



From the President

The Covid-19 virus has wrought havoc around the world since the last newsletter so has affected our programme of field trips and meetings. Luckily we have been able to use the software application, Zoom, to get our meetings out to our members, in a “virtual” mode rather than a “physical” meeting. Whilst field trips are on hold, we hope that things will be back to normal in a couple of months.

This newsletter includes a registration form for the summer camp based at a great site—Wainui YMCA camp on Banks Peninsula. I will be joining Julia Stace to run this camp—Julia has already put in a huge effort on the preparations.

Jon Terry

New members

We welcome the following people: Maggie Bayfield, Mike Bradstock, Jo Burgi, Danielle Castle, Robyn Ching, Joe Dillon, Winifred Long, Wayne Mitchell, Andrew Townsend.

Chris Moore, Treasurer and Lea Robertson past Treasurer



Urtica ferox. Photo: Jeremy Rolfe.

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 the unofficial page for Wellington Botanical Society.

Wellington Botanical Society

Address:	PO Box 10 412, Wellington 6143	
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Annual subscription:	ordinary \$35; country \$30; student \$10; joint / group / family \$40.	
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 – 20 November 2020

Articles may be edited for clarity and length

ATTENDING FIELD TRIPS AND MEETINGS POST LOCK-DOWN

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 Sunita Singh, PO Box 10 412, Wellington 6143, ph 387 9955.

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.

Booking on field trips: Give the leader/s your cell-phone number so that we can contact you if you are running late.

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. 18e Miramar: 7.05 p.m. from Karori Park, 7.21 p.m. @ VUW.

No. 18e Karori: 7.00 p.m. from Miramar – Darlington Rd, 7.43 p.m. @ VUW, or 6.00 p.m. from Miramar, 6.43 p.m. @ VUW.

No. 21 Courtenay Place: 7.01 p.m. from Karori Mall - Beauchamp St, 7.13 p.m. @ VUW.

No. 21 Wrights Hill: 7.00 p.m. from Courtenay Place – Stop A, 7.08 p.m. @ VUW.

No. 22 Mairangi: 7 p.m. from Wellington Station - Stop C, 7.08 p.m. @ VUW.

No. 22 Wellington Station: 7.02 p.m. from Norwich Street, Wilton, 7.17 p.m. @ VUW.

Cable Car: 00, 10, 20, 30, 40, 50 minutes past the hour from Lambton Quay terminus to Salamanca Station. Ten-minute walk to Murphy Building lecture theatre M101 at VUW.

FROM MEETINGS

No. 18e Miramar: 8.05 p.m. is the latest bus from VUW, so catch a no. 21 or No. 22 to CBD – see nos. 21 and 22 below - then a no. 2 to Miramar/Seatoun.

No. 21 Courtenay Place: 9.13 p.m. or 10.13 p.m. from VUW.

No. 22 Wellington Station: 9.38 p.m. or 10.38 p.m. from VUW.

Cable Car: 01, 11, 21, 31, 41, 51 minutes past the hour from Salamanca Station

For further information ring Metlink, 0800 801-700.

2020/2021 committee

At the 81st Annual General Meeting, held by Zoom on 17 August 2020, the following were elected:

President (interim)	Jon Terry	021 168 1176
Vice-presidents	Owen Spearpoint	562 8780
	Sunita Singh	387 9955
Secretary	Kate Jordan	kateljordan@gmail.com
Treasurer	Chris Moore	479 3924
Reviewer	Jane Humble	971 6970
Committee	Eleanor Burton	479 0497
	Frances Forsyth	384 8891
	Richard Herbert	232 6828
	Chris Horne	475 7025
	Julia Stace	385 4606
	Bev Abbott ¹	475 8468

¹ Submissions Coordinator

Subscription reminder for the year ending 30 June 2020

Almost fifty members of BotSoc have yet to pay their subs as we approach the half-year mark. Pay now, be in before Christmas and start the New Year with a clean slate!

- Ordinary membership \$35
- Country \$30
- Joint/family \$40
- Student \$10

Please pay direct to BotSoc's Bank Account - **02 0536 0017812 00** - including your name and Sub20 as Reference. Or pay by cheque to the Wellington Botanical Society account above. Or post a cheque addressed to Treasurer, Wellington Botanical Society, PO Box 10-412, Wellington 6143, which will be deposited on your behalf.

Lea Robertson, Treasurer

FIELD TRIPS & EVENING MEETINGS

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.

Evening Meetings and Zoom

Even the darkest cloud has a silver lining. The silver lining of Covid lock-down was discovering we could successfully host evening meetings via Zoom. We did so at our April meeting with more than 60 people 'attending.'

After our April meeting, several members asked for meetings to continue on Zoom even when we went back to meetings at Victoria University. Challenges with childcare, transport or illness meant sometimes they were unable to travel to the university but were still keen to hear the news

and lecture.

So we did. Our June and July meetings were held at the university and live-streamed to participants all over Wellington—and even as far afield as Australia! By live-streaming our meetings, more members can participate. It also means we can quickly adjust to changing Alert Levels, as we did in August when the AGM was moved onto Zoom in response to Level 2.

Kate Jordan, Secretary

SEPTEMBER–NOVEMBER 2020 & FEBRUARY 2021

Our Lockdown Level 2 status may continue for a long time, changing unpredictably between levels 1–4. This could result in changes to the programme with talks being delivered via Zoom and field trips being cancelled. When this happens the new details will be posted on our website. Please check it to find out if the programme is going ahead as planned or not.

We have already Zoomed several talks very successfully as Kate Jordan, our Secretary, describes below at the end of this programme. We encourage you to join us using the detailed instruction given below.

How to join a ZOOM meeting (These instructions are also on our website)

1. The secretary will e-mail the invitation with a link to join the meeting on the Sunday night before the event. Click on the link e-mailed to you in your internet browser.
2. Follow the prompt to down-load the ZOOM app. which should take you automatically to the meeting.

Please note

- When you join the meeting, your microphone will be automatically muted. This is so no one accidentally interrupts the speaker. If you're not speaking, please keep your microphone muted, so accidental background noise and playback doesn't disrupt the meeting.
- You can turn the video on if you like or leave it off.
- The Zoom meeting will open at 7 p.m. Please join the meeting early so that we are ready by 7.30 p.m.
- You can also join a ZOOM meeting via Apple and Android devices.
- To register to receive the e-mail invitation to join the meeting please e-mail the Secretary.

Kate Jordan, Secretary, katejordan@gmail.com

Monday 21 September:

Tony Druce Memorial Lecture:

Relationships and the battle to save the Raukumara Range

Speaker: Graeme Atkins, DOC Biodiversity Ranger, East Cape / Ruatoria, will talk about relationships. A relationship lost between our Raukumara and the tangata whenua who have lived in and around our forest for centuries. Their reliance, to use contemporary terminology, on the many services provided, has diminished considerably, when compared with the past. Pharmacy, supermarket, clothing store, hardware store, timber mill, cultural needs and the arts, all were once sourced from our Raukumara. That connection has been lost. We now find the present situation where the degradation of our Raukumara has occurred because of too many introduced animals. Because of this disconnect, no one had witnessed the damage, caused mainly by red deer and possums. Relationships feature again in the battle to turn things around for our Raukumara. Please attend the talk to find out more.

Saturday 3 October: Field Trip

331 Valley Road, Paraparaumu

Botanise Diana & Peter Kiernan's 16.5 ha private, mature bush in the Nikau Belt managed by the Kōtukutuku Ecological Restoration Project (<https://www.naturespace.org.nz/groups/kotukutuku-ecological-restoration-project>) dominated by kohekohe / *Dysoxylum spectabile* and tawa / *Beilschmiedia tawa*. See, large northern rātā, rimu,

tōtara, *Mida salicifolia*, three *Nestegis* species and an interesting range of ferns and orchids. Fenced since 1990, with extensive pest control. **Train:** 8.44 a.m. on Kāpiti Line from Wellington to Paekākāriki Station. **Car pool:** 9.30 a.m. at Paekākāriki Station north-end car park to drive to the site. **Map:** NZ Topo50 – BP32 Paraparaumu. **Co-leaders:** Diana Kiernan 0212 159 262/04 299 1394; Eleanor Burton 021 588 324.

Saturday 17 October: Field trip

Te Mārua Bush workbee

In partnership with Greater Wellington, BotSoc has been committed since 1989 to do weed control and revegetation in this important matai/tōtara/maire remnant in Kaitoke Regional Park. Our biannual 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, plus your favourite weeding tools, e.g., trowel, hand fork, grubber, loppers, pruning saw, jemmy. Meet: Te Mārua Bush, 9.30 a.m. (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. on Hutt line from WN to Upper Hutt - ring the leader to arrange to be met at Upper Hutt Station. **Maps:** street map & NZTopo50-BP32 Paraparaumu. **Co-leaders:** Glennis Sheppard 526 7450, Sue Millar 526 7440.

Monday 19 October: Evening meeting

Two Parts

A. Award winners' presentations

A1. Miro Kennett (NIWA Science Award): "*The conditions podocarps thrive in at Makara Peak*". A science-fair project to assess the conditions that miro, matai, rimu, tōtara and kahikatea were found in (e.g., amount of shelter, soil moisture, exposure to light) and the test results to see if these factors affected the saplings' size.

A2. Tom Dawes (Tom Moss Award & BotSoc Student Grant): "*The Ecology of Epiphyte Communities in Beech Forests*". Epiphyte communities in NZ's beech forests are dominated by non-vascular epiphytes—mosses, liverworts and lichens. I will discuss how the epiphyte community differs between different host beech species in Nelson Lakes National Park. I will also assess whether the epiphyte communities at our site show a 'mid-elevational richness peak'—a phenomenon demonstrated in epiphyte communities/taxa in other parts of the world.

A3. Christopher Cornwall (Jubilee Award): "*Impacts of ocean acidification, warming and marine heat-waves on NZ kelp forest ecosystems*". I will discuss the detrimental impacts of ocean acidification on Wellington's seaweed species, how ocean warming and associated marine heat-waves impact them and what implications these two aspects of climate change may have on the future functioning of Wellington's iconic kelp-forest ecosystems.

B. Screening of *Fools and Dreamers—Regenerating a Native Forest*

The story of the work of Hugh Wilson and others at Hinewai Reserve, Banks Peninsula. This movie will be downloaded from YouTube: <https://www.youtube.com/watch?v=3VZSJKbzyMc>

Saturday-Sunday 7–8 November: Field Trip

Kourarau Valley bush remnants, Wairarapa

The valley has several forest remnants important for their botanical diversity and regionally rare species. Edge effects and deer and lagomorphs browsing have affected many of them. The landowners value them and are keen to maintain them. We hope to visit some of them to see what, if any, changes in indigenous flora have occurred. We will visit several bush remnants in various states of intactness and health. The base rock and soils are limestone, so we may discover plants seldom seen. The diversity of the plant species should be high. The remnants are close to roads so easy to access. Ongaonga and other nasties may be present and some remnants have very thick bush. The valley is at high altitude so can be very cool—bring warm clothes, thermos and water-proofs, plus sun hats and sun-screen in case it is sunny. **Accommodation:** Greytown Campground 06 304 9387 / 027 449 4980 / info@greytowncampground.co.nz. Make your own bookings. **Dinner:** Pot-luck. **Meet:** 9.30 a.m. in layby on Te Whiti Rd on the left just south of Gladstone village at the junction of and opposite Admiral Rd. We will carpool as much as possible to here. We will then drive in convoy 20 minutes up Admiral Rd to the remnant forest blocks. **Maps:** NZTopo50-BP34 Masterton, NZTopo50-BP35 Bideford, NZTopo50-BQ35 Te Wharau, road maps. **Leader:** Owen Spearpoint 027 285 8083 / 04 562 8780,

Monday 16 November: Evening meeting

Two parts

Part 1

Extraordinary Meeting

Called to propose several amendments to the Rules of the Wellington Botanical Society. Rule 10, '*Changes to Rules*' states that: 'These Rules may be repealed, altered, or added to by resolution of a General Meeting, provided that written notice of the motion has been given to every member at least two weeks before the date of such meeting, and that three-fourths of those members present vote in favour of such alteration. Members will follow the discussion of each proposal with a vote by a show of hands.'

Amendment One

Rule 7(b) – That Rule 7(b) be amended as follows to allow Presidents and Vice-Presidents to serve longer terms. Our pool of potential Presidents is not large enough to support a change every two years, hence the proposal to

extend the maximum time anyone can hold the office of president to five years.

Motion: *'The President and Vice-Presidents shall not hold office for more than five consecutive years.'*

Amendment Two

Rule 16 – That Rule 16 be amended as required by Charities Services Tier 4 reporting standards.

Motion: *'A Performance Report shall be prepared and audited, along with supporting financial information, in a Statement of Income and Expenditure and Balance Sheet.'*

Amendment Three

Rule 2(d) – That Rule 2(d) be amended to better reflect the objects of the Society and provide a stronger statement for Society submissions to local, regional and central authorities.

Motion: *'To advocate for the preservation of lands and waters under protected area statutes in their natural state for the conservation of indigenous biodiversity in Aotearoa New Zealand.'*

Part 2.

Almost an island—the remarkable flora and habitats of Banks Peninsula

Speaker: Melissa Hutchinson, Ecologist, Christchurch. Banks Peninsula comprises c. 100,000 ha of volcanic hill country, rising to a height of 920 m above sea level at its highest point (Mt Herbert-Te Ahu Pātiki). The vegetation pattern is influenced by varied altitudinal and climatic gradients, which have contributed to a unique and diverse indigenous flora (>550 vascular plant species and >200 lichen species), including several endemic species.

Before human arrival in New Zealand, the peninsula was largely covered in indigenous forest. This was rapidly cleared following European colonisation and by 1920 was reduced to relatively small, isolated fragments, mainly on steep slopes at higher altitudes. Indigenous woody vegetation cover has increased in recent years through natural succession, with primary forest, secondary growth forest and shrubland now covering c. 15% of the Peninsula.

More than 2200 ha of land is protected in DOC and Christchurch City Council reserves, with a further 1500 ha on private land protected through conservation covenants (>120 covenants). The vegetation and flora of the peninsula has been well-documented by legendary botanist Hugh Wilson, but recent ecological surveys show that there are still exciting botanical and lichenological discoveries waiting discovery!

13–21 January 2021: Summer Camp – Banks Peninsula, Canterbury

Botanise Banks Peninsula from the hills to the coast plus Kaitorete Spit. The peninsula has remnants of tōtara, red beech and coastal forests, plus considerable areas of forest restoration and unique coastal vegetation. Among others, we aim to visit Hinewai Reserve, Tutakakahikura Reserve, Ōtepatutu Reserve, Mt. Sinclair, Mt. Herbert and Kaitorete Spit. More details and registration form in this newsletter.

Accommodation: Wainui Camp YMCA. **Transport:** If we have sufficient numbers we will hire transport from and to Christchurch Airport. This is yet to be confirmed. For those booking their flights early and wanting this option please arrive at Christchurch Airport by 2 p.m. on Wednesday 13 January and depart Christchurch Airport after 1 p.m. on Thursday 21 January. It is a 90-minute drive from there to Wainui Camp. Cost of hired transport to be shared among those using it. **Booking:** ESSENTIAL. Book early! Preference will be given to members of Wellington BotSoc. Please either download registration form [here for doc version](#) or [here for pdf version](#), or complete and post the registration form at the end of this newsletter. Please send your completed form and deposit to BotSoc on or by **16 November** – BotSoc's last meeting in 2020. If paying by cheque please make it out to Wellington Botanical Society and post it with the completed Registration Form to: The Treasurer, WBS, Box 10-412, Wellington 6143. **Deposit:** \$450.00 per person to be paid at time of registration. **Co-Leaders:** Julia Stace jbwstace@gmail.com 04 385 4606 / 027 446 3447 & Jon Terry jon.terry.nz@gmail.com 021 168 1176. **Maps:** NZTopo50-BY25 Akaroa, NZTopo50-BY24 Birdlings Flat, NZTopo50-BX25 Duvauchelle; Banks Peninsula. Infomap, Dept of Survey and Land Information. **Background information:** See the film *Fools and Dreamers* on YouTube re Hugh Wilson's ecologically sound forest restoration over 32 years at Hinewai; see list of Hugh's books in "Publications" section in this newsletter.

EVENTS

- *2nd Saturday each month, except January.* **Ōtari-Wilton's Bush – Plant Care.** **Meet:** Te Marae o Tāne Visitor Centre, 160 Wilton Rd, Wilton at 9:00 a.m. **Bus:** No. 14 Wilton bus, Ct Pl 8.28, Molesworth St 8.36, alight Warwick St. **Planting:** winter months: **weed clearance** other months.
Wilbur Dovey. Landline 499 1044. Mobile 027 499 1044.

PUBLICATIONS

1. **Te Mana o te Taiao / Aotearoa/New Zealand Biodiversity Strategy.**
 - *Department of Conservation, Box 10 420, WN 6143, www.doc.govt.nz*
2. **Open Space.** 98 5/20: New strategic plan; covenants as a legacy; QEII funding for weed & pest-animal control,

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

- eco-sourced plants & expert advice in new covenants & kawenata; possum control methods; NZ orchids; Otago Peninsula farmland to forest; kōkako translocation; Bay of Plenty covenants cooperate; Hawkes Bay limestone landscape transformed; Waiparere dragonflies & damselflies; Stephenson Fund; Covenants on South Head, Kaipara Harbour; Banks Peninsula property with 3 covenants; new covenants in Tararua District & Lowry Bay; etc. Annual Subscription: \$30.
- *QEII National Trust*. info@qei.org.nz
qeiinationaltrust.org.nz
3. **Toitū Te Whenua / Parks Network Plan 2020-30**. Draft management plan for 8 regional parks and forests. 275 pp. See Submissions section below.
 - *Parks Planning*, GWRC, Box 11 646, WN 6142, parksplanning@gw.govt.nz,
 4. **NZ Botanical Society**. 140 6/20: *Carmichaelia williamsii*; regional botanical societies' news; seed-balls & wood-cobbles on Kāpiti Coast; biographical sketch: Friedrich August Krull (1836 – 1914).
 - *NZBS, c/- Canterbury Museum*, Rolleston Ave, CH 8013. www.nzbotanicalsociety.org.nz
 - 5a. **Auckland Botanical Society Newsheet**. 6/20: Impacts of Auckland's drought on native plants; NZ Native Forest Restoration Trust – purchase in Ōtatara, Southland; etc.
 - 5b. **ABS Journal Vol 75(1) 6/20: reports of 6 field trips; 6 items of general interest**.
 - *ABS, Box 26391, Epsom, AK 1344*.
 6. **Canterbury Botanical Society**. Journal 50. 2019. Gillian & Miles Giller – Life Membership; role of mycorrhizal fungi in plant invasions; Branch River catchment – big vegetation change; NZ Wilding Conifer Group working with communities; growing role of botanic gardens to mitigate impact on Invasive Alien Species; what to do with Canterbury's weeds; emerging biosecurity risks for Canterbury's natural biota; crowd-sourcing the discovery of new plant naturalisations in Canterbury using iNaturalist NZ; Chilean mayten – invasive tree; *Polypodium vulgare* a weedy fern; bibliography of work of Andrew Thomson; CBS 66th Annual Report 2018–19.
 - *CBS, Box 8212, Riccarton, CH 8440*, info@canterburybotanicalsociety.org.nz, [http:// canterburybotanicalsociety.org.nz](http://canterburybotanicalsociety.org.nz)
 7. **Pipipi**. 51 5/20: Covid's impact on work & visitor numbers; causes of climate change; 500 visitors on Open Day; 35 ha of Armstrong land added to Hinewai, linking reserve to sea; rainfall; Ozzie bush-fire smoke; naming quad bike & tracks; *Bulbinella hookeri* found—new to Banks Peninsula; trail bike use damage at Hinewai; Akaroa's waste-water not to be disposed of on Hinewai; a landform on Hinewai is an ancient slip, not a lava flow; controlling pines and possums; etc.
 - *Donations welcome to: Maurice White Native Forest Trust*, Direct credit BNZ Akaroa 02 0832 0044225 00, or post cheque to Hinewai Reserve, 632 Long Bay Rd, R.D. 3 Akaroa 7583. See next listing:
 8. **Hugh Wilson's publications:**
 - 8a. **Hinewai – The Journey of a New Zealand Naturalist**. 168 pp. 2002. Shoal Bay Press.
 - 8b. **Natural History of Banks Peninsula**. 144 pp. Revised 2013. Canterbury University Press.
 - 8c. **Plant Life on Banks Peninsula**. 412 pp. 2013. Manuka Press.
 - 8d. **Small-leaved Shrubs of NZ**. (with Tim Galloway) 207 pp. 1993. Manuka Press.
 - 8e. **Wild Plants of Mount Cook National Park**. 294 pp. 1978. Whitcoulls Ltd.
 - 8f. **Stewart Island Plants**. 527 pp. Field Guide Publications.
 - 8g. **Pipipi**. Newsletter - biannual. No formal membership, so to receive Pipipi send your donation by either method mentioned in listing 7 above.
 9. **New Zealand Seaweeds – an illustrated guide**. Wendy Nelson. Te Papa Press. 2020. 352 pp. Revised edition. A5, soft cover. Over 150 genera & 250 key species described.
 - *Bookshops*
 10. **Dragonflies & Damselflies of NZ**. 2020. M. Marinov & M. Ashbee. Hard copy & e-book. RRP \$49.99.
 - *Auckland University Press*.
 11. **Backcountry**. 218 11/19: Future of DOC's "Stewardship lands" & FMC's Forgotten Lands campaign; etc. 219 3/20: Backcountry recreation; Remarkables National Park; adverse impacts of tourism; RMA changes; recreational opportunities from tenure review; etc. 220 6/20: General Election; more meetings with DOC staff; low-carbon recreation; tenure review; tahr – 'mountain locusts'; etc.
 - *Federated Mountain Clubs of NZ Inc*, www.fmc.org.nz
 12. **Friends of Wellington Botanic Garden**. 11/19: 2019 BGANZ Congress programme report "Plants from the past; Plants for the future"; weedy native species in the 5 native forest areas; etc.
 - *FoWBG, 101 Glenmore St, Kelburn, WN 6012*. www.friendswbg.org.nz
 13. **Southern Environmental Association Tawatawa**. 9/20: Pest trapping; weed management; Paekawakawa Reserve link track; etc.
 - sea.newslet@gmail.com
 14. **Day Walks in NZ**. S. Barnett. Potton & Burton. 2019. 192 pp. \$49.99. (2nd edition).
 - *Bookshops*
 15. **The history, flora and fauna of Hauturu-o-Toi Little Barrier Island**. L. Wade, D. Veitch. 2019. Massey University Press. 400 pp. \$60.
 - *Bookshops*.
 16. **Blood of the Flax**. R. Caird. 2019. Kete Media. 128 pp. \$49.99.
 17. **Stamp issue 2/20: Native daphne moths – Notoreas spp.** Five species featured.
 - *NZ Post outlets*
 18. **Evolution in Isolation: The Search for an Island Syndrome in Plants**. Prof. Kevin Burns, Victoria University. Cambridge University Press.
 - *Bookshops*
 19. **Willdenowia**. Annals of Botanic Garden & Botanical Museum Berlin. 49/3, 11/19. Taxonomy of plants of Europe, the Mediterranean & the Americas. Available on loan from newsletter editor.

SUBMISSIONS CALLED FOR

- 23 October by 1 p.m. **Toitū Te Whenua / Parks Network Plan 2020–30**. Draft management plan for 8 regional parks and forests. Review draft plan at www.haveyoursay.gw.govt.nz/parksplan *; or at GWRC offices: Shed 39, Fryatt Quay, 15 Walter St, Te Aro, or at 1056 Fergusson Dr, Upper Hutt. Ring 0800 496 734 for submission forms. Submissions to * above, or by e-mail to parksplanning@gw.govt.nz, or post to Parks Planning, GWRC, Box 11 646, WN 6142.

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

SUBMISSIONS MADE

Wellington City Council Mahere ā Tau Annual Plan 20/21 consultation

Global biodiversity crisis

New Zealand and the rest of the world face an intensifying four-pronged indigenous biodiversity crisis:

- Global climate change and rising sea levels;
- Pollution of soils, air and waters as a result of human activities;
- Pest animals which infest indigenous plant communities, browsing on palatable plant species. WCC and GWRC have done excellent work in the last two decades by almost eliminating possums from our urban areas;
- Pest plants and other weeds which crowd out those indigenous plant species which occur naturally in the areas infested and in addition may adversely impact on soil micro-organisms associated with those indigenous plant species.

WCC's responsibilities for protected areas

The legislation:

- Reserves Act 1977
- Conservation Act 1987
- Wellington Town Belt Act 2016

For many decades, WCC's funding for the control of weeds on the lands which it manages on behalf of Wellingtonians has been woefully inadequate. The result is a huge backlog of weed-control work to be done on many areas of the city's scenic reserves, recreation reserves, road reserves and the Wellington Town Belt. Many of these areas are infested with a wide range of aggressive weed species which prevent or delay the growth of native plant species.

Tipu Toa Build Back Better

Wellington Botanical Society welcomes the allocation of \$200,000 in the Tipu Toa Build Back Better package in the draft Annual Plan 20/21.

Recommendation

This money be spent teaching the members of community groups which work in the city's scenic reserves, recreation reserves, road reserves and the Wellington Town Belt to identify the weed species infesting the areas they look after. This investment would empower the people to do the weed control. We believe that this would be preferable to employing contractors to do the weed-control work. In the latter case the allocated \$200,000 Tipu Toa Build Back Better funding would be quickly absorbed by money paid to the contractors for wages, herbicides and wear-and-tear on equipment.

Some pest plants infesting public land in Wellington

We listed some of the many weed species infesting parts of the city, suburbs and rural hinterland. The list included the following plant groups: climbers—10, ferns—3; grasses—5; ground-cover plants—10; herbaceous plants—22; trees and shrubs—28; native plant species not naturally occurring in Wellington Ecological District 39.01 which are invasive—8.

Recommendations

Wellington City Council:

- allocates at least \$200,000 in the Tipu Toa Build Back Better package in every Annual Plan for the foreseeable future, until such time as infestations of pest plants and other ecologically damaging weed species are uncommon, if not eliminated, from all scenic reserves, recreation reserves, road reserves and the Wellington Town Belt;
- undertakes a thorough and independent review of its weed management role over the last two decades. This should include Council's present approaches to weed-management planning, results to date, cost effectiveness, monitoring, priorities over the last two decades and implications for the next decade, partnership opportunities with GWRC, iwi, residents' associations, secondary schools, service clubs, sports clubs, etc., fragmentation of public lands caused by pest-plant infestations, public attitudes to weed control, the potential for new jobs for those involved on community-led weed-control projects who have gained experience in identifying weed species and learning control methods, the benefits of doing work in-house rather than using contractors, the implications of climate change for weed control in Wellington. This review is essential because of the mounting crisis of global climate-change and its impact on indigenous biodiversity. In addition, central government and regional authorities are raising the profile of indigenous biodiversity, so Wellington City Council must do likewise. The reasons include increased funding by central government for the protection of indigenous biodiversity and "shovel-ready" projects, the increased role for iwi in decision-making under DOC's and MfE's indigenous biodiversity strategies, the overlapping of weed-management roles in public-sector agencies, the complexity of health and safety matters and the impacts of weeds on restoration projects.

PS: At the hearing of submissions I gave councillors nine labelled alien weed species and eight labelled native weed species.

Chris Horne

Proposed rezoning of Plimmerton Farm by Porirua City Council

The National Policy Statement for Urban Development Capacity approved by the National Government in 2017 requires Porirua City Council (PCC) to provide land to meet anticipated housing demand. PCC has been working on a new District Plan chapter to enable Plimmerton Development Ltd (PDL), the owner of Plimmerton Farm, to develop a new 'suburb' on the hills to the east of SH1 between Plimmerton and Pukerua Bay. As well as providing housing, a retirement village, a commercial area, a school and roads, Plimmerton Farm (384 ha) will deliver nine Significant Natural Areas (SNAs), BORAS, (areas set aside for offsetting and restoration) and walkways.

The decision on the plan change will be made by the Minister for the Environment using the Streamlined Planning Process (SPP). The SPP was passed in 2017 by the National Government as one of its initiatives to solve

the housing crisis. The Minister set three expectations for PC18:

1. contribute to providing sufficient opportunities for the development of housing and business land to meet demand, and which will provide choices to meet the needs of people and communities and future generations for a range of dwelling types and locations, working environments and places to locate businesses;
2. provide for the protection of significant natural areas, significant natural features, sites of ecological value, and the maintenance of indigenous vegetation and indigenous biodiversity; and
3. ensure that future development will be undertaken in a manner that recognises the sensitive receiving and downstream environments, such as the Taupō Swamp, including minimising changes to the hydrological regime.

His approval also included tight timetables, just 30 days for lodging submissions. The Hearings Panel will also be under pressure as it has to make a recommendation to the Minister within 50 working days from the start of the public hearings. They start at 9:00 a.m. on Monday 12 October 2020, and will run for five days.

There were many documents to read: starting with the proposed PF Zone Plan and 19 Section 32 technical reports including ecology and indigenous biodiversity, storm-water management, earthworks, transport and natural hazards). Three sets of principles; for freshwater; erosion and sediment control, and land management are acting as place-holders for the 72 recommendations in Te Awarua-o-Porirua Whaitua Implementation Programme (“WIP”)¹ which have not yet been incorporated into the relevant PCC, WCC and GWRC documents. Environmental groups were also voicing their concerns to encourage to submissions against the proposed plan change.

Our submission contained five sections.

Adverse effects

If implemented, PC18 would have effects on the terrestrial environment, as 324 ha of land which has been farmed for decades becomes a place where people live, work and recreate. PC18 would also generate serious effects on the downstream freshwater and marine environments which will be more difficult to avoid, remedy or mitigate.

There is extensive, but not necessarily adequate coverage in the PC18 objectives, policies and rules about sedimentation from earthworks and run-off from impervious surfaces. We pointed out that PC 18 seemed to have overlooked contaminants from vehicles where each polluting event may be small, but the cumulative effect over several years could have significant effects, e.g., particulate carbon from exhausts, spilt petrol and diesel, and rubber dust from tyres, We did not find any data in the Section 32 reports about the changes in the water quality or levels of pollution in Taupō Swamp from vehicles using SH 1.

1. Te Awarua-o-Porirua Whaitua Implementation Programme (WIP) contains objectives, strategies and actions that will form a programme of work for the management of land and water in Te Awarua-O-Porirua Whaitua to improve fresh and marine water quality. It was developed over a period of four years in collaboration with Ngāti Toa Rangatira, Council officials, scientific and technical experts, and local communities.

Timing of site planning

It was disappointing to discover that detailed planning and decisions about what will actually be done in particular parts of Plimmerton Farm may not be made until the relevant stage of the subdivision/development. This could be years away. Land Management Plans will be prepared for some sites, but we were not confident sufficient monitoring and site analysis will be done in advance of specific earthworks to facilitate informed decision-making.

Uses of gullies and wetlands as detention areas

It was disturbing to read in the Hydraulic Neutrality and Inundation Impact Assessment that “*some of the areas utilised as detention areas were existing wetlands*”.

The underlying philosophy seemed to be that, as wetlands are resilient to occasional short-term inundation, they can be used as detention areas for large infrequent events without impacting these important ecological areas. Some modelling assessments showed that “the impact of the detention areas on the existing topography was significantly minimised by utilising stream crossings already required for the proposed roading layout as bunds to create most of the detention storage”. We asked the decision-maker to ensure that PC18 policies and rules minimise the potential for adverse effects arising from the use of wetlands and gullies as part of storm-water management systems.

SNAs and BORAS

Significant Natural Areas (SNAs) and Biodiversity Offsetting and Restoration Areas (BORAs) will help to maintain, enhance and protect ecological functions and biodiversity values. Some activities with limited impacts can occur within SNAs as permitted activities. Activities with more effects will require resource consents.

Several wetlands and gullies are among the nine proposed SNAs, but some are very small.

The BORAs have been set aside to provide opportunities for biodiversity offsetting, restoration and assisted natural revegetation. Maps indicate these areas are much larger than the SNAs, but there is not much information about their use.

Our submission recommended an early start to collecting additional ecological and taxonomic information about the ecosystems and species on Plimmerton Farm to inform planning for SNAs and specific sites. Many submitters were concerned that detailed surveys of birds and lizards on the site had not been made.

Future-proofing PC18?

Meanwhile, as most of NZ focused on the pandemic, political support for doing away with the Resource Management Act continued to grow; the rural sector started to come to terms with the implications of Government’s programme of *Action for Healthy Waterways*, and the Ministry for the Environment (MfE) continued to work on the draft National Policy Statement for Indigenous Biodiversity. All or any of these initiatives may require adjustments to, or an early review of the Plimmerton Farm Zone chapter of PCC’s District Plan.

Bev Abbott
Submissions Coordinator

Threatened plant species listings

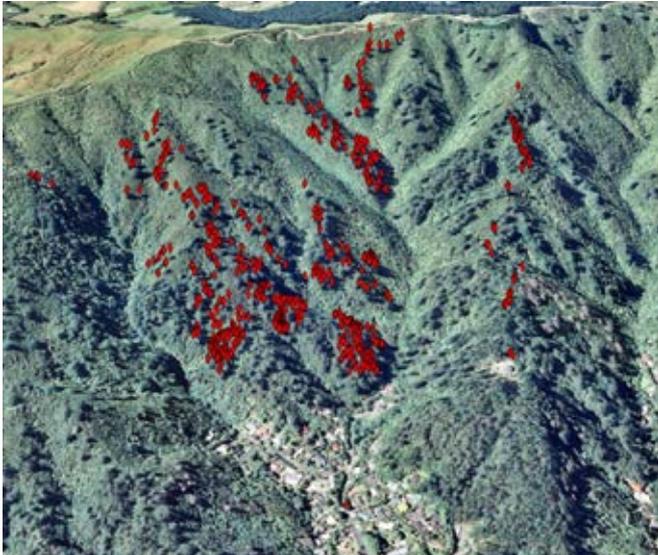
Dr Philippa Crisp has updated the publication "Conservation status of indigenous vascular plant species in the Wellington region". This has followed queries about some of the species in John Sawyer's 2004 Wellington Conservancy Plant Conservation Strategy that hadn't made it into our publication. Pat Enright and Leon Perrie kindly reviewed those species and 45 species have now been added (most of which are in the Regionally Naturally Uncommon category). Ten species are additions to the Regionally Threatened list.

<http://www.gw.govt.nz/assets/Our-Environment/Environmental-monitoring/Environmental-Reporting/Conservation-status-of-indigenous-vascular-plant-species-in-the-Wellington-region.pdf>

Dr Philippa Crisp | *Kaitaki-a-tima*
Team Leader, Environmental Science
Greater Wellington Regional Council Te Pane Matua Taiao

Wilding Pines

Wilding pine trees are a biodiversity challenge throughout Aotearoa New Zealand. They displace and suppress native vegetation, alter the soil properties under their canopy and spread rapidly in the landscape. Hutt City Council's (HCC) Pest-Tree Programme has been busy in recent years, controlling wilding pines in its reserves (*Pinus radiata*, *P. pinaster* and *P. contorta*), sweeping from the north side of Stokes Valley and sweeping east and southeast. While there are other species on HCC pest-tree list, the strategy is to commit the most effort to controlling the top priority trees.



The most effective approach has been to 'drill and fill' larger stands of pines where they are not too close to tracks, boundaries or buildings. This firstly reduces the impact they have on the landscape by reducing the canopy cover and allowing natural regeneration. Secondly, by controlling larger stands of trees, it means that staff do not have to travel too far between trees.

During the 2019/20 financial year HCC has controlled approximately 1069 pine trees in its programme.

Jonathan Frericks
Ecology/Horticulture Advisor
Hutt City Council

Polypodium vulgare

Dr Leon Perrie's letter to Pest Plants staff, Greater Wellington Regional Council:

The weedy fern *Polypodium vulgare* / common polypody has been discovered growing on the hills west of Crofton Downs, documented by an iNaturalist observer: <https://inaturalist.nz/observations/42113248>

After the Covid-19 lock-down ends, I hope you can act on this discovery reasonably promptly.

While *Polypodium vulgare* is designated only as a "harmful organism" in the Pest Management Plan, it has proven invasiveness in New Zealand. The attached images show the spread of this species in New Zealand through time. These maps are from an article about the weediness of *Polypodium vulgare* on pages 75-83 of the attached pdf, which was published late 2019.

I hope you are willing to try to prevent in the southern North Island what has happened on Banks Peninsula.

If your staff need help spotting this fern, I'd be happy to join them in the field.

Ngā mihi,
Leon Perrie

Curator of Botany
Museum of New Zealand Te Papa Tongarewa

Meridian Energy's West-Wind Farm – Top End Tree Planting, 30.7.2020

Tree planting was by invitation only, so I was lucky enough to represent BotSoc's committee. I joined 100 people including 25 Wellington East Girls' College girls up at what I recall, from my fun-filled teenage years, as Makara's Quartz Hill Radio Station. After Electricorp sold this hill-top site to Meridian they built a wind farm. As everyone arrived, buses having transported most from Wellington, we enjoyed coffee from a mobile, prepaid, Havana coffee cart.

Surrounded by wind turbines slowly and silently turning on a still, clear day we helped plant 3500 wind-resistant natives. Paul Blaschke supervised the planting of mountain flax, the sedges *Carex virgata* and *C. dissita*, , kānuka, mānuka, māhoe, karamū, makomako and two species of hebe. Kohekohe and kahikatea will be planted later, when those first planted can provide some shelter. Luckily these plants were ordered from Porirua City Council's nursery just before lock-down.

The paddock had been cleared of weeds, the plants spaced out and some holes dug before we arrived to complete the planting. Everything was provided: lines of spades, portaloos and state-of-the-art paraphernalia for new plants, biodegradable woollen squares pre-cut and punched; cardboard protectors to fold round the plants; bamboo stakes to fit the cut-outs and staples to hold the carpet squares down. All these items are biodegradable and come from a supplier in Christchurch. There are new industries associated with the current mass planting movement.

After introducing themselves to the plant, Māori wahine planting trees alongside me put them in the ground with the message, "Welcome to your forever home". A message I now pass on to others in our local restoration patch. It gives one pause for thought - to do it right.

It seemed not much later we stopped for lunch—a hāngi! While the meat was unearthed maestro Joe McLeod (Google him) entertained us with an explanation of the process he'd followed the previous day. Astounded to be surrounded by Post Office Bush he had gathered sacks full of herbs (ferns and leaves) to wrap around the food for authentic bush flavours. For 200 people gather 2 sacks full of each plant, he advised. Rangiora leaves were particularly useful, being big enough to wrap around a selection of root vegetables.

After lunch the WEGC students went off by coach to the base of a wind turbine to see one close up and a few of us straggled back to the planting site. This was where several state houses had been demolished. There were still traces of them - concrete steps and broken glass. I was reminded that I was working on Quartz Hill when I dug up a piece of quartz. The ground was stony, the site exposed and Meridian was taking no chances for failure. The site had been fenced beforehand to prevent goats immediately enjoying the young plants.

Enthusiastic Meridian staff made up the bulk of the tree planters and the talk around me was of the days when the kiwi would be back roaming right here, thanks to the revegetation project.

Julia Stace

Wairarapa Moana granted international wetland status

The Government has announced that Wairarapa Moana has been made a Wetlands of International Importance under the Ramsar Convention.

The area covers 10,000 ha of wetland and open water which includes Lakes Wairarapa and Ōnoke, their neighbouring wetlands, the Wairarapa Lake Shore Scenic Reserve, and Ōnoke Spit. The lakes and wetlands are home to 96 bird species and 25 native fish species.

Wairarapa Moana is managed collaboratively by the Wairarapa Moana Wetlands Group comprising representatives from Rangitāne ō Wairarapa, Ngāti Kahungunu ki Wairarapa, hapū, Greater Wellington Regional Council, South Wairarapa District Council and the Department of Conservation.

Section 18AB of the Conservation Act provides an additional role for the Minister of Conservation in Ramsar Wetlands. Ramsar sites are also covered by Schedule 4 of the Crown Minerals Act which prohibits mineral activity.

There are [six other Ramsar sites in NZ](#): base of the Firth of Thames / Hauraki Gulf, Kopuatai Peat Dome / Hauraki Plains, Whangamarino wetland / Waikato, Manawatu Estuary / Foxton Beach, Farewell Spit / Golden Bay and Awarua Waituna Lagoon / Southland.

NZ has lost over 90% of its wetlands and many of those remaining are threatened by development and poor water quality.

For more information see [Wairarapa Moana](#) and the [restoration project](#).

Source: Tieke. 26.8.20 Newsletter of Environment and Conservation Organisations of NZ Inc (ECO)

Council gifted land for Outer Green Belt

Wellington City Council has accepted a generous gift of land to be used as scenic reserve, adding ecological value and diversity to the Outer Green Belt (OGB) in Tawa.

The 1.667 ha property, adjoining Te Ngahere o Tawa (Forest of Tawa) and Spicer Forest, has important natural forest remnants. It has been identified as a Significant Natural Area (SNA) under the draft District Plan review.

Source, WCC news release 28.8.20. Victoria Barton-Chapple, Senior Media Specialist

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.

Thank you

The committee

Proposed National Policy Statement for Indigenous Biodiversity, NPSIB

The Ministry for the Environment (MfE) and the Department of Conservation (DOC) have [published key themes](#) from over 7,000 submissions made on the proposed NPSIB.

The joint project team from MfE and DOC are working through the submissions and related policy analysis to resolve the matters raised. They are preparing an implementation plan to support the publication of the completed policy statement in the first half of 2021.

The summary of submissions can be found on at Indigenusbiodiversity@mfe.govt.nz.

*Nāku noa, nā
Hayden Johnston
Acting Director Water and Land Use Policy
Ministry for the Environment*

Wainuihenua Project, Kāpiti Coast

We await news from NZ Transport Agency / Waka Kotahi on the transfer to public ownership of part of the former Perkins' farm west of Transmission Gully Motorway.

Meanwhile Ngā Uru Ora Kāpiti volunteers continue to do ecological restoration work on the farm. This includes trapping, weeding and planting. I have recced several walking track routes on the farm, one of which links the farm to the Te Araroa track on the Paekākāriki-Pukerua Bay Escarpment.

Ken Fraser

Annual Report from the Treasurer, Wellington Botanical Society, for the year ending 30 June 2020

Wellington Botanical Society Inc.
Income and Expenditure for the Year ended 30 June 2020

General Account					
2019	Expenditure	2020	2019	Income	2020
	800 Printing and Stationery	797		3,060 Ordinary subscription	2,915
	154 Postage	458		855 Country subscription	1,005
	414 Web site costs	251		50 Student subscription	25
	611 Meeting and Speakers' expenses	299		914 Group subscription	893
	263 Administration	269			
	180 Subscriptions to other organisations	180		4,879 Total Subscriptions	4,838
	3 Petty cash	0		1,914 Interest on investment	1,889
	0 Assets written - off	105			
	1,460 Transfer to Student Award Fund	960			
	2,000 Transfer to Bulletin Account	2,000			
	907 Surplus on General Account for the year	1,388			
	6,793	6,707			6,707

Jubilee Award Fund					
2019	Expenditure	2020	2019	Income	2020
				74,411 Opening Balance	76,130
	250 Science Fair Award	250		1,335 Donations	1,071
				205 Proceeds of book sales	40
	2,600 Jubilee Award	2,600		119 Plant sales	154
	76,130 Closing Balance	77,391		2,910 Interest on Investment	2,846
	78,980	80,241			80,241

Tom Moss Student Award in Bryology					
2019	Expenditure	2020	2019	Income	2020
				10,661 Opening Balance	11,078
	0 Student Award	400		0 Donations	0
	11,078 Closing Balance	11,086		417 Interest on Investment	408
	11,078	11,486			11,486

John Child Workshop Contingency Fund					
2019	Expenditure	2020	2019	Income	2020
				5,502 Opening balance	5,717
	5,717 Closing Balance	5,927		215 Interest to date	210
	5,717	5,927			5,927

Student Field Grant					
2019	Expenditure	2020	2019	Income	2020
				10,226 Opening Balance	10,286
	1,800 Grants to Students	500		400 Interest on Investment	391
	10,286 Closing Balance	11,137		1,460 Transfer from General Account	960
	12,086	11,637			11,637

Provision for Bulletin					
2019	Expenditure	2020	2019	Income	2020
	2,109 Printing Bulletin	0		9,632 Opening Balance	9,084
	459 Distribution costs	0		20 Sale of bulletins	10
				2,000 Transfer from General Account	2,000
	9,084 Closing Balance	11,094			
	11,652	11,094			11,094

Balance Sheet as at 30 June 2020					
2019	Liabilities	2020	2019	Assets	2020
	2,010 Life Membership Fund	2,010		3,364 BNZ Current Account	3,460
	76,130 Jubilee Award Fund	77,391			
	11,078 Tom Moss Student Award in Bryology	11,086		10 Cash held	10
	10,206 Student Field Grant Fund	11,137		2,689 BNZ Business on call Account	2,692
	5,717 John Child Workshop Contingency Fund	5,927		6,063 Bank Funds on current account	6,162
	9,084 Provision for Bulletins	11,094		50 Display unit	50
				30 Projector	0
				16 Stock of Bulletins	0
				59 Stock of Tony Druce Trip Books	0
				24 Camping Equipment	24
				1,267 Stock of postage paid envelopes	1,216
	47,868 Accumulated fund as at 30 June 2019			240 Stock of stamps	306
	plus surplus for the year 1,388			Investment Pool	
	Accumulated fund as at 30 June 2019	49,256		106,446 BNZ Finance Term Deposits 110,464	
				47,978 Westpac Term Deposits 49,680	160,144
		0			
	\$162,173	\$167,902			\$167,902

The Society has a #2 current account used for field trip finances. As at 1st July 2020, the 02 account has a credit of \$281.90. This account is not included above, but overseen by the summer camp leader(s) and Treasurer.

I have examined the accounting records of the Wellington Botanical Society Inc, and have received all the explanations requested. I believe the accounts and balance sheet to be a true and fair record of the Society's operation and its financial position at the close of the financial year.

Auditor

J. Humble
28.7.20

The accounts for the financial year ended 30 June 2020 show a **surplus of \$1,388** on the normal operations of the Society recorded in the General Account. Interest from investments has fallen slightly. Transfer of \$960 each year from the General Account to the Victoria University Student Field Grant Account represents a rent transfer. The University allows BotSoc use of a lecture room for our monthly meetings free of charge, and BotSoc supports Victoria University students financially for work in line with our charity objectives. Meeting and speaker expenses were lower over the year, and some assets have been written off.

On the income side, total subscriptions have remained steady, and amounts received from interest on investments has held. Currently we have an average interest return of 3.38 % per annum, but expect returns of around 2.2% over the next financial year.

\$2,600 was awarded from the Jubilee Award Fund, \$500 went to a Victoria University Student Field Grant applicant, and \$250 will be awarded at the NIWA Wellington Science Fair 2020. Plant sales were up again, but book sales and donations to the Jubilee Award Fund are down. Funds are on hand to cover printing and distribution costs for Bulletin 58 in 2020.

Two accounts (Tom Moss Student Award in Bryology and John Child Workshop Fund) are monies held on behalf the Bryology and Lichen Workshop Group.

Subscriptions for the year ended 30 June 2021:

It is recommended the Society maintain subscriptions at their current level.

Ordinary membership \$35, Country \$30, Joint/family \$40, Student \$10 (reduced by \$5 if **paid before 30th November 2020**—unless you choose to forego)

Lea Robertson, 12 August 2020

AGM: 2019–2020 Annual Report

Welcome to the 81st Wellington Botanical Society AGM. This last year has been punctuated by the Summer Camp to Northland, Covid-19 lock-downs in March–May and the introduction of virtual Zoom meetings. Due to Covid-19, our meetings and trips numbers are lower this year but thanks to Zoom, attendance at meetings is up! There's a silver lining!

I want to acknowledge the massive amount of work that the committee puts in to a year of successful Wellington Botanical Society activity. Please take a bow.

Treasurer

Lea Robertson is retiring after 7 years in the job. We will miss her meticulous book-keeping and great presentation. The position is being taken up by Chris Moore.

Submissions

Bev Abbott and Chris Horne have been busy with submissions this year, including:

- Draft National Policy Statement on Indigenous Biodiversity: MfE
- Te Koiora o te Koiora: DOC
- Porirua City Council: Public Notice re Proposed Plan Change 18: Plimmerton Farm
- Wellington City Council: Annual Plan 20/21
- Greater Wellington Regional Council: Proposed Regional Pest Management Plan.

Secretary

Our new secretary, Kate Jordan, has been doing a great job. Along with the normal secretarial work-load, she has also taken on the complexities of hosting Zoom meetings. Without her expertise, this would have been a much more difficult undertaking for the rest of us. It involves a lot of work. Helen White has now offered to set up the e-mailing beforehand.

Membership

Helen White has also taken on this role.

Programme Organiser—talks and trips

Sunita Singh has put together a great collection of talks and trips this year and I would like to thank her, as well as all our speakers for the effort they put into preparing and delivering presentations. The adoption of Zoom software has meant that we now have not only physical participants in meetings but also virtual participants on the end of computers and who are able to put questions to the speakers.

Speakers (with attendance)

2019

19.8	A.G.M.; Tim Park. A.P. Druce Memorial Lecture	49
21.10.	VUW School of Biological Sciences students	40
18.11	Dean Baigent-Mercer. Collapse of Northland's native forests (via Zoom)	37

DOC Wellington Visitor Centre

*Te Pae Manuhiri, Te Rohe
ō Te Whanganui ā Tara*

Conservation House,
18–32 Manners St

- Track, hut, conservation information
- Kapiti Island visitor permits
- Hut tickets, backcountry hut passes
- Hunting permits

Open: Mon–Fri 9 a.m. – 5.00 p.m.
Sat 10 a.m. – 3.30 p.m.

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E-mail: wellingtonvc@doc.govt.nz
Web: www.doc.govt.nz

New Zealand Government



Department of
Conservation
Te Papa Atawhai

2020

17.2.	Dr Lara Shepherd, Te Papa. The genus Sophora	56
16.3	Stuart Fraser, Scion. Rust never sleeps—an intro. to forest pathology	32
20.4	Dr Debra Wotton. Why is Hebe armstrongii rare?	65 ¹
18.5	Members' evening. Cancelled – Covid-19 lock-down	0
22.6	Megan Banks, GWRC, Weed bio-control in Wellington region	67 ²
20.7	J. Frericks, C. Keilty, J. van den Hoeven. Percy Scenic Reserve	69 ³
Total		415

Note: ¹ all by Zoom; ² incl. 36 by Zoom; ³ incl. 22 by Zoom.

Trips

Summer Camp

The main trip of the year was the summer camp to Northland. This was very ably organised and run by Lara Shepherd and Leon Perrie.

The camp was greatly enhanced by having local botanists along on the day trips.

Julia Stace has been doing a lot of work organising the January 2021 Camp, on Banks Peninsula.

Field trips

2019

7.09	Rangituhi–Colonial Knob, Porirua	16
6.10	QE2 Trust Open Space Covenant, Waterfall Rd, Paraparaumu	15
2.11	Waipango Stream, Whitemans Valley, Upper Hutt	25

2020

16–23.1	Bay of Islands area, Northland – Te Tai Tokerau	37
1.2	320 Hawkins Hill Rd, Brooklyn, Wellington	5
7.3	Makahuri, Te Horo, Kāpiti Coast	33
4.4	Kourarau Valley. Postponed – Covid-19	0
2.5	Waikanae River banks. Postponed – Covid-19	0
6.6	331 Valley Rd, Paraparaumu. Postponed – Covid-19	0
4.7	Ngā Manu Nature Reserve; Waikanae River banks	27
26.7	Rushes workshop, Otari	11
Total		169

If you know of any out-of-the-way sites with interesting botany, particularly those with friendly landowners, please have a chat to our Programme Organiser, Sunita Singh.

We are also always seeking new people to lead trips—if you would like to volunteer then talk to Sunita and we can pair you up with an experienced trip leader.

Communications

Newsletter

Three issues of the newsletter were produced during the last year—September and December 2019 and May 2020. Thank you to Chris Horne and Jeremy Rolfe for preparing, formatting and producing the newsletter. It's a lot of work, particularly “encouraging” people to send their articles in on time.

Bulletin

Eleanor Burton is close to finalising the next volume of the Bulletin, No. 58. Number 57 was published in October 2018.

Website

Thank you to Richard Herbert for managing the website, putting up and removing Covid-19 warnings. Thanks to Julia White for your great work dealing with enquiries.

Facebook Group

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

The Wild Plants of Wellington Facebook Group continues to draw new members. It continues to be a good medium to advertise our trips and meetings and to reach a new audience, those in a younger demographic. It also serves as a forum to share news about plants, obtain plant identifications and recommendations and to start botanical discussions.

You don't need to be on Facebook, because it is a Group! Thanks to Julia White and Leon Perrie for administering the site.

Thanks everyone. Great effort! Here's to another great year of botanising!

Jon Terry
President



Gaultheria antipoda. Photo: Jeremy Rolfe.

GWRC Biosecurity Pest Plants report—2019–20 financial year

Our biodiversity work in Key Native Ecosystems (KNEs) and Wetland Programme sites was almost completed in the financial year, despite lockdown. Since then in the Kāpiti area, we have done preparatory work on blackberry and gorse, involving scrub-barring and cutting tracks for access in Spring, to allow for control work in several wetland sites.

Aerial spraying of willows in a wetland near Ōtaki was cancelled due to lockdown. It will be done this summer using a drone to enable comparison of results with previous operations using a helicopter.

Rabbits are causing problems in some KNEs. The Wairarapa and Kāpiti districts have high numbers in some areas, after a particularly good breeding year.

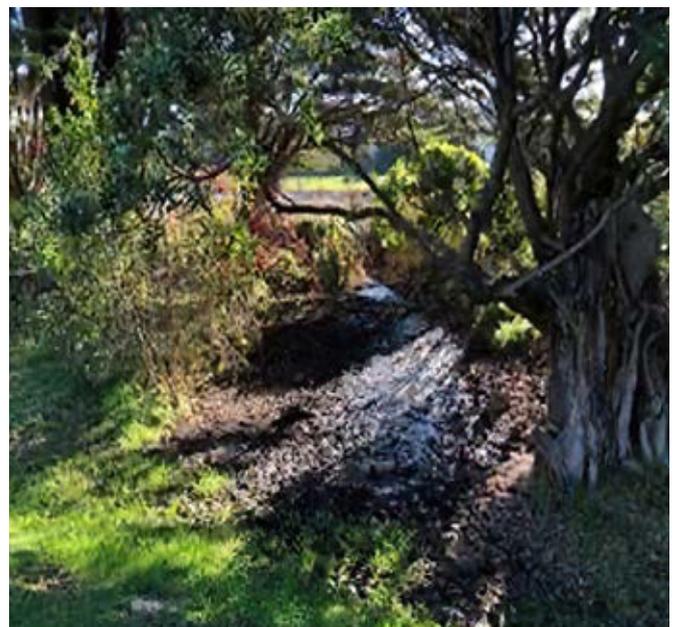


The team did succulent control at Cape Palliser over summer, as well as a few other species. This was very hard but satisfying work, with some grand views to be seen.

A list of the weed species we focused on during the year include:

- | | |
|-----------------------|----------------------|
| african club moss | iceplant |
| agapanthus | Japanese honeysuckle |
| alder | karo |
| arum lily | lupin |
| banana passionfruit | macrocarpa |
| barberry | marram |
| beggars ticks | mercer grass |
| blackberry | Mexican daisy |
| bomarea | monkey musk |
| boxthorn | montbretia |
| broom | old man's beard |
| buddleia | pampas |
| buckthorn | parsnip palm |
| climbing asparagus | periwinkle |
| cotoneaster | pine |
| elderberry | Portuguese laurel |
| english ivy | pseudopanax hybrids |
| german ivy | rhododendron |
| gorse | Spanish heath |
| gum | sycamore |
| gunnera | tradescantia |
| helichrysum | tree lucerne |
| Himalayan honeysuckle | wattle |
| Himalayan lily | wild cherry |
| holly | willow |
| hops | willow-leaved hakea |
| horned poppy | yellow flag iris |
| hydrangea | |

Below is a series of photos showing the success of using Metgel to treat arum lily in Romesdale wetland.



Photos: Mark McAlpine.

National Interest Pests Response (NIPR) species

We reported to MPI on our control of Manchurian wild rice, which occurs mainly in and around Pharazyn Reserve, Waikanae. Control was done throughout the year via aerial spraying, the hose and gun unit on our boat, and knapsack spraying. Cape tulip was also controlled during the year.

River lomatia and tree lomatia were confirmed as naturalised in our region. These were reported to MPI, which is investigating the *Lomatia fraseri* site in Wainuiomata. We divided work between staff members throughout the year regarding the 'Check, Clean, Dry' programme, rather than taking on a summer employee. We also did National Pest Plant Accord (NPPA) inspections. There was emphasis on fairs and markets, where we often find people who are unaware of the list of plants covered under the NPPA.

Regional Pest Management Plant (RPMP) species

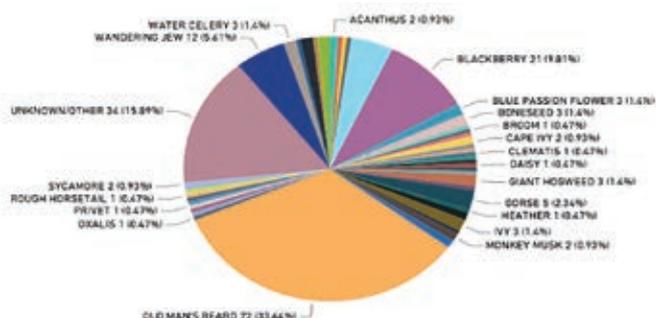
Not all of the delimiting surveys (which determine the extent of infestations of RPMP weed species) were completed due to lockdown. Similarly, control work of Senegal tea was incomplete, and has been added to our programme for the 2020-21 financial year. We usually inspect our climbing spindleberry sites in autumn when the leaves are yellow, a window of opportunity which was missed due to lockdown. Purple loosestrife and blue passionflower annual site inspections suffered for the same reason. However, we did successfully do aerial control of boneseed on Wellington's South Coast (Te Kopahou Reserve) and at Whitireia Park, Porirua.

The diagram below is an example of where in the region our work takes us in controlling RPMP sites: different colours indicate different species.



Map prepared by Christie Carswell/Mark McAlpine.

The following graph shows a breakdown of our pest-plant enquiries over the 2019–20 financial year. The majority of enquiries continue to be about old man's beard.



Mark McAlpine has assisted in the review of the NZS8409:2004 standard for Management of Agrichemicals,

which is our industry standard guiding the work we do involving herbicides.

GWRC Biosecurity Pest Animals report

This relates more to the last quarter of the 2019–20 year, unless otherwise specified.

Mainland Island operations

The October 2019 1080 operation in the Wainuiomata Mainland Island failed to significantly control the rat population. We supplemented this with ground-control techniques from December 2019. Rat tracking reduced to 24% in May 2020, and then below our target to 3% in early August 2020. The amount of bait that we could physically get into the area was limited. We think that the relatively high rat numbers, combined with abundant natural food availability, meant they weren't searching for our baits. In the non-treatment area tracking was consistently near 100%.

In East Harbour Regional Park, rat-tracking numbers declined over the last three monitors, and were at 6% (in the mainland island) in March 2020. However, there was a rise in both treatment and non-treatment areas in May, with the mainland island tracking at 14% rats. The Department of Conservation's (DOC) monitoring of beech trees shows it is highly unlikely that there will be a beech mast this year, so there is low risk of a significant rise in rat numbers in East Harbour Regional Park this winter.

Parangarahu Lakes and Baring Head/ Ōruapouanui

Hedgehog numbers are at their lowest on record due to hard work from staff and volunteers. The past year resulted in a 400% increase in rats caught.

The A24 traps, which were protecting the banded dotterels at Parangarahu Lakes Block, were retired this year. The trapping was coordinated with Baring Head. The traps were surplus to requirements.

Volunteers monitored seven banded dotterel nests this season, all of which successfully hatched chicks, making this the most successful season since records began. A trial of intensive stoat trapping resulted in the removal of 10 stoats over a seven-day period over both sites, which would have contributed to success of nest survival.

KNE Ungulates

The full KNE ungulate control programme was completed. Hunting occurred in Wainuiomata Mainland Island, Wainui-Orongorongo catchment, Kaitoke, Akatarawa, Hutt catchment, Pakuratahi and East Harbour. Total animals controlled were 112 deer, 282 goats and 97 pigs. An additional 135 goats were dispatched from around Parangarahu Lakes Block. This seemed to be significantly higher than previous years. A mob of fallow deer have established themselves in Speedy's Reserve and Belmont Regional Park. Seven have been removed so far.

Porirua Harbour

BT200 predator traps replaced tired Victor rat traps between Ōnepoto and the rail/motorway on-ramp over-bridge at Porirua city. Several large Norway rats have been caught since, which would have avoided the Victor traps due to their size and not being able to enter the old trap

box. The traps will help protect up to 20 bird species (not including seasonal visitors) that are readily seen on and around the harbour. Fernbirds are now a common sight when servicing the traps around Pāuatahanui Inlet. At least 122 rats, 13 weasels and 27 stoats were trapped in this basin in the 2019–20 year.

Wairarapa predator-control work

Pest cats and mustelids have been caught across the KNE areas serviced. There was a boost in cat numbers caught leading into winter, as predicted for that time of year. One new predator control network was established in the Kourarau KNE. Feral cat numbers stayed consistent at Pukaha, with 90 caught, and there was a slight increase in ferrets, rats and hedgehogs, with over 400 of each species caught.

Wairarapa Moana predator-control work

We had another successful year of collaborative predator-control with DOC at Wairarapa Moana wetlands. This protected Australasian bittern and spotless crane at Boggy Pond/Mathews Lagoon/Wairio Restoration Block and Pounui Lagoon. This work began in July 2013. During this period 20 feral cats, 15 ferrets, 21 stoats and 33 weasels were removed from traps at Boggy/Mathews/Wairio. At Pounui Lagoon 4 feral cats, 1 ferret and 2 weasels were recorded by GW staff. A neighbouring landowner assisted with trapping maintenance and removed predators from the traps.

Formal monitoring indicates bittern and crane populations have remained stable at these wetlands since the trapping programme began. A new predator-control network is planned in Hiwinui and Tauanui forests in 2020. These predator-trapping networks will complement the predator-control work DOC and the Aorangi Trust

are implementing in Aorangi Forest Park, and will involve maintenance by staff hunting the area as volunteers.

Client enquiries

1010 public enquiries were answered by pest-animals staff. 290 related to sales of equipment and services for rabbits, mustelids, possums and rats. 720 were general information and advice enquiries, of which 379 related to rabbits, 171 for possums, 75 for magpies, 76 for mustelids, 131 for rats and 8 for rooks. There were significantly more rabbit enquiries than normal.

Wellington City Council (WCC) possum-control work

The servicing of bait stations and traps in the WCC possum control programme was completed as per schedule, with the exception of one service of Karori Park. The comparatively dry autumn and early winter allowed servicing to be done more quickly and efficiently than normal. Evidence from chew-card monitoring and wax tags in some areas indicated that low possum numbers are being maintained across most of the control areas.

Kāpiti Coast District Council (KCDC) and Hutt City Council (HCC) possum control work

The servicing of bait stations and traps in the KCDC and HCC possum-control programme (seven sites) were all done in the past year, despite time restraints imposed by the lockdown. Possum numbers in the vicinity of Kāpiti Coast blocks are generally higher with reasonably frequent reports from members of the public of possums around Waikanae and Raumati areas.

Megan Banks

*Kaiwhakahaere rerenga rauropi Biosecurity Officer (Pest Plants)
Greater Wellington Te Pane Matua Taiao.*



Hymenophyllum rarum. Photo: Jeremy Rolfe.

Wellington Botanical Society – 2021 Summer Field Trip

In on 13 January 2021, out on 21 January 2021.

Based at YMCA Wainui Park, Banks Peninsula

Completed forms and deposit to be in on, or by, **16 November**—the last BotSoc meeting of the year

Name:	
Address:	
Home Phone:	Mobile:
E-mail:	
Emergency contact:	
Relationship:	
Home address of contact:	

Travel and accommodation arrangements

Please indicate which evenings you intend to be at YMCA Wainui Park:	<input type="checkbox"/> 13 Jan <input type="checkbox"/> 14 Jan <input type="checkbox"/> 15 Jan <input type="checkbox"/> 16 Jan <input type="checkbox"/> 17 Jan <input type="checkbox"/> 18 Jan <input type="checkbox"/> 19 Jan <input type="checkbox"/> 20 Jan
Type of accommodation required: <input type="checkbox"/> Bunk accommodation (mostly twin/quad rooms with <i>en suite</i>), \$25/person/night. <input type="checkbox"/> Tent site \$15/person/night. <input type="checkbox"/> I/we will make my/our own arrangements.	
Please specify your mode of travel to YMCA Wainui, e.g., public transport, own car, or as a passenger with someone else. We have the option of hiring a van to YMCA Wainui from Christchurch Airport (90 minute drive). Please indicate if you are interested. We will suggest a time to meet for pickup from the airport to fill the van and share the cost. If you are going with your own car, how many additional passengers could you take? If you are taking a car, will it be available for day trips?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> None <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> Yes <input type="checkbox"/> No
Do you have any dietary requirements?	<input type="checkbox"/> Gluten-free <input type="checkbox"/> Dairy-free <input type="checkbox"/> Vegetarian

Payment

<p>Registration form</p> <p>Complete the form above, or download it from the web site: http://www.wellingtonbotsoc.org.nz/trips_2021.html#camp</p> <p>Digital form: Fill in the form's check boxes by double-clicking on them then click on 'checked' button.</p> <p>Deposit: Estimated cost per person: \$450. (This applies both to those who are bunking or camping.)</p> <p>Please check one of the following boxes and make payment as specified. (electronic funds transfer preferred)</p> <p><input type="checkbox"/> By Electronic Funds Transfer: please make the deposit of \$450 to the Society's account 02 0536 0017812 02 citing your name(s) in the particulars/reference boxes of the payee section.</p> <p><input type="checkbox"/> By Cheque: please make cheque for \$450 out to Wellington Botanical Society and post it with the completed Registration Form to: The Treasurer, WBS, PO Box 10-412, Wellington 6143;</p> <p>E-mail the registration form to Julia Stace at jbwstace@gmail.com</p> <p>At the end of the trip, depending on the final cost, you will be sent an invoice (or a refund) for the full cost less your original payment.</p>
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TRIP REPORTS

1 February 2020: 320 Hawkins Hill Rd, Brooklyn

We were a select group of five (and a dog) who accepted Pam Olver's and Chris Horrocks' invitation to botanise their 12.5 ha block of regenerating forest. About 1 ha adjacent to Hawkins Hill Rd is in rough pasture (from a previous owner's attempt to rear emus), the remainder being forest. The top of Southernthread Rd (formerly Long Gully Rd) is all that separates the block from being contiguous with Zealandia and the 52 ha block of bush owned by Wellington Natural Heritage Trust.

After being warmly greeted by Pam Olver at the homestead we drove to the bottom of Southernthread Rd that follows the Wellington Fault and parked where it crosses the emerging stream, a tributary of Silver Stream and Karori Stream. We botanised the block by going up the steep-sided gully which dissects the property. In some places the gully narrows into small gorges with waterfalls which we negotiated and nearer the top it divides into left and right head-waters. Lucky for us, the property is intensively trapped for possums, rodents and mustelids by Greater Wellington Regional Council (GWRC), so it was possible to follow their fluro tapes to negotiate these obstacles. Our aim was to add to a template list that Barbara Mitcalfe and Chris Horne had generated for the nearby Wellington Natural Heritage Trust Long Gully Bush block.

As with a lot of Wellington, the rock faces and screes reflected the earthquake history, but Gavin Dench was able to pick tell-tale signs of glacial erosion (ca. 12,000 years BP) from rocks that were larger and whose cut edges were of an obviously older origin than quake shattering.

Starting at a wet area near the road we recorded a suite of usual weeds as well as lianes such as *Metrosideros perforata*, *M. diffusa*, *M. fulgens* and *Clematis paniculata*. Soon we were learning from the vegetation just how long recovery and forest succession takes when left alone after massive disturbance. We presume the most recent disturbance included attempts to farm the land after logging—maybe

a hundred years ago. A northern rātā / *Metrosideros robusta* bole of nearly 1 m diameter was one sign of this. Within the gully the canopy was dominated by putaputawētā / *Carpodetus serratus*, māpou / *Myrsine australis*, porokaiwhiri / *Hedycarya arborea*, soaring well above 10 m. Their size was as big as any in the party had ever seen. We measured the d.b.h. of a māpou at 40 cm and a porokaiwhiri at over 30 cm. One ancient māhoe was 2.5 m at the base. Its misshapen appearance indicated that it may have been part of the original forest.

It was a different picture with the understorey. Years of browsing by possums, deer, goats and pigs had removed a series of potential seedling cohorts. However, the current ownership with the help of GWRC have been targeting possums, rats, and mustelids as well as encouraging pig shooting and we understood that the boundary fence is deer-proof. Presumably because of grazer control there was an abundance of small seedlings on the forest floor. Lea's trusty Labrador, Kara, took us to a spot where there were a few heruheru / *Leptopteris hymenophylloides*.



Leptopteris hymenophylloides. Photo: Jeremy Rolfe.

Surprisingly, we didn't note any filmy ferns but there was an abundance of liverworts and mosses

attached to the moist rocks in the gorge as well as being epiphytic on the mature trees.

It was therefore clear that, with the abundance of bird-life (originating from Zealandia) and proximity to other native tree propagules, this area of land will undergo a rapid succession over the next century or so. We found one seedling of tawa / *Beilschmiedia tawa*, as testament to this likely scenario.

We traversed up a ridge on the true left of the gorge in search of an emergent rimu that we seen from the road. Here we found a large grove of mature ramarama / *Lophomyrtus bullata*. The forest was open and there was evidence of pig-rooting along with the weed, blue-eyed grass / *Sisyrinchium iridifolium*, but the ground was covered with seedlings of *L. bullata* among the pātiti / *Microlena stipoides*, plus weedy grasses. Further on was the rimu / *Dacrydium cupressinum*, among what was then mostly a canopy of gorse / *Ulex europaeus*. We then climbed from the true left branch of the stream to a spur between the two headwaters to head towards the road. Here there were some exceptionally large heketara / *Olearia rani* var. *colorata*, tree hebe / *Veronica parviflora* and akiraho / *Olearia paniculata*. Again, GWRC fluro-markers assisted us through thick gorse, tatatarāmoa / *Rubus cissoides* agg., *Coprosma propinqua* subsp. *propinqua*, *C. rhamnoides* and a bed of *Leptinella dispersa* before we emerged onto the road.

This forest is one of Wellington's treasures in ownership of people who are mindful of its natural values and who are leaders in responding to good advice and assistance in pest control. However, existence of feral grazers and pigs are a problem that require a community-wide effort and adjoining land-owner cooperation if the wider area is to be saved from incremental long-term damage to a natural succession of forest.

Participants: Gavin Dench, Jenny Fraser, Chris Horne, Mick Parsons, Lea Robertson and trusty hound Kara.

20 June 2020: Workbee, Te Mārua Bush, Upper Hutt

Our group of seven spent the morning planting twelve infill trees, (including a 2nd replacement kahikatea as a memorial for Barbara Mitcalfe - this time in a moister site!), weeding blackberry and montbretia, collecting rubbish and cutting light-wells, then having a good look around the whole Bush area.

Trees in the northern strip along the Pony Club's fence were cut back

to the fence line, as branches were hanging out too near to the cross-country jumps nearby.

Last summer was very dry and hot after a long wet winter, so many of the 2019 seedlings did not survive. However many of 2018's good crop of matai and tōtara, as well as some black maire, kahikatea and other species, are still growing well. Last summer had very low cicada numbers

as well as good tree growth and there is noticeable increase in size and coverage of plants in the various planted areas.

Participants: Kim Broad (GWRC), Chris Horne, Ann Mitcalfe, Allan and Graeme Sheppard.

Co leaders: Glennis Sheppard and Sue Millar

4 July 2020: Brookfield Wildlife Refuge & Outdoor Education Centre (Scouts NZ), Wainuiomata

After several weeks of lockdown, BotSoccers were keen for a field trip. Our first one was to Brookfield Outdoor Education Centre in Wainuiomata, Lower Hutt. Brookfield is a wildlife refuge, outdoor education centre and Scout Camp in Moores Valley. Established in 1958 with 355 acres bequeathed by Mary Crowther, it has expanded to more than 650 acres, including camp facilities and paddocks, regenerating and remnant bush, and plantings of native and introduced species. There are ten tracks to explore.

After an introduction by a Brookfield representative, we botanised wetland area north of 'Very Top Paddock', then scattered among the kahikatea where two streams meet. A speedier group of BotSoccers split off and went up the track behind the 'Chapel', while a more sedate group maintained the morning-tea tradition, followed up that track. The speedier group also covered a large portion of the Lock Track.

Like most places, Brookfield has its share of pest animals and plants. In 2018, 1,000 possums were removed and in the past eight months, 1,400 rodents and mustelids have been trapped. They use DOC200 traps for possums, rodents and mustelids and plan to control deer and pigs.

Before the trip, Leon Perrie had asked the group to look for *Lomatia fraseri*, a tree lomatia from NSW, Australia. Leon has recorded *L. fraseri* on the ridge to the northwest of Arakura and is concerned about this pest plant spreading throughout the region. GWRC have been notified but have not taken action yet.

We didn't have to wait long before spotting *L. fraseri*—there

was a large specimen behind the Brookfield representative as he gave us a introduction to the camp. Other pest plants included selaginella and barberry.

Members using paper species lists used a template compiled by a previous BotSoc field trip in the adjacent Wainuiomata Valley. Other members uploaded their observations to the Brookfield project on iNaturalist, more than doubling the observations of the area.

Members of the public are welcome to visit Brookfield. Visitors are asked to check in with the Duty Leader (Friday to Saturday) and abide by Rules of Use on the website:

<https://brookfield.scouts.nz/visiting>. If you have new nature finds, please add them to the Brookfields project on iNaturalist: <https://inaturalist.nz/projects/brookfield-native-plants>.

Participants: Colan Balkwill; Eleanor Burton; Lorraine Cook; Gavin Dench; Joe Dillon; Michele Dickson; Joe Dillon; Pat Enright; Ian Goodwin; Jill Goodwin; Chris Horne; Kate Jordan; Ruary Mackenzie Dodds; Chris Moore; Syd Moore; Leon Perrie; Hugh Robertson; Lea Robertson; Lara Shepherd; Darea Sherratt; Sunita Singh; Owen Spearpoint; Carol West; Helen White.

Kate Jordan, trip leader/scribe



Carex lessoniana.
Illustration: Eleanor Burton.

26 July 2020: Rushes Workshop, Ōtari

Many thanks to Eleanor Burton for opening the Centre at 8.30 a.m. for the 9.00 a.m. workshop. It is a wonderful building, with tea and coffee facilities, tables and chairs, a toilet and a large-screen TV with cables for a laptop.

I had borrowed a data projector, so we used this on the wall. Later I tried the TV and people agreed that although it showed a smaller image, it was much clearer.

Almost all rushes belong to the genus *Juncus*, so the two names are nearly synonymous.

The workshop was begun by introducing an illustrated key “New Zealand Rushes: Field Identification Guide” by Bodmin, Champion and James, (2nd ed. 2016), a NIWA publication. <https://niwa.co.nz/>

[gallery/new-zealand-rushes-juncus-field-identification-guide](#)

This document has revolutionised rush identification in New Zealand.

Floras 2 and 3 are also very useful, as is “Common Grasses, Sedges and Rushes of New Zealand” by Champion, James, Popay and Ford. (2012).

We worked through some specimens which people had brought with them, becoming familiar with the parts of the rush plant. The key, like others, can lead you down the wrong path if instructions are not clear, or you misinterpret them.

After lunch we visited two sites at Ōtari – a small wetland and an alpine tarn. Several *Juncus* species thrive here and we had permission to collect specimens. I think this practical

component was very helpful and it broke up our time indoors.

Most people went for a guided kōwhai walk from 2–3 p.m. led by Lara Shepherd. Upon return we decided to cut the day short. 9 a.m. – 5 p.m. seemed too long so we agreed that 10 a.m. – 4 p.m. was a better time for a workshop.

It was a great day of exploration. I am planning workshops on sedges and grasses. The sedge workshop will be held over two or three weekends.

Jon Terry

Participants: Eleanor Burton, Jenny Fraser, Chris Horne, Leon Perrie, Lynne Pomare, Lara Shepherd, Sunita Singh, Julia Stace, Jon Terry (leader & scribe), Matt Todd, Carol West, Laura West, Helen White.

1 August 2020: A. Ngā Manu Nature Reserve; B. Waikanae River banks

A. Ngā Manu Nature Reserve

On the first Saturday of August, BotSoc travelled up to the wilds of Waikanae. We met at Waikanae Railway Station then drove to Ngā Manu Nature Reserve. We were welcomed by the manager, Matu Booth, then treated to two interesting (if concerning) lectures on *Dactylanthus taylorii* / pua o Te Reinga / wood rose.

David Mudge delivered the first lecture. He is one of the founders of research on *D. taylorii* and has been studying the plant for thirteen years. David explained that *D. taylorii* is a root parasite with no leaves or roots so is totally dependent on the host

tree for nutrition and water. Female and male plants are separate and pollinated by *Mystacina tuberculata* / pekapeka / short-tailed bats, as well as occasionally by ship rats or Norway rats. *D. taylorii* is the only species in the world known to be pollinated by bats.

The outlook for *D. taylorii* is grim. It is seriously threatened in the wild and there is widespread recruitment failure. Other threats to its survival are seed predation and pigs rooting out the tubers. There is one site in Pureora Forest Park where the species is flourishing. Seed set is being addressed with hand pollination.

The second speaker was Karin van

der Walt, Conservation and Science Advisor at Wellington City Council. Karin is researching methods to preserve *D. taylorii*'s seeds long-term, in an effort to halt the decline of the plant towards extinction. She will study the behaviour of pollen and the germination of the seeds on the spadix.

Other interesting facts about *D. taylorii* are:

- It is difficult to be sure what the host species are—they probably include *Pseudopanax* species.
- *D. taylorii* flowers in Pirongia in mid-December and in Mangaweka in January-February
- The plant often grows on deer trails.

Recently, some *D. taylorii* were transferred to Ngā Manu Nature Reserve as part of the reserve's long-term study the lifecycle of this seriously threatened native plant. Ngā Manu's intensive possum control will help to avoid predation of the flowers, a major cause of the decline of the species elsewhere.

After the talks, Ngā Manu staff member Reece, took us to the site where *D. taylorii* has been planted. Our group filtered through a unformed track, where we were treated to the site of the seemingly nondescript tubers.

To help support Ngā manū's work, you can make a donation on their website: <https://ngamanu.co.nz/donate/>



Dactylanthus taylorii. The tubers (arrowed A) are nondescript but female inflorescences (arrowed B) and male inflorescences (arrowed C) can be seen growing from the tubers. Photo: Wayne Mitchell.

B. Waikanae River banks

After lunch at Ngā Manu's picnic area, our group botanised both banks of the Waikanae River from the old State Highway 1 bridge to Te Arawai Footbridge.

There are many plantings of native species along the riverbanks, some of which are now well established. Plantings included: *Carmichaelia australis* / maukoro / a NZ broom sp.; *Beilschmiedia tawa* / tawa; *Leptospermum scoparium* agg. / mānuka; *Olearia solandri* / takupurenga / coastal tree daisy; *Ozothamnus leptophyllus* / tauhinu. There were also some much older plantings; on the north bank including a *Vitex lucens* / pūriri about 1m DBH,

far south of its natural range.

On the north side of the river we passed close to some huge *Dysoxylum spectabile* / kohekohe, on adjacent private land. We saw a rabbit enclosure plot, with the base of the chicken-wire fence buried to deter burrowing. Kawakawa is flourishing within the plot.

We observed widespread damage by rabbits, such as on planted *Plagianthus regius* / manatu / lowland ribbonwood trees debarked and some killed and cabbage trees / tī kōuka seedlings browsed down to top of the protective plastic shields around them. BotSoc will write to GWRC & KCDC to recommend rabbit culling. In addition to the plants we saw and

added to the lists, Lea and Hugh added several bird species to the bird list.

Participants: Eleanor Burton, Barbara Clark, Rae Collins, Gavin Dench, Joe Dillon, Jenny Fraser, Ian Goodwin, Jill Goodwin, Bryan Halliday, Chris Horne, Megan Ireland, Kate Jordan, Tom Mayo, Pascale Michel, Wayne Mitchell, Viola Palmer, Leon Perrie, Gabrielle Samols, Lara Shepherd, Darea Sherratt, Sunita Singh, Owen Spearpoint, Julia Stace, John Van den Hoeven, Carol West, Laura West, Debra Wootton.

*Kate Jordan and Chris Horne,
trip leaders/scribes*



Olearia solandri. Photo: Jeremy Rolfe.



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 2020 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 \$.....

Donation \$.....

TOTAL \$.....

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.