike).

The tiny *Poa maniototo* was relatively common in places. Once we knew what to look for, it was obvious by the way its spikes were held horizontal to the ground.

We also spotted *Raoulia beauverdii* and *Isolepis basilaris*. We saw *Myosotis brevis*, although the plant I saw had died after setting seed. This was a lucky find as *Myosurus minimus* subsp. *novae-zelandiae*, *Ceratocephala pungens* and *Lepidium kirkii*, the other rare spring-summer annuals recorded from here, were not seen at all. See the DOC link below for photos in case you are planning a visit when they might be visible.

Not surprisingly, given the long history of disturbance, the most obvious plants were weeds, e.g., *Navarretia squarrosa* / Californian stinkweed, and two mulleins, *Verbascum thapsus* (woolly) and *V. virgatum* (moth). If nothing else, some of us saw several exotic species new to us.

And let's not forget the almost ubiquitous Central Otago exotic,

Thymus vulgaris / wild thyme - the smell of which soon became sickening. It was encouraging to read in *The Illustrated Guide to Common Weeds in NZ* (3rd Edition) that this is included in a Regional Pest Management Strategy in some areas. What a challenge thyme control looks to be!

For rare plant and moth information and photos, see:

www.doc.govt.nz/parks-and-recreation/places-to-go/otago/places/alexandra-area/chapman-road-scientific-reserve/?tab-id=other-activities

Barbara Hammonds

26.1.2019: Flat Top Hill Conservation Area

After lunch at Butchers Dam, near Alexandra, people split up, with some botanising around the dam, and others trying to find the best way up the hill. I joined a small group going pretty much straight up the hill, so this write-up looks first at the slope and hilltop, and then the lowland area around the dam and its shores.

The area as a whole is dry grassland, retired from grazing, with many outcrops of schist. The usual exotic grasses predominate, plus much thyme and wild rose (*Rosa rubiginosa*). On bare patches there was lots of stonecrop, a weed that does well in the dry stony soil when native cover is removed. There were a few scattered native shrubs, including matagouri (*Discaria toumatou*) and a few *Olearia odorata* and *Kunzea sericea*.

We searched the rocky outcrops thoroughly, as they provide moister micro-habitats for many species. There were more ferns than I expected, with two "hot rock" ferns, *Cheilanthes sieberi* and *Pellaea callidrupium*, the latter being very large. The area has had a wetter than usual winter and spring, so I wondered whether this had contributed to the unusual size of this fern - the fronds were up to 30 cm long, when they are usually up to c. 10 cm. Other ferns of interest were necklace fern, *Asplenium flabellifolium*, which is common in

dryer habitats, *Blechnum pennamariana*, an alpine fern in the north of NZ, which gradually descends to sea level by the time you get to Southland, and *Blechnum vulcanicum*, which is usually lowland in forest. There were also lovely, large specimens of *Asplenium richardii*.

Plants that caught my attention on and among the schist tors included the pretty, blue-green-leaved *Hebe pimelioides*, which unfortunately had finished flowering, and *Leucopogon nana*, which looks like a small *L. fraseri*, except it grows in cushions and is not prickly. In a moist gully there were *Clematis forsteri*, *Muehlenbeckia complexa* and *Rubus chmidelioides* var. *subpauperatus* climbing through the shrubs. Gavin showed me a large *Anisotome haastii* growing on a rock overlooking the spectacular canyon that contains the Clutha River below Alexandra.

It was good to see some native grasses among the rocks - of note were the very large heads of *Lachnagrostis richardii*. The only tussock on this site was *Poa cita*.

The herbs present were a mix of weeds and native species, with the former outnumbering the latter. Some natives present were sub-alpine species—*Anaphalis bellidioides*, *Acaena caesiiglauca*, *Raoulia subulata*, *Brachyglottis lagopus*, *Helichrysum filicaule*, and some were more lowland—*Wahlenbergia rupestris*, *Euchiton audax*, etc.

After coming down the hill, we explored around the shores of the dam. There was a salt pan area, with some of the plants we had seen earlier in the day at Chapman Reserve. The edges of the dam had *Glossostigma elatinoides* in flower.

Gael Donaghy

DOC's signage

The information boards were well-designed, sturdy structures, with text and illustrations. I question the prominence given to introduced species, rather than native species. On one board, the dam was described as "A paradise for waterfowl ... refuge for a number of valued gamebirds such as the mallard duck". The second paragraph lauded the dam as "habitat for the critically endangered southern crested grebe". Another board, headed "Sportfish", stated that "with the creation of the dam came

the opportunity to establish a new sports fishery". The second paragraph, headed "Native fish", stated that Butchers Dam now supports very few native fish. Large-finned eels, koaro and upland bullies would once have been common. Only upland bullies and the occasional long-finned eel remain". It rightly noted that "the dam was a barrier to fish passage".

Chris Horne

27.1.2019: Old Man Range/ Kopuwait Conservation Area

Leaving Alexandra Fruitlands Road, the gravelled Symes Road rises fairly steeply among schist outcrops. It was a challenge for some of our vehicles, especially the van so ably driven by Mick. *Aciphylla aurea*, narrow-leaved tussock and matagouri dotted the landscape at this mid-altitude on the climb. We left most vehicles at c. 200 m below the crest of the range.

We began botanising by a tiny creek and swampy patches. *Dracophyllum muscoides* dominated the large alpine cushions, the minute plant's little woody stems often hidden. The berries of *Coprosma perpusilla* subsp. *perpusilla* were eye-catching. The flowers of *Oreobolus pectinatus*, *Geum* sp., *Gentianella grisebachii*, *Oxalis magellanica* and a late-flowering *Ranunculus gracilipes* were among others we saw.

We then climbed the slope above the creek to the top ridge, admiring the 'big sky' featuring a cloud formation with a great tractor-wheel pattern. We lunched by a large tor where *Anisotome imbricata* appeared everywhere. The woolly *A. lanuginosa*, *Celmisia sessiliflora*, and tiny plants of species of *Raoulia*, *Poa*, *Carex* and *Luzula*, covered the surrounding slate and stone surface. We admired the hairy *Plantago lanigera*.

In a stiff breeze, most of the party botanised along the range to the 26.6 metre tall rock, the Obelisk/Kopuwait, at 1,682 m. Hummocks and mounds formed by solifluction were prominent in many places. We saw numerous alpine species in flower, new to many of us. Golden mountain cottonwood rose to 70 cm high in the more sheltered places. Among the rocks we saw *Polystichum cystostegia*, *Veronica hectorii* subsp. *demisa*, *Myosotis pulvinaris* and a mat of *Ourisia glandulosa* in

a shaded crevice. We compared *Celmisia viscosa* and its sticky stem, with the other *Celmisia* species. *Aciphylla hectorii* agg., *Gentianella bellidioides* and *Acaena saccaticupula* were common. *Caltha obusa* and a specimen of rock tripe fungi attracted our attention. Further along the ridge, the bright flowers of an oval-leaved variety of *Brachyglottis bellidioides* stood out.

Signs of heavy browsing were evident on some snow tussocks, chewed down to about 4.5 cm.

Birds recorded included NZ dotterel and South Island Pied Oystercatcher. We also saw a skink, butterflies, a Chafer beetle, a Gordian worm and its dead larval stage host, a wētā, in the little creek.

On the return, we visited the DOC-maintained Mitchells Cottage Historic Reserve to see the stone cottage and gardens. We were wowed by the huge *Sequoiadendron giganteum*.

Michele Dickson

28.1.2019: Cardrona—Crown Range

It was a quick climb up the bank from the barrenness of the skifield facilities; much to the consternation of the facility health and safety officer. He warned us of the go-carts hurtling down the hill in our path across the race-way and the going out-of-bounds onto the steep reserve area so close to the industrial skiing complex. He pointed out the plantings of a low growing Norwegian spruce within the reserve that somehow was considered to add to the aesthetic enrichment of the skifield.

We soon recognised that just as with the previous two days, there were discoveries to be made. Aside from the more prominent *Aciphylla montana* were the more cryptic *Anisotome imbricata* var. *imbricata*, as well as *A. imbricata* var. *prostrata* among the ubiquitous beds of *Abrotanella caespitosa* and *Dracophyllum muscoides*. We saw patches of *Pimelea aridula*, *Raoulia apicinigr*, *Leptinella wilcoxii*. *Hebe buchannanii*, *Hectorella caespitosa* and even *Lycopodium fastigiatum*. They seemed to pop up everywhere on this steep slope tucked under large rock shelters, and tufts of *Poa colensoi* that dotted this face. Some

large *Celmisia gracilentia* were also prominent.

We sheltered under some rocks at the top for lunch. This area had recently been severely modified as an access-way with out-of-place objects placed upon it. On the south-facing slope the breeze was enough to have us reach for warm parkas. Here, we were but one 'hillock' away from the large private Mahu Whenua 53,000-ha QEII covenant settled among this awesome landscape. Scattered *Gentiana divisa* and *G. anabilis* were still in full flower, as was the odd *Brachiglottis bellidioides*. Bushes of *Dracophyllum rosmarinifolium* rested against various tussocks. We also saw the darker seed heads of *Agrostis imbecilla* against the open gravel areas where *Kellaria villosa* and *Raoulia grandiflora* also seemed to thrive.

We finished off by clambering over large sharp boulders at the top before descending to a small soak that was covered in turf vegetation such as we had seen on day 2. It was then to the gondola-offload area where a free ride could be had descending to the car-park area.

Mick Parsons

And from Brenda.....

I really looked forward to going to Central Otago to find plant lists dominated by dicotyledonous herbaceous plants rather than trees and shrubs. I was keen to find lots of the special alpine plants so loved by the late Arnold and Ruth Dench, and Cardrona ski field really delivered. The ski-field road made the alpine zone so accessible. I enjoyed trying to name the species of *Aciphylla*, *Celmisia*, *Gentiana*, *Leptinella* and *Myosotis* I found.

Another aspect I enjoyed was looking at the huge variety of cushion plants, not all of which were *Raoulia*. *Dracophyllum muscoides* and *D. pronum* and *Hectorella caespitosa* were but three examples. My hand-lens had lots of use looking at all the cushion plants in great detail. Those trees and shrubs I found were all ground-cover plants like *Coprosma perpusilla*, *Melicytus alpinus*, *Gaultheria crassa*, *G. depressa* and *Ozothamnus vauvilliersii*. These too got the hand-lens treatment. It really whetted my appetite for when I visited the Remarkables Range the

next day. Another positive feature was that the Cardrona ski-field company was trying to rehabilitate some areas with plantings of eco-sourced native plants.

Brenda Johnston

29.1.2019: Remarkables—Lake Alta

We were favoured with a fine day for our trip to the Remarkables ski-field although the wind up near Lake Alta was quite keen. Since I first visited the area many years ago, the development of the ski-field and the increase in the number of people visiting Lake Alta has greatly changed the landscape and consequently the plants growing there.

The first wetland near the start of the walk had a red-leaved carex, later determined as *C. petriei*, growing through the cushions.

Several small groups of us split to take various routes up towards Lake Alta. Somehow I found myself on my Todd Malone, so botanised a couple of wetlands on the ascent. *Dolichoglottis lyallii* was flowering profusely beside the public car-park and was also present along the stream draining Lake Alta. There was a single patch of what was probably a hybrid between *D. lyallii* and *D. scorzoneroideis* with creamy flowers and wider leaves than *D. lyallii*. The new Cardamine revision came into play when I found a small fleshy-leaved cardamine in flower and seed, and determined it to be *C. glara* but this is yet to be confirmed.

We regrouped near the lake and noted the trampling effect of the many people who visit the area. They have even built a couple of rock shelters. From there a group headed towards the lookout noting several interesting plants on the way. *Veronica epacridea* was locally common in the scree and the shattered rock above. *Haastia sinclairii* var. *sinclairii* was noted in the scree. Several intrepid people went all the way up to the lookout where this species was reported to be locally. I took the option of climbing down the slope towards the bottom wetland and saw *Carex goyenii* growing with *Carex wakatipu*. Sunita found *Astelia nivicola* which was, along with *C. goyenii*, an addition to the extensive list supplied by Neill Simpson and Graeme Jane.



Astelia nivicola.

Chris drew people's attention to the sweet smell of the South Island edelweiss (*Leucogenes grandiceps*).

Species of interest noted by the group included the undescribed *Raoulia* (apparently aff. *bryoides*), *Aciphylla lecomtei*, *Myosotis lyallii* var. *elderi*, *Hectorella caespitosa* (in flower), *Raoulia youngii* (also in flower), *Pimelea notia*, *Euphrasia zelandica* and *Myosotis bryonoma*.

<https://inaturalist.nz/observations/19944618>

<https://inaturalist.nz/observations/19944586>

On the trip back to the cars the last stragglers saw this tiger moth (<https://inaturalist.nz/observations/19944503>)



Metacrias huttonii on January 29, 2019 at 03:25 PM NZDT by naturewatchwidow

Pat Enright

30.1.19: Fossil hunting at Bannockburn (a.m.)

En route to our first reserve of the day we briefly stopped near the Kawarau River in the hope of finding a plant fossil or two. After scrambling up a steep gully we were amazed and delighted to find abundant fossil leaves in the seams of layered mudstone eroding from the gully sides.



Fossil fern fronds.

Several different types of leaves were noted but it was difficult to identify their relationships to modern plant species. We also found what looked like fern fronds, including one with sori. This early to mid-Miocene (19–16 million years old) site was deposited on the edge of Lake Manuherikia. Scientists who have studied the fossils from this site and others of similar age in central Otago have identified many plants that subsequently went extinct in New Zealand, including eucalypts, palms, acacias and cycads, as well as southern beech, flax and rata.

Lara Shepherd

30.1.19: Mahaka Katia Scientific Reserve (a.m.)

Guided by Neill Simpson, who knew exactly where individual plants of interest should be, we roamed a flat, weedy paddock of a reserve, looking for rumoured treasures. We found examples of the minute *Convolvulus verecundus* (Fig. 1) and *Atriplex buechananii*. This reserve is the site of *Myosotis brevis* and it is said to be quite a sight when in flower, creating areas of yellow flowers, visible from a distance. However the season was over and it took much searching to find even one remaining plant. The area was a blaze of yellow, but that was due to the weedy *Hypericum perforatum*/goatweed.



Figure 1: *Convolvulus verecundus* and to its right a vagrant lichen, which blows about remaining unattached to the ground, even when fertile.

Next to the fenced reserve, on similar ground, was a series of cages protecting from any browsing *Lepidium solandri* currently with seed heads (Fig. 2).

A highlight that thrilled us all including lichenologist Allison Knight was a bird's nest found on a willow—it was beautifully decorated with lichen (Fig. 3). Quoting Allison on the colourful lichens: “There was orange



Figure 2: Eleanor Burton examines *Lepidium solandri* setting seed under robust cages.

Teloschistes velifer, common on the *Melicactus alpinus* and yellow-green *Xanthoparmelia* spp. which was common on the rocks and loose on the soil. Also common on pebbles and soil were several *Xanthoparmelia* spp. in different shades of brown to almost black, reflecting different quantities of melanin sunscreen.” Possibly it was the nest of a silver eye or fantail—this was a classic example of birds using lichen to camouflage their nests and we speculated that the antiseptic properties of lichens may reduce the numbers of mites that cohabitate in such nests.



Figure 3: Bird's nest camouflaged with lichens

Julia Stace

30.1.2019: Lindis Crossing & Bendigo Historic Reserve (p.m.)

After lunch at Pisa Moorings (including an investigation of the local water weeds) we went to Lindis Crossing. Neill led us up over a river terrace to see *Muehlenbeckia*

ephedroides. This site also had *Convolvulus verecundus*, *Raoulia monroi*, *R. beauverdii*, and on the way up, *Carmichaelia petriei*. On the way back we had a close look at an ephemeral wetland, where we found *Limosella lineata* and *Isolepis basilaris*, a new record for a rare plant. After much paddling in the river, we headed for Bendigo Historic Reserve. As well as mining settlement remains (cottages and very deep holes in the ground) we found some interesting plants. The area was a mix of weedy grassland with bare patches of scabweeds, and some open shrubland, mostly *Kunzea* (probably *K. serotina*) but including *Corokia cotoneaster*, *Gaultheria antipoda* and *Coprosma propinqua*. Small plants included a lot of *Vittadinia australis*, *Acaena buechananii*, *Raoulia beauverdii*, and several weeds we hadn't seen before. Which is saying something...

Eleanor Burton

31.1.2019: Bob's Cove/Te Punatapu

This is a sheltered bay on the north side of Lake Wakatipu, c. 14 km west of Queenstown along the spectacular scenic road to Glenorchy. The lake here is edged by an interesting remnant of beech forest which made an enjoyable change from the exposed mountain environments of our previous few days botanising. Among the *Fuscospora cliffortioides* and the flowering *F. fusca* there was a scattering of hybrids which we were not able to identify.

The forest understorey has a

variety of ferns including many *Asplenium appendiculatum*, *A. hookerianum*, *A. gracillimum* and *A. richardii* which are plentiful in the South Island. *Cranfillia* (*Blechnum*) *fluviatile* is abundant and large with fronds up to 65 cm. long, and *Polystichum vestitum* with fronds up to 120 cm long—larger than in the Wellington area. We saw *Gleichenia dicarpa*, and many *Dicksonia squarrosa* and *Cyathea smithii*. One *D. squarrosa* intrigued as it appeared to have no hairs. Also intriguing was the *Isoetes alpinus* specimen found washed up on the water's edge.

Of the shrubs, we saw that the *Myrsine australis* had a very crinkly leaf form. The specimen of *Meliccytus alpinus* var. *erecta* was much larger than its alpine equivalent. *Astelia fragrans* was abundant and in fruit. Leon's lesson on the hook grasses was appreciated by many of us.

Among the rarities was the mataī with its roots exposed by the wash of the lake for about a metre on the lake side with many seedlings nearby. There were also mountain five-finger / *Pseudopanax colensoi* var. *ternatus*, the nationally endangered and unusual *Senecio dunedinensis*, and the mistletoe *Isolepis flavida* growing on *Coprosma propinqua*. The only orchids we saw were *Thelymitra* sp, a *Corybas* sp. and *Gastrodia cunninghamii*, most past the flowering stage. We noted larger leaves than we see in the Wellington area on wineberry, *Coprosma lucida*, tree fuchsia, māhoe; patē had leaflets to 23 cm.

Moving out from under the bush canopy along a track along the lake's edge led to an historic area with the last of seven large kilns which had been constructed from local limestone in the 1880s. Bob's Cove is

highly regarded by geologists because of the presence of a remnant of the limestone cover that had been laid down over the underlying schist in this region 20-40 million years ago but which has been eroded away almost entirely.

Growing out of the limestone walls of the kiln were *Asplenium trichomanes* and *A. lyallii*—both limestone-loving ferns. Scattered around the site were many blue gums / *Eucalyptus viminalis* and *E. globulus*, remnants of past human occupation. Along the track we saw many *Sophora* sp. well attended by caterpillars.

We were delighted by the variety of birds we heard and saw. On the lake we saw scaup, paradise duck, black shag and crested grebe. In the forest we heard and saw fantails, shining cuckoo, kererū, brown creeper, long-tailed cuckoo / kihia, tomtit, bellbird and tūi.

This is one of the few remaining areas of tall native forest in the Queenstown area, however the site is rather weedy and a lot of work needs to be done to control the more invasive species. That will require a considerable funding investment by the Department of Conservation. Interesting weeds included *Collomia* sp. and the two species of *Holcus* growing together. Others included everything from English broom to broad-leaved plantain, foxglove, tutsan/*Hypericum androsaemum*, hawthorn and the gums mentioned above.

Sunita Singh

1.2.2019: Bannockburn Historic Reserve.

The late flight back to Wellington allowed a vanload of us to investigate this reserve near the camp where we were staying. Some out-of-place

native plantings surrounded the carpark but then it was on to the partly formed walkway to guide us around the extent of the reserve. We met a member of the administration body from whom we gathered the emphasis was on preserving the historic gold-mining attempts that had so modified the landscape. We learned that if it were not for the fact it was surrounded by vineyards there would have been extensive spraying to deal with the weeds. Among the 'weeds' we saw recovering populations of *Raoulia australis*, *R. monroi*, bushes of *Meliccytus alpinus*, *Discaria toumatou* and a very large *Kunzea ericoides*.

Stewart Town, part of the reserve with ancient fruit trees in full fruit, offered us ripening, pears, apricots and apples for a free lunch before we headed back down the track bordered by some fine specimens of *Discaria toumatou*, *Polystichum* sp. and *Blechnum penna-marina* among the rocky terrain.

Participants: Margaret Aitkin, Eleanor Burton, Barbara Clark, Gavin Dench, Michelle Dickson, Raewyn Empson, Pat Enright, Dale Every, Suzanne Fletcher, Julia Fraser, Barbara Hammonds, Jan Heine, Richard Herbert, Margaret Herbert, Chris Horne, Stuart Hudson, Graeme Jane, Gael Donaghy, Brenda Johnston, Allison Knight, John Knight, Pascale Michel, Mick Parson (co-leader), Leon Perrie, Syd Moore, Lara Shepherd (co-leader), Darea Sherratt, Barbara Simpson, Neill Simpson, Sunita Singh, Val Smith, Owen Spearpoint, Julia Stace.

Rachael Baxter, Ian Dench and Nita Smith, all locals, joined us on the Old Man Range.

Brenda Johnston

9 February: Pāuatahanui Inlet—coastal & estuarine vegetation

After being rained off last November, the 21 BotSocers and guests, including Porirua Mayor, Mike Tana, who gathered at Dolly Varden Beach were treated to a sparkling day. Trip leader Frances Forsyth provided some historical context for the walk:

The earliest European travellers wrote about and painted landscapes of thick bush cover around the harbour at Pāuatahanui. Rimu, tawa, kahikatea, rewarewa, pukatea, nikau

and tree ferns were observed on gently undulating land at low elevations (Samuel Charles Bree, 1843; Colonel W.A. McCleavy, 1853; Walter Buller, 1853). In 1850 Charlotte Godley saw a harbour surrounded by low wooded hills for several miles. In 1849 Tyrone Power (Deputy Assistant Commissary General wrote "This is the worst country I ever saw for field operations. The forest is so thick as to be impenetrable. It is everywhere

a mass of evergreen trees and shrubs and matted and twined together with supplejack creepers and wild vines".

At Paremata there had been considerable coming and going of Māori, who had arrived in the thirteenth century, long before European settlers arrived. In 1832 John Bell of Sydney purchased nearby Mana Island from Ngāti Toa, setting up a farm to supply whalers. Paremata was an important place because

it lay on the main Māori route to Wellington. In 1865 a militia was set up there due to uneasiness amongst European settlers, and hostility of sections of Ngāti Toa. There were skirmishes between Māori and settlers in the Hutt Valley. Governor Grey went to Porirua Harbour in early 1846, and with Lt. Colonel Hulme, engaged in a show of force with HMS *Castor*, HMS *Driver* and 160 troops. In April 1846 a settler and his son were murdered in the Hutt Valley and Grey immediately sent 260 men to establish a military post described as a miserable place in the midst of sand hills behind Taupō Pā. Skirmishes continued between troops and Māori until August 1846 when troops, militia and friendly Māori engaged Te Rangihāeta at what is now known as Battle Hill in Horokiri Valley. Te Rangihāeta's warriors were then pursued as far as Paekākāriki. They later reached the Manawatū where they established a permanent pā. The purchase of Porirua lands was concluded in 1847, although the military occupation continued for the next six years. Elsdon Best described life in the garrison for officers and their wives in 1847 as lively and agreeable, if also boring, with no hunting and nothing to shoot but parrots, pigeons and tūi. In the meantime, Europe in 1848 was the scene of republican revolts beginning in Sicily, and spreading to France, Germany, Italy and the Austrian Empire. They also ended in failure and repression.

With the settlers came land clearance and sawmilling, along with increasing sedimentation in the Inlet. Dominant sources of sediment today include both bed-load and suspended sediment, most notably from Kakaho, Horokiri and Pāuatahanui streams. There are also elevated levels of nutrients from the same streams. Sedimentation rates for 1974–2009 averaged 9.1 mm/year in the Pāuatahanui basin. Based on these rates, it had been predicted that the main sub-tidal basins would infill rapidly with a change to brackish swamps within 145–190 years. Accretion in the Onepoto and Pāuatahanui arms of Porirua Harbour in the five years from 2009–2014 was only 2 mm/year. However, extensive deposition occurred in the Inlet following a 1 in 20 year flood in

Pāuatahanui Stream on 15.11.2016, with accretion that year ranging from 12–90 mm across five subtidal sites. In the harbour's Pāuatahanui Arm there has been overall mean deposition of +15 mm per year over the four years to December 2016, reflecting a "Very High" risk rating. The trend of increasing deposition across all Pāuatahanui subtidal sites highlights that the subtidal basins there are currently undergoing a very rapid rate of infilling.

References

- Brodie, J.W. 1980: Early history of Pāuatahanui. In (Coordinator) Healy W.B., Pāuatahanui Inlet – an environmental study. *DSIR Information Series 141*. Department of Scientific and Industrial Research. Lower Hutt.
- Stevens, L. 2017: Porirua Harbour: sediment plate monitoring 2016/17. Report prepared by Wriggle Coastal Management for Greater Wellington Regional Council.

1. Camborne Walkway

This delightful walkway follows the waterfront from Dolly Varden Beach, past the boathouses and on to Grays Road. Part of the walk was along the beach itself. A moderate diversity of indigenous plants (40 species) was recorded, many of which had been planted by Porirua City Council, and some of which (karo, and *Pseudopanax crassifolius* × *P. lessonii* hybrids) were abundant but not local to the area. A long, but not exhaustive list of adventive species (30) was also recorded. The mayor received many exhortations to do something about these weeds and went away promising to mention pampas to his staff.



Cortaderia selloana. Photo: Jeremy Rolfe.

Along the way we crossed the estuaries of two small streams. These were both undeveloped and the *Juncus sarophorus* growing there would provide excellent habitat and spawning grounds for inanga, the main species of the whitebait fishery.

Once we had regrouped, had morning tea and used the facilities at the end of Camborne Walkway, we shuffled vehicles for the next stage of the trip.

2. Motukaraka Point

We parked cars at Motukaraka Point carpark and began a waterfront stroll along Te Aro Piko Walkway until a lunch break at the far end of Motukaraka Point. Botanising was simple with a few coastal forest species including *Streblus heterophyllus* on the inland side of the road, and a limited number of small saltmarsh and beach species on the right, dominated by *Plagianthus divaricatus* and *Apodasmia similis*.



Apodasmia similis. Photo: Jeremy Rolfe.

We crossed the meandering Horokiri Stream several times and observed shoaling inanga and some other sturdy but unidentified fish. The wind picked up in the afternoon and we were all glad to reach the café in Pāuatahanui Village where we rested before the final vehicle shuffle and the return home. In the few months since the recce for this trip was done, a new stretch of the walkway had been built between Camborne Walkway and Motukaraka Point so it is now possible to walk safely all the way from Dolly Varden Beach to Pāuatahanui Village.

Participants: Eleanor Burton (scribe), Frances Forsyth (leader), Jenny Fraser, Ken Fraser, Ian Goodwin, Jill Goodwin, Andrew Hawke, Chris Horne (scribe), Brenda Johnston, Kate Jordan, Helen Kettles, Karin Sievwright, Julia Stace, Danica Stent, Arlo Stent (aged 10 weeks), Mike Tana, Jon Terry, Matt Todd, Carol West, Helen White, Julia White

Further reading

- Atkinson I.A.E., 1980: Catchment vegetation In (Coordinator) Healy W.B., Pāuatahanui Inlet – an environmental study. *DSIR Information Series 141*. Department of Scientific and Industrial Research. Lower Hutt.

Frances Forsyth

2 March 2019: Steenkamp property, Long Gully, Brooklyn, Wellington

Naomi Steenkamp briefed us at Brooklyn's wind-turbine car park, then led our convoy of cars 2.6 km to the property. Here she gave us more information, then we split into groups to botanise the steep, eastward-facing early secondary successional forest. We each used as templates, a plant list prepared for regenerating forest in a gully further north in Long Gully. This is the valley of Silver Stream, a true left tributary of Karori Stream.

The main plant community of secondary successional forest includes the only species of later successional forest—*Griselinia littoralis*/kāpuka/broadleaf—all seedlings less than 10 cm tall, plus *Melicytus ramiflorus* subsp. *ramiflorus*/māhoe/whiteywood and *Schefflera digitata*/patē/seven-finger. Most of the rest of the site is rank pasture with some native

species emerging from the grassland. We saw impressive small groves of large *Coprosma propinqua* subsp. *propinqua*. A highlight among our finds was *Botrychium biforme*/fine-leaved parsley fern.



Botrychium biforme. Photo: Leon Perrie.

Numerous young mamaku tree ferns about 1 m tall had been heavily browsed, as had the weed, *Berberis darwinii*/Darwin's barberry. We

removed the one plant we saw of *Clematis vitalba*/old man's beard. It was in the vegetative state, sprawling across the ground.

We thank Naomi and Frans Steenkamp for inviting BotSoc to botanise their 43-ha property, and to make suggestions about how they might manage it to protect ecologically significant areas. We have sent them our plant list and will send them suggestions for management of the natural values.

Participants: Eleanor Burton, Gavin Dench, Melanie Dickson, Wilbur Dovey, Pat Enright, Jenny Fraser, Jill Goodwin, Chris Hopkins, Chris Horne (co-leader/scribe), Jane Humble, Kate Jordan, Alison Lane, Lydia Metcalfe, Mick Parsons, Leon Perrie, Sunita Singh, Jon Terry (co-leader), Carol West.

6 April: 2019: Wellington Botanic Garden Bush Remnants BioBlitz

This was BotSoc's contribution to the Botanic Garden BioBlitz, during which people sought to record all flora and fauna, native and introduced, in the Botanic Garden within 24 hours. We botanised the two largest bush remnants in the Wellington Botanic Garden.

We started in the 'Glen remnant' in the morning, going up an old disused track from Mamaku Way, traversing Hinau Path, then descending to Mamaku Way, near the Glen Road entrance. Finally we botanised above Pipitea Stream to near the Duck Pond.. We had lists from the report prepared by Chris Horne and Barbara Mitcalfe in 2007 as a starting point, and many of the species on these lists we found again. For this remnant there were very few additions to the native species, but we did add a number of weeds. As many observations as possible were uploaded to inaturalist; other scientists involved in the BioBlitz were also doing this, and observations for the event can be found at <https://www.inaturalist.org/projects/wellington-botanic-garden-bioblitz-2019-secrets-of-the-garden>. Highlights from the 'Glen remnant' were *Earina mucronata*, *Adiantum viridescens*, and huge old ngaio and hinau trees; also many interesting fungi.

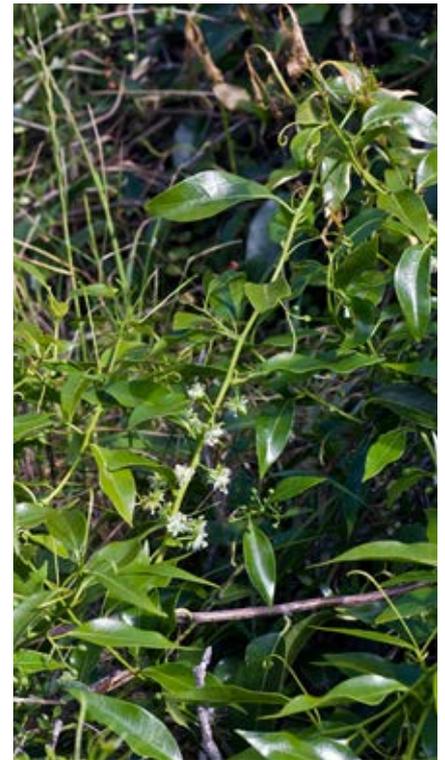


Adiantum viridescens

After lunch we went to the remnant behind the Dell, and here we did add a number of species to the list, both weeds and native species. Good finds here were a small plant of *Freycinetia banksii*, some *Notogrammitis* sp., a young *Clematis foetida*, and a number of miro and totara seedlings. Also very large *Passiflora tetrandra* vines. Thankfully the weather held off!



Freycinetia banksii.



Passiflora tetrandra. Photos: Jeremy Rolfe.

Participants: Eleanor Burton (leader), Ian Goodwin, Jill Goodwin, Bryan Halliday, Chris Horne, Kate Jordan, Chris Moore, Leon Perrie, Lara Shepherd, Darea Sherratt, Jon Terry, Thanks to all those who sent me additions and uploaded their observations to inaturalist.

Eleanor Burton



Membership application

(For new members, **NOT** for renewal of existing membership)

I wish to join the Society

My name Mr/Mrs/Ms/Dr..... Phone (.....) (h)

My address Phone (.....) (w)

..... Fax (.....)

I would like to receive my newsletters by e-mail as a PDF: YES / NO (Delete as appropriate)

My/our e-mail address@.....

Signature Date:..... / /

The membership year is from 1 July to 30 June. Dues received after 1 May will be credited to the following year.

Membership fees for the year ended 30 June 2019 are:

Type of membership: Ordinary \$35; Country \$30; Student \$10; Group / family \$40.

We welcome donations to support research into NZ native plants and to the Jubilee Award Fund.

Please make your cheque payable to Wellington Botanical Society Inc, and send it with this form to:

Wellington Botanical Society Inc., PO Box 10 412, Wellington 6143

My cheque is enclosed for Ordinary membership \$.....

Country membership \$.....

Student membership \$.....

Group / family membership \$.....

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Alternatively you may pay direct to the Society's bank account 020536 0017812 00

and e-mail this completed form to the Treasurer at harlea@actrix.co.nz

Authority to release your name, address and phone number to other members of the Society.

The Society holds the names and addresses of all members to use for post-outs of newsletters etc.

The committee sees benefit in circulating the membership list to all members. This is done by many societies to enhance social interaction as well as being of practical value.

Under the Privacy Act the circulation of names on such lists requires the approval of the individual members.

If you are agreeable to your name and address being on the circulated list, please sign the authorisation below and return it with this membership application.

I agree to my name, address and telephone number being on the membership list to be circulated to members of the Wellington Botanical Society. I understand that this list is to be used only by members, and that the circulated list will include the caveat that the list is for social and society use and is not to be used for any other purpose. Specifically the list is not to be used for marketing, soliciting or political purposes.

Name..... Signed..... Date / /

Name..... Signed..... Date / /

If you do not agree, it would assist processing if you could please put a line through paragraphs above and return the form unsigned.