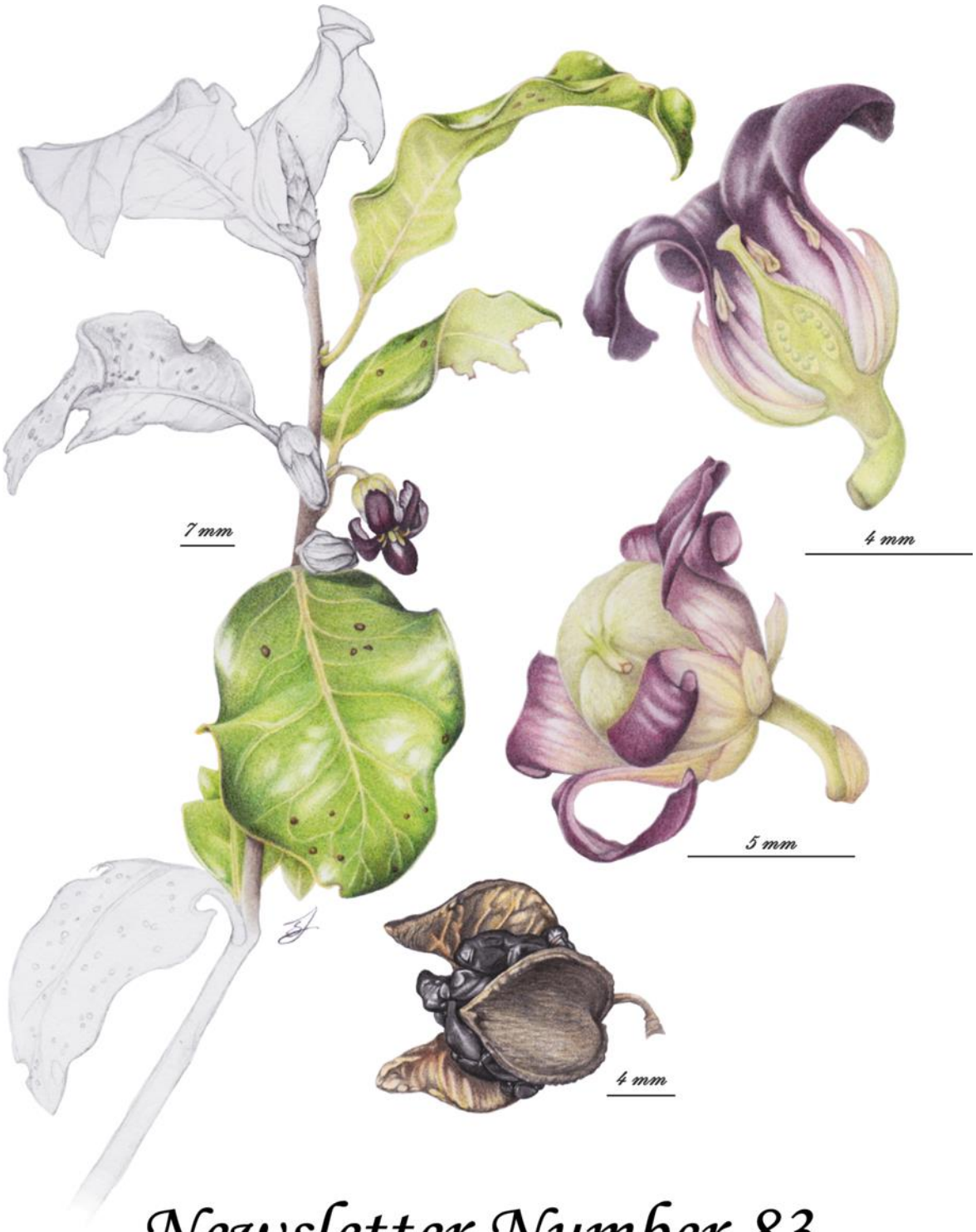
BOTANICAL SOCIETY

OF OTAGO



Newsletter Number 83

February 2018

BSO Meetings and Field Trips February-June 2018

Friday 23rd February - Sunday 25th February 2018: Weekend field trip to Northern Southland. This trip is a rare opportunity to botanise a large new covenant on the foothills of the Takitimu Mountains, with shrublands, wetlands and grasslands. On the Sunday we'll visit the White Hill wind farm, another interesting tussock-shrubland site. If we run out of things to do there are other fascinating wetlands and a limestone site close by too. Local QEII representative Jesse Bythell will be our guide for the weekend. We plan to travel to Mossburn on Friday evening so we can be on-site early on Saturday. Participants have the option of travelling back to Dunedin on Saturday evening or staying on to visit the wind farm on Sunday. You are responsible for your own accommodation and catering. One suggestion is the Mossburn Country Park (www.mossburncountrypark.co.nz) 3km north of Mossburn township on SH97 which has cabins and camping sites. Their contact is info@mossburncountrypark.co.nz.You must let John Barkla jbarkla@doc.govt.nz ph. (03) 476 3686 know if you are intending to come by Tuesday 20 February. Travel arrangements will be advised.

Wednesday 28th February, 5.20 pm: Spring Flowers of El Camino. Speaker: Kath Graham. Walking the 1000 year old pilgrimage - Camino Frances in Spain - was an important exercise in building perspective in relation to the New Zealand experience. For a Kiwi it was New World meets Old World. For an antipodean botanist it was leaving a significantly intact natural heritage to visit one with thousands of years of human impacts. The spring flowers were beautiful and delightful, often familiar but sometimes new. At times the plants showed differences to our common weeds although the same species. The trees were magnificent, and an important part of the human story of the region. I didn't know the origin of many of the plants I was seeing so I couldn't identify which were weeds or which might be problem invaders, until in Galicia I saw the first giant eucalypt tree, guarding the ruins of an ancient castle keep. Shortly after that I spotted the first cabbage tree followed by increasing numbers of cabbage trees in people's gardens. During the last few days I was walking through vast forests of eucalypt trees. The destination was Santiago de Compostella, and the Cathedral which holds the relics of Santiago (St James). Even as I walked the last few kilometres along the pavements of the city I was still discovering new species of flowers I hadn't seen previously along the 800km trail.

Saturday 3rd March, 10.00 am: Introduction to the nursery and propagation facility and the native plant collection at Dunedin Botanic Garden. Learn about what goes on behind the scenes in this living museum of plant specimens and in its engine room, the propagation and Nursery Facility. We will begin with a tour around the propagation facility, opened in 2015. Propagation Services Officer Alice Lloyd-Fitt will show us the wide range of plants that live in each of the glasshouses, explaining how the various growing zones are controlled and maintained. After that we'll cross the road to explore the New Zealand native plant collection with its curator, Kate Caldwell. A great chance for beginners and regular visitors alike to satisfy any questions and curiosities about native plants and the Botanic Garden. Meet at the Upper Botanic Garden car park next to the Alhambra sports field and the propagation and nursery building on Lovelock Avenue. Any questions contact Kate Caldwell, 027 890 8840 or kate.caldwell@dcc.govt.nz.

Wednesday 14th March, 5.20 pm: A 70 million year record of Araucarian forests in Zealandia: new discoveries of wood, leaves and biotic inclusions in amber. Speaker: Assoc. Prof. Daphne Lee, Department of Geology, University of Otago. Araucarian forest trees have a long, continuous record in Zealandia extending back at least to the Late Cretaceous. We have collected araucarian macrofossils from numerous sites. These include anatomically preserved wood, foliage, sometimes with cuticle identifiable as *Agathis*, and amber which is abundant at dozens of Cenozoic sites throughout New Zealand. The bubble-filled, often opaque amber was considered devoid of fossils but our new techniques have revealed numerous three-dimensionally-preserved organisms such as arachnids, hexapods, nematodes and mould fungi that represent considerable biological and ecological complexity. Ecologically, the organisms include predators such as spiders, including web remains with prey, micro-carnivores such as pseudoscorpions, a diversity of mites, detritivores such as springtails, biting and gall midges, fungus gnats and chironomids, parasitoid wasps, ants, carpet and other beetles, bark lice and lepidopteran wing scales. Zealandia is now shown to have the first major amber deposits of confirmed araucarian origin from the Southern Hemisphere.

Saturday 7th April, 8.30 am: Botanical Photography Field Trip to McPhees Rock. McPhees Rock lies at the southern end of the Rock and Pillar Range. Access is from the Old Dunstan Road from a point north of the Loganburn Reservoir. We will spend the day looking at alpine plants and learning techniques to take good photographs in the demanding conditions that prevail in alpine environments. Make sure you bring your camera and a tripod if you have one. May sure you bring warm clothing and wet weather gear. Meet at Botany Department carpark at 8.30 am. If the weather is unsuitable we will hold the trip on Sunday 8th. Contact: David Lyttle (03) 454 5470. Email: djl1yttle@gmail.com.

Wednesday 11th April, 5.20 pm: The whys and hows of identifying plants used in Māori textiles. Speaker: Dr Bronwyn Lowe, Centre for Materials Science and Technology, University of Otago. Māori textile taonga are beautiful and diverse, in part due to the wide range of plant species used to create them. Identifying the species in a textile artefact enriches our understanding of the ways in which the plants of Aotearoa have been utilised through time, as well as aiding efforts to conserve deteriorating artefacts held in museums and private collections. This talk will discuss identification of plant materials in Māori textiles, why some Māori textile artefacts deteriorate so badly despite best care, and current research into methods for conserving them.

Wednesday 9th May, 5.20 pm: BSO Annual General Meeting and Photographic Competition. The photographic competition is a popular and eagerly anticipated event for anyone interested in botanical photography. Enter your best photos and learn what makes a good photograph and how to improve your photographic skills from our panel of expert judges. Your photographs may be chosen for the BSO Calendar so this is your opportunity to have one month of fame. Start organising your entries now and don't wait until the last minute.

Saturday 19th May, 8.30 am: Fungal Foray Field Trip to Waipori Gorge. This is an opportunity to learn about fungi and participate in the ongoing research of the Department of Botany. We will travel to Waipori and spend the morning in the beech forest collecting fungi. After lunch we will return to the Botany Department where we will identify, record and photograph our collections. The collections will be dried and placed in the Otago University Herbarium (OTA). This trip will be lead by David Orlovich. Contact: David Orlovich david.orlovich@otago.ac.nz or David Lyttle (03) 454 5470 / djl1yttle@gmail.com.

Saturday 9th June, 9.00 am: Visit to Pā Harakeke at Orokonui Ecosanctuary. This is a chance to get to know the extensive collection of harakeke at Orokonui with Sue Hensley. We will spend the morning learning about the harakeke and getting our hands dirty with a bit of weeding and cleaning. In addition, there will be a chance to see the Otago Rare Plants garden (which many of our members have contributed to) and perhaps spy a takahe or tuatara. Meet at Botany Department carpark at 9am. Contact Gretchen Brownstein 021 065 8497 or brownsteing@landcareresearch.co.nz.

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

Meeting details: Talks are usually on Wednesday evening starting at 5.20 pm with drinks and nibbles (gold coin donation), unless otherwise advertised. Venue is the Zoology Benham Building, 346 Great King Street, behind the Zoology car park by the old Captain Cook Hotel. Please use the main entrance of the Benham Building to enter and go to the Benham Seminar Room, Room 215, located on the second floor. Please be prompt as we have to hold the door open. Items of botanical interest for our buy, sell and share table are always appreciated. When enough people are feeling sociable we go to dinner afterwards: everyone is welcome to join in. The talks usually finish around 6.30 pm. Keen discussion might continue till 7 pm.

Field trip details: Field trips leave from Botany car park 464 Great King Street unless otherwise advertised. Meet there to car pool (10c/km/passenger to be paid to the driver, please). Please contact the trip leader before Friday for trips with special transport and by Wednesday for full weekend trips. A hand lens and field guides always add to the interest. It is the responsibility of each person to stay in contact with the group and to bring sufficient food, drink and outdoor gear to cope with changeable weather conditions. Bring appropriate personal medication, including anti-histamine for allergies. Note trip guidelines on the BSO web site: http://www.otago.ac.nz/botany/bso

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Cover: Pittosporum tenuifolium, *original drawing by Sharon Jones*

Chairman's Notes

David Lyttle

Now the new year has started, it is time to put up the 2018 BSO calendar which I hope you all have purchased. I may be biased, but I think it better both in terms of the quality of the images and the quality of the finished product than many comparable calendars in what is becoming an increasingly crowded market. All those involved in the production of the calendar, and in particular John Barkla who selects the images, can take justifiable pride in the finished result. The calendar is not a fund-raising venture; we aim to cover costs and promote the activities of the Society. However we have been experiencing some problems in selling and marketing the calendar. Sales (up to December last year) were disappointingly slow. If we are to continue to produce the calendar it would be nice if members were a bit more enthusiastic promoting and purchasing it. Next year, buy one for yourself and perhaps another couple to give away!

The committee attempts to deliver a diverse and wide ranging programme to cater for the interests of all the members of the Society. By and large I think we succeed in this objective but that does not mean that there is not room for improvements. It has been suggested following our field trip to Flat Top Hill In October that we conduct more structured field trips and teach plant identification skills to the participants. On this occasion more people than we usually cater for turned up so in retrospect our customary informal "botanical ramble" may not have been the best format. A more structured approach would of course involve more preparation work on the part of those leading the trip and the BSO certainly has the capabilities to do this if that is what members wish. There are three workshop events scheduled for the early part of the year; a beginner's introduction to the Dunedin Botanic Garden's native collection and plant propagation facility in March, a botanical photography field trip to McPhees Rock in April, and a flax weaving workshop at Orokonui Ecosanctuary in June. It would be useful if members could put some thought into what activities might be included in the Programme, places for field trips and perhaps an indication on how field trips and workshops might be conducted to better meet their expectations. If you wish to do this please approach individual committee members or email our secretary Allison Knight so your views can be known and discussed.

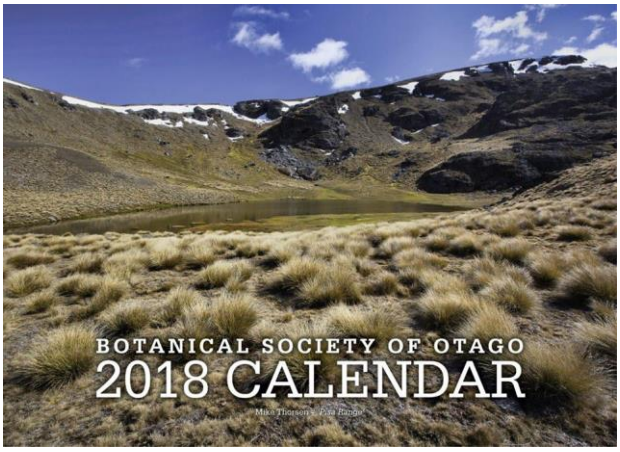
The committee has decided to produce of series of introductory guides to the local flora that are approachable and readable. Initially we propose to produce three guides covering;

(1) Forest areas in the environs of Dunedin City,

(2) Above the forest and

(3) Local coastal ecosystems.

The target price for each guide would not exceed $30.00. The first guide will be to the forests. Publication costs will be met from the Audrey Eagle Publishing Fund and profits from the sales will be returned to the fund.



Secretary's Notes

Allison Knight

I'm writing in haste just before 20 family, more or less, descend on us from around the world for a week over Christmas. By the time you read this I hope that you will have had a happy Christmas followed by a rejuvenating summer. I'll have been collecting lichens on the Subantarctic Islands.

The BSO mailbox since October has produced the usual interesting news from botanical groups around the country. Worth noting is the Wellington Botanical Society's call for applications for the Jubilee Fund, which aims to "encourage and assist applicants to increase knowledge of New Zealand's indigenous flora". Closer to home, the BSO committee is considering an application to our Audrey Eagle Publishing fund. We have also written letters of support for grant applicants and award nominees. It is gratifying to see new members joining and calendars selling online, and almost time to start thinking of sending in photos in the 2018 photo competition!

Treasurer's Notes

Mary Anne Miller

Firstly, a look back on last year. One of the promising features of 2017 was the number of new members to sign up. Of course, we also lost some - mainly students who've moved on. But we have a steady membership, which is great in this day and age when clubs and societies of all kinds are struggling to retain members. The 2017 Baylis Lecture proved a worthwhile fund-raising event as calendars, lichen and moss guides and our new fund-raiser, botanical pun badges, sold well. We finished 2017 in a positive financial position with a promising outlook for this year. A new project, about to get underway, is to produce a guide to Dunedin's forests for locals who are interested in the flora that surrounds them, as well as for the city's increasing visitors.

It's that time of year when memberships need to be renewed. To ensure you know about upcoming talks, field excursions and general happenings in the local botanical sphere, fill in the form at the back of this newsletter or go to our website to download a 2018 membership form. You can join or renew online and pay by internet banking.

Editor's Notes

Kate Caldwell

A hearty thank you to all of you who have contributed to this edition of the newsletter. Special thanks to super talented BSO member Sharon Jones for the beautiful cover illustration!

Suggestions and material for the newsletter are always welcome from our members. If you are keen to submit stories, drawings, reviews, opinions, articles, photos or letters – or anything else you think might be of botanical interest to our diverse range of members, don't hesitate to get in touch. Send your feedback, comments or contributions to kate.caldwell@dcc.govt.nz. Copy for the next newsletter is due on *10 May 2018.* Earlier submissions are most welcome.

Editor's guidelines: Try to aim for a 0.5–1 page of 14 pt. Times for news, trip/meeting reports and book reviews and 1–5 pages, including illustrations, for other articles. Electronic submission by email to kate.caldwell@dcc.govt.nz is preferred. Send photos as separate files and remember to include photo captions and credits.

Disclaimer: The views published in this newsletter reflect the views of the individual authors and are not necessarily the views of the Botanical Society of Otago.

New Members

A warm welcome is extended to Dhana Pillai and Helen Jones-Rippey. To our existing members, thank you for your continuing support.

Correspondence and News

Jubilee Award 2018

from Wellington Botanical Society Newsletter, December 2017

The Wellington Botanical Society invites applications for an Award of up to $2,600 to encourage and assist applicants to increase knowledge of New Zealand's indigenous flora, and to commemorate the Society's Jubilee in 1989. Purpose of the award The Award is open to anyone working in New Zealand. It will be granted for: fieldwork; artistic endeavour; publication; research; propagation or cultivation of NZ native plants for educational purposes and/or other studies which promote the better understanding of NZ's indigenous flora and vegetation. The interpretation of these conditions will be flexible, except that the main criterion will be the furtherance of knowledge or promotion of the intrinsic value of NZ's indigenous flora and vegetation. The Award may be used to defray costs such as travel, accommodation, materials or publication. Applications close 6 Sept 2018. Further details can be found on the WBS website.

http://www.wellingtonbotsoc.org.nz/awards/jubilee.html

A good turnout of BSO members at the outset of the October field trip to Flat Top Hill, Central Otago. (Photo: John Steel).

Enter the Competition and support the Calendar
Entries Due 25th April 2018

Categories are:

1. **Plant Portrait**
2. **Plants in the Landscape**
3. **Plants and people**

It's easier than ever - no prints required.

To enter email up to 5 digital photos as JPEG files between 2 – 8 MB to BrownsteinG@landcareresearch.co.nz along with the electronic entry form. Label each image with the category number followed by a caption and email in batches of no more than 16 MB per batch. Entrants must be current members of the Botanical Society of Otago. Entry and membership forms will be posted on the BSO website: http://www.otago.ac.nz/botany/bso

There will be a prize of $50 for the winner of each category. Entries will be judged on technical and artistic merit by a panel of three judges. A separate prize of $50 may be awarded for members' choice on the night. Photos will be displayed and winners will be announced at the meeting on 9th May. Only photos of native plants (with or without people and landscapes) will be considered for the calendar and pictures in landscape orientation are more suitable for this.

Articles

Senecio glastifolius – a new invader to be on the lookout for.

John Steel

The last weekend in October and the Otago Peninsula Road is, as always, a spectacular sight. Last year was no exception: a veritable cacophony of colour screaming out at every turn in the road – and hardly a native anywhere to be seen. White *Alyssum*, the assorted yellows of *Genista*, *Ulex* and *Cytisus*, blue *Echium*, orange *Erysimum* and a host of others all competing with the Aizoaceae for their places in the sun. How dull the opposite side of the harbour is in comparison! And this year there is another distraction, *Senecio glastifolius*, a regular contribution to the Wellington urban environment and recorded before in the top of the South Island and in Christchurch way back in 1977. Now it is here in Dunedin. Ten or so plants, the largest about one metre tall, have turned up on some bare roadside at Macandrew Bay. Apparently this immigrant is not to be welcomed here and should be removed before it sets seed (and it was!).

It is perennial, developing a woody, upright stem crowded with sessile, holly-like leaves (hence a common name, holly leaved (and variations thereof) senecio) and ending in a broad corymb of daisy-like flowers with yellow centres. It is also known as pink ragwort to contrast it with its South African relative, *Senecio elegans*, also here and common in coastal areas; not all that helpful as it can be everything from white through to almost purple. I think (if I had to tolerate common names) woad-leaved ragwort would be my preference, hinting at ancient, purple-painted warriors clad in rags rushing down the hillside to take the natives by storm!

An inhabitant of South Africa and an unwanted visitor to Australia, it has been present in the North Island for over fifty years in anthropogenically disturbed sites. Of particular concern has been its ability to occupy coastal areas, already badly disturbed and susceptible to hosting a suite of immigrants. What effect it has or may have on native species or pristine, native environments no one has been able to tell me, but looking at the cuts on my hands suggests it is none too friendly. Maybe species such as these will help to reclaim these devastated landscapes for our natives to return? By increasing biodiversity could they help in keeping other exotics in check? Or just prevent other exotics from occupying the same space thereby reducing their number? Spreading from northerly, warmer climes, is it an indicator for climatic change? Anthropogenic introduction, deliberate or accidental, or just inevitable? What to do next – seek and destroy; shrug shoulders and look the other way; bleat to the authorities? Or is there a new, permanent resident in our midst? Time will tell, but for the moment keep some gardening gloves in the car.

Meeting and Trip Reports

Field Trip to Hereweka Garden, 23rd September 2017

Stephanie Sinton and Kate Caldwell

Peter Cooke and Anna Moore have been building and developing Hereweka garden and looking after the adjacent native bush on their property for 33 years using organic and sustainable practices. On a fine spring Saturday morning, a small group of us met to be taken on a tour of this tranquil and remarkable garden.

Anna and Peter's property, just up the hill from Hoopers Inlet, consists of three ridges. It receives full sun and is a sheltered little microclimate protected from the frost.

Firstly Peter took us through the fruit & vegetable garden where they grow species you wouldn't expect to find in Dunedin including a cold-hardy species of tamarillo from the Andes, oranges, mulberries, figs, fejoas, plums & macadamia nuts. We were already impressed with the way Peter and Anna had transformed bare, scrubby clay over the years into this abundant and productive garden.

We headed down to the next ridge, meandering through beautifully curated collections of spring bulbs, herbaceous borders and woodland plantings. We were fascinated with the Gondwana garden, which houses a collection of tree ferns, cold-hardy palms, araucarias and other related plants from South Africa, South America, New Guinea, Australia and Lord Howe Island.

We headed towards the native bush area, now protected by a QEII covenant. This is the larger of two native forest remnants remaining since most of it was cleared from the peninsula in the 19th century. When Anna and Peter arrived there

palms and tree ferns surrounding a pond in Gondwanaland (photo: Stephanie Sinton)

were some good-sized pokaka, a totara, and about 70 rather battered rimu, but the forest understorey had all been cleared, browsed and trampled. Today there is a dense shrub layer. Ground ferns and forbs, tree ferns, stands of kanuka, and podocarp seedlings have regenerated well with the help of a healthy bird population.

We finished the day off looking at a grove of New Zealand off-shore island plants including *Pittosporum cornifolium* (a lush Poor Knights Islands form), *Macropiper melchior*, *Streblus smithii*, *Elingamita johnsonii*, *Cordyline obtecta*, *Brachyglottis huntii x greyii*, *Pennantia baylisiana* and *Meryta sinclairii*. Some of us bought plants from Hereweka nursery to take home and incorporate into our gardens, along with some inspiration from this lovely morning out.

Cordyline obtecta, Pennantia baylisiana *and* Meryta sinclairii *enjoying the frost-free microclimate (Photo: Kate Caldwell)*

Field Trip to Flat Top Hill Conservation Area, 7th October 2017

Lucy Parsons

Flat Top Hill is one of those places you drive past on the way to a supposedly grander place, say Queenstown, Wanaka or Fiordland. To me it felt in the middle of nowhere, and perhaps like so many of our precious conservation areas, a little forgotten.

It is located about 10 km south of Alexandra, and with its open, exposed environment is incredibly dry. Flat Top Hill has a rainfall of less than 350 mm per year, the summer temperatures can get up to 39°C and winter temperatures get as low as -15°C. It includes Butchers Dam which has gold mining tales from the 1860's. The water of this reservoir trickles east down Butchers creek and into the depths of the Clutha River.

Looking up from the car park, Flat Top Hill rises at a steady incline of almost 200 metres. The layers of incline are dotted with a surreal moonscape of schist tors, which once was the sediment of an ancient sea.

First the crew gathered for a debrief and then a chummy photo in front of Butchers Dam, jackets, woolly hats and all. I am informed this was a great turn out for a BSO Field Trip, with an abundant total of 31 people. Then, with little delay, off we went, the "typical" sporadic disperse of enthusiasts out into the reserve.

The most prominent species was thyme. The distribution was comparatively sprawly at first but this fragrant, woody herb became more and more prevalent. Up at higher altitude it covered the terrain as a real mono crop, and the soft, somewhat culinary aroma was present throughout the day.

The second most conspicuous feature for me was the rabbit droppings. An information panel claimed that the bunnies had been removed along with sheep since 1992, but perhaps they have rather been significantly reduced, unless these droppings can last for decades (and maybe so in such an environment?). Either way the pre-conservation photo showed an impressive, what appeared 60% scattering of the poo on the barren ground. The area has indeed seen a great reduction since.

Melicytus alpinus was also abundant, no doubt due to its gnarly and unpalatable stems. As we know it is also known as porcupine shrub pointing to is obvious defence system. What I didn't know was that this shrub is particularly good at nursing its own seedlings. At the very centre of many of these shrubs were dozens of vulnerable looking seedlings bundled together. Like the majority of the leaves of the 'mother' plant, these seedlings were well protected within the cooler, sheltered interior of this armoured shrub. David Lyttle informed me that many of the *Melicytus* are probably hybrids with the much rarer species *flexuosus* and *obovatus.*

Duncan admiring a flowering Melicytus – but which one is it? (Photo: Kate Caldwell)

Among the many weeds we encountered one can not forget the *Sedum acre* or as John Steel put it, the "Welcome-home-husband-though-never-so-drunk", a small, mat forming perennial with a not-so-small common name.

As we continued up the hill and looked into the sheltered crevices of the tors I was pleased to see more natives become apparent. Many ferns enjoyed the rocky possies such as *Asplenium flabellifolium, Pellaea calidirupium and Asplenium richardii.*

After lunch with a view looking down to Butchers Dam, our dedicated team of four proceeded up a steepish climb to a ridge facing North West. As we looked down, the dry, harsh, sepia toned rockscape contrasted starkly with glacial, almost turquoise colour of the Clutha river. The river was lined with a perfect row of willows.

Looking down to the Clutha river. (Photo: Lucy Parsons)

In the foreground was a cluster of several healthy *Pimelea* species. With their lovely glaucous leaves and abundant flowers, these were the more showy specimens of the trip. Upon close inspection of two shrublets side by side we were puzzled by the notable difference in their flowers.

The first plant showcased a majority of flowers with distinct stamens surrounded by comparatively large, round, white petals, while other flowers had pistils and stamen, although the anther appeared to have no pollen.

The flowers on the second plant were solely female and the flowers were about a quarter of the size of the petals of the first plant. They were much more conspicuously furry and had pointed tips.

Later I was informed these two rather different looking plants are both *Pimelea aridula* subsp. *aridula*. This species is gynodioecious which was made evident by our two helpfully paired, side by side specimens. The first plant was

Two separate specimens of Pimelea aridula *subsp*. aridula *showing off their gynodioecy, the species on the left featuring just the pistil and the species on the right featuring both pistil and stamen. (Photo: Lucy Parsons)*

bisexual and the second plant only had female flowers.

Being a complete novice I found this fascinating and look forward to learning more about the complex sexual systems of our plants. I would also like to note, *P. aridula* subsp. *aridula* is endemic to Central Otago and the Waitaki Valley and has a 'At Risk - Declining' conservation status.

On our way we encountered many other little treats such as *Thelymitra longifolia, Celmisia gracilenta, Brachyglottis southandica, Aciphylla aurea* and an unidentified *Anisotome* looking specimen, potentially *Anisotome cauticola.* Near the the top we saw three or so robust, bushy *Kunzea* species and an *Ozothamnus leptophyllus.*

It definitely seemed as we got higher there was more to see but there was little time for that once we got to the top. With no more than 20 minutes left till 'report time' we quickly dashed back down to the carpark for a quick recap on our findings. The others found many more treasures including several new additions to the species list and the 'Nationally Vulnerable' annual, *Atriplex buchananii.*

For a superficially barren landscape Flat Top Hill had an impressive diversity of plants. At a first glance one can see how these places become forgotten, but even a novice can see the huge value and vulnerability of these rare, dry land habitats and that there is indeed hope after the bunny infestation.

A big thanks to John Steel for organising the trip.

Field trip attendees were: Abi Hawkins, Alf Webb, Anne Steven, Bethany Widdicombe, Beverley Thomson, Bradley Curnow, Cara-Lisa Schloots, Cathy Graham, David Lyttle, Dhana Pillai, Duncan Nicol, Elina Kiuru, Gaye Robertson, Helen Clarke, Jack Sole, Janet Ledingham, John Steel, Kate Caldwell, Kelly Brown, Lucy Parsons, Lydia Turley, Matt Sole, Moira Parker, Nigel Murray, Oiva Kiuru, Patrick Collins, Sampsa Kiuru, Shaun Collins, Taylor Davies-Colley, and Tom McCone.

Botanical Show and Tell, 11th October 2017

Mary Anne Miller

Since only nine, with nothing to "show", turned up for the above meeting we decided to have a sit-around-the-food-and-drinks-table chat ie a "tell" session.

This produced a most interesting and entertaining flow of topics, not all necessarily botanical. From memory (there was no note-taking) it went something along the lines of, but not necessarily in the following order:

On his first trip to New Zealand Captain Cook lost some sailors, so on his second trip he brought pigs to provide protein for Māori and the shipwrecked....

Pasedena home gardens attract bobcats and coyote who prey on deer, leaving householders to clean up heads, tails and hooves from their manicured lawns....

Colorado highways have underpasses to allow predators into suburban areas to keep the predator/prey ratio at more natural levels....

Tourists love the flowering lupin displays around Lake Tekapo. However, the lupins are outclassing and outcompeting the native flora, which just doesn't have the same appeal....

Potatoes were brought to New Zealand by European explorers in the late 18th century and cultivated extensively by Māori, who then traded them with visitors and settlers. The cultivars we know as 'Māori potatoes' are similar to those grown in the Hebrides and north of Scotland.

Nowadays consumption of potatoes is declining rapidly as young people eat other things....

Zealandia was a topic that got everyone animated, including recollections of the smell of native flora being similar in South Africa and Australia. This led onto discussions of ancient life, including stromatolites of Western Australia and on the banks of the Waiau River in Southland, and plant fossils of Foulden Maar near Middlemarch....

Gut bacteria levels are influenced by what we eat but this varies with each person, so what works for one doesn't necessarily work for another....

Thanks to 'The Nine" for an enlightening evening.

Of Cabbage Trees and Things, a talk by Warwick Harris, 8th November 2017

Lydia Turley

Warwick Harris gave a most interesting talk on a longitudinal cabbage tree study that he has been involved in.

There are five species of *Cordyline* (commonly known as "cabbage tree" or tī) native to New Zealand and a sixth species, *C. fruticosa*, was brought here by Polynesian settlers. *Cordyline* is culturally important in New Zealand and was an important source of fibre and food for Māori in pre-European times. Cabbage tree sudden decline appeared in the 1980s, characterised by yellowing of leaves followed by death of the plant. In 1994, Warwick was involved in setting up an experiment looking at phenotypic and genotypic variation in wild cabbage tree populations, with a view to identifying the cause of the sudden decline.

Warwick's talk described how the experiment had been set up and outlined some of the interesting results that were found. Three plantations of *C. australis* were created – at Invermay, Lincoln and Mt. Albert. At each of these plantations, cabbage trees were grown from seed sourced from various natural sites across the country. At all sites, plants of southern origin had thicker stems and retained more dead leaves that plants of more northern origin. Plants originating from northern populations were more affected by cold weather than their southern counterparts - particularly at Invermay, where the winters are cold and frosty. Warwick also discovered clinal variation in the leaf shape according to the location of the population from which a plant originated. He concluded that there is clinal genetic variation within the cabbage tree population and it is best to grow locally sourced cabbage trees, as they'll be the best adapted to the local conditions.

In addition, there was phenotypic variation between sites. For plants of all origins, the flowering season is longest in Mt. Albert and shortest in Invermay. The trees are now crowding each other and competition is becoming a factor, so the experimental sites are becoming less useful to measure genotype and phenotype. However, measurements are still being taken and the experimental sites are used for outreach to the Māori and Pasifika community. A hui on traditional weaving practices was held at the Lincoln site.

What I found most interesting was that cabbage trees grow a rhizome and Warwick said that he'd once dug out a cabbage tree rhizome that was as tall as him!

At the end of the talk, Warwick left us with the question: "Is it as important to conserve the clinal genetic variation of common species as it is to conserve rare species?"

New Zealand Plant Conservation Network Conference 2017

Kate Caldwell

The New Zealand Plant Conservation Network conference was held in Hokitika from Tuesday 14th - Saturday 18th November 2017. It was followed by the John Child Bryophyte workshop, written about by Maia in the next article.

Nearly 100 members attended the conference, which was comprised of two days of talks, one of workshops and one of field trips. There were numerous side activities, such as an art exhibition at the magnificent nearby Carnegie Building, also home of the Hokitika museum. The exhibition showcased a collection of botanical art pieces, many of them contributed by NZPCN members. Alongside these were posters and displays of bryophytes, lichens and nature journalling. The exhibition, along with other extra touches brought an aesthetic richness to the conference, a reminder of how well science and the arts can work together.

Another wee treat for conference delegates was a screening of 'No Ordinary Sheila', the 2017 documentary by Kiwi filmmaker Hugh Macdonald telling the life story of his cousin, the naturalist and illustrator Sheila Natusch. Many bot-soccers will have come across some of the numerous books Sheila Natusch wrote and illustrated on aspects of the natural history of the lower South Island.

The conference talks were organised into themed sessions on taxonomy, plant distributions and population updates, plant ecology, student research, community and iwi engagement and successes, conservation tools and successes, weed research, and bryophytes and lichens.To sum up two full days of presentations given by dozens of brilliant plantspeople would be too long for this newsletter (not to mention too challenging for my puny brain) so although there were many exciting projects, stories and planty developments I would love you to hear about – I'm going to cop out and say you had to be there, but come to the next conference, rumoured to be happening in Wellington in 2019.

The NZPCN's Annual General Meeting was held on the Wednesday evening at the end of the first day of talks. After stepping out for a breath of uncharacteristically balmy Hokitika air, I wandered back into the theatre and took a seat close to the drinks table. A solid crowd of loyal members were in attendance while president Rewi Elliot and secretary Matt Ward were seated at an elevated table with a regal, red table cloth. I supped my beer and felt proud to be a part of such a well-run, organised, and quality network of plant nerds. What a wealth of plant knowledge and passion we collectively have!

As is customary, the AGM was followed by a charity auction. Billed as a "rowdy (not silent)" affair, and running for only half an hour or so, Alex Fergus and Matt Ward kept the thing both chaotic and orderly, starting the auctioneering at a lively pace that became increasingly frenzied as treasures and trinkets were claimed by keen audience members. Original botanical illustrations went like hotcakes, shiny new books were eagerly secured, and Colin Meurk's vegetation maps of Campbell Island were a surprising hit – or perhaps not so surprising, it's a specific kind of crowd. Even the book 'Opal Phytoliths of New Zealand', perhaps a bit specific even for this crowd, was snapped up by someone.

The next day everyone split off to attend their chosen workshops. There were several excellent options, the only downside being having to pick one. I took part in the nature journalling and drawing workshop with Jo Ogier, which I found highly useful and enjoyable, despite being the worst drawer in a class of revoltingly multitalented go-getters. I got a bit frustrated trying to understand how to draw a curled-over

The lovely, patient and very talented Jo Ogier demonstrates magical things with watercolours (Photo: Kate Caldwell)

Dracophyllum traversii *overlooking Denniston Plateau (Photo: Kate Caldwell)*

leaf and also spilled coffee all over myself while attempting to pick a rose outside the DOC office, but it was nice sitting outside in the sun sketching a gorgeous mature rata tree (turns out there are systematic ways to draw trees that work better than depicting them as a lump of candyfloss on a stick). A close study of a daisy and some bits of old plant on the ground turned out to be surprisingly intriguing. The funnest part was watching Jo Ogier do fancy pro-level things with watercolour pencils. The hottest tip that I picked up was using tracing paper to get an accurate impression of leaves, much faster than the archaic way I'd been doing it previously!

That night was the NZPCN Plant Conservation Awards, a cosy ceremony that took place at the Woodstock hotel. Hoki DOC's very own Tom Belton helped provide the entertainment with his band of fellow 'coasters. I don't know what the locals made of this horde of greenies suddenly descending on their regular haunt and applauding each other for their services to plant conservation, but I think its safe to say it warmed all our fuzzy-jerseyed botanist hearts. We were spirited away on buses almost as quickly as we had arrived, with all but the hardiest souls heading off to bed to save their energy for the field trips in the morning.

The next conundrum was having to choose just one of the many day trips offered to the beautiful surrounding areas. I wanted to do them all! My troop took a rather long, bumpy, but scenic bus trip north to Denniston Plateau. We split up when we got there to either fossilise and botanise the pakihi or climb a hill and botanise the track up Mt William. I chose to get some exercise after the last few days of mostly sitting, and was rewarded with good yarns, mystical Dracophyllum forest, novel plant species and massive spiders to poke at. Not to mention the spectacular but intermittent views towards the surrounding ranges and back over the vast and barren (but only from afar) Denniston plateau.

All in all, I thought this was a superbly well-run and varied few days. The content was excellent, the people top notch, and I really appreciated the attention to detail from the organisers. Hokitika was a great location: easy walking access to most venues, friendly locals, beautiful and botanically-rich surrounds… and as a bonus, no rain, just a few sandfly bites. Like many Bot soccers, I'm a frequent user of the Plant Conservation Network's brilliant, user-friendly web site – but attending the NZPCN conference? It's like going to the live concert after only listening to the album. Its putting your finger on the pulse, and reminding yourself that you're a part of this wonderful network of plantspeople in New Zealand. Hopefully we'll see each other in Wellington in 2019!

John Child Bryophyte and Lichen Workshop 2017

Maia Mistral

The sun shone deliciously upon Hokitika for this year's workshop and the preceding three days of cryptogam focused talks, workshops and field trips which comprised a good part of the New Zealand Plant Conservation Network Conference.

Combining both events gave vascular botanists the opportunity to extend their skills with easy access to the knowledge of a formidable assemblage of Australasian bryologists and lichenologists, while cryptogrammic botanists were privy to the latest research across the full spectra of plant conservation interests.

Allan Fife made the point in his presentation on prioritising moss conservation efforts how important the JCB&L workshops have been in developing 'a cadre of trained eyes both professional and amateur'. Otago University students and members of Otago Botanical Society have been well represented in past

workshops, this year being no exception. Former Otago University student Kelly Frogley ran an exceptionally well-attended beginners' moss liverwort and lichen workshop, while Otago PHD candidate Ian Geary presented part of his current fossil research. He demonstrated how little mosses have changed in comparison with flowering plants, giving examples of fossil mosses which could be identified to species present in the extant bryoflora.

Hokitika offers some wonderful collection sites within easy reach of the township. These include several walkways at Lake Mahinapua, some 5 minutes from town, the Hokitika Gorge and walks in the Lake Kaniere area. A small party took advantage of the clear weather and negotiated the slopes of Mt Brown in search of alpine bryophytes while the rest of us were content with exploring some of the many potential lowland sites.

Permission to collect fresh plant material was covered by a MOU with the DOC Hokitika Conservancy. The agreement allowed collections to be made from protected areas within the region for the period covering the combined 2017 conference/workshop. The arrangement dispensed with the need to specify collection sites in advance, standard for collection permits required in the past. The MOU recognised the contribution of the annual workshops (which have been held regularly since 1982) which assist the work of DOC by providing species lists and distribution records, offer training to specialist staff within DOC and raise awareness of cryptogams amongst the wider public. It is hoped that a long term collaboration with DOC at a national level will be negotiated in the near future.

Workshops alternate between main islands. The next workshop is planned for Pureora in 2018.

Field Trip to Purehurehu Point, Saturday 25 November 2018

Robyn Bridges

Having previously visited Heyward Point where an area under the protection of the Department of Conservation has been extended by private covenants, it was encouraging to know that another area of this fragile ecosystem, remnants of modified dry Otago coastal podocarp/broadleaf forest, has been protected. It is located on a parallel spur on the coast north of Otago Harbour, between Kaikai and Murdering Beach/Whareakeake. The fenced area is located behind the remains of the historic Harrison Homestead (c. 1864), and belongs to the same farm as those on Heyward Point.

Both within the fenced area and scattered outside are good mature stands of *Hoheria angustifolia*, which is dominant in these parts, *Sophora microphylla*, *Plagianthus regius*, *Griselinea littoralis*, plus a variety of shrubby *Coprosma* species. Just inside the gate to the convenant, there have been recent plantings of *Griselinia littoralis*, no doubt with the aim of reducing the grass growth.

Within minutes of leaving the cars, Alli had spotted a lichen of significance and as always, was very willing to share her expertise with the group. Likewise, John B helped with differentiating *Coprosma propinqua* with more linear leaves, from *Coprosma crassifolia* with leaves with a whitish underside and more round in shape. Nearby stood a solitary but magnificent old *Griselinia*, possibly 700 years old and left after the area was milled for totara and other podocarps deemed to be more valuable at the time. It was host to two ferns, *Pyrrosia eleagnifolia*, the leather leaf fern, and *Asplenium flaccidum*.

John Barkla and wind-sculpted Coprosma propinqua *(Photo Lucy Parsons)*

Great examples of juvenile, mature and transitional forms of *Hoheria angustifolia* dominated the fenced area. The divaricating juvenile form, as common with a number of other New Zealand native plants, is thought to be a protective adaption against browsing. Equally dominating was *Urtica ferox*, which showed much evidence of been eaten by the caterpillars of the red and yellow admiral butterflies, which use the native nettle to lay their eggs. The caterpillars are very cryptic, very well matched in colour to the underside leaf colour of the nettle.

We were not equipped to push our way through large swathes of nettle so kept our observations to the outer edges and to adjacent areas. Other species noted were *Metrodiseros diffusa*, the white rata (though not in flower), *Coprosma rubra* with its thin, membranous leaves, *Melicytus micranthus*; a good example of a Witches' Broom, the result of a gall formation on *Coprosma propinqua*, and *Solanum laciniatum*, *Streblus heterophyllus* (small-leaved milk tree), and *Myoporum laetum* (Ngaio).

Nearby we found an interesting form of *Korthalsella lindsayi*, the dwarf mistletoe, growing directly out of the main stem of *Coprosma areolata*. It was thought one of the sticky mistletoe seeds must have embedded itself into the bark.

Heading down to the point, the landscape is dominated by farmland, with shrubby species growing around the cliffs above Kai Kai beach and scattered on the slopes down the beach. The dominant species amongst these shrubs was *Coprosma propinqua*, and many were wind sculptured into some extraordinary lifelike forms. We noted *Hebe elliptica*, *Myrsine australis*, a magnificent *Olearia avicenniifolia* (South Island akeake) precariously clinging to rocks near the beach, *Senecio glomeratus* subsp. *glomeratus*, *Poa cita*, and *Disphyma australe* subsp. *australe* (pink ice plant) growing on cliffs above the beach.

Elizabeth with Olearia aveciniifolia *(Photo: Lucy Parsons)*

An exciting find by John Barkla was a rust on some *Scandia geniculata* (Climbing aniseed) growing on the *C. propinqua.* Having posted this on Naturewatch it was identified by Jerry Cooper from Landcare, who said it is, 'A relatively rare rust last seen in 1985 and before that in 1948. Only previously recorded in Canterbury.'

John standing bang on Purehurehu point (Photo: Lucy Parsons)

It was a magnificent day and windless which belies the local name for the point, Windy Point! And I did try to find out more about the species of butterfly/moth that gives rise to the proper name, Purehurehu Point, but so far without success.

Participants: Moira Parker, Allison Knight, John Barkla, Elisabeth Cooper, Rosemary Clucas, Lucy Parsons, Judy Russell and Robyn Bridges.

Scandia geniculata *(Photo: Lucy Parsons)*

Purehurehu Point Lichen Report

Allison Knight

Robyn put on a stunningly sunny day and Sue Chapman's place yielded some very useful lichens. On *Coprosma crassifolia* near the covenant photogenic orange *Teloschistes chrysophthalmus* nestled among 3 species of *Ramalina – R. celastri, R. inflexa* and *R. ovalis*. The *Ramalina* themselves were adorned with a variety of lichenicolous fungi. These *Ramalina* species and associated fungi are all destined for overseas experts. Other species noted in passing in the *Coprosma* twig community were *Physcia adscendens, Physcia jackii, Hyperphyscia adglutinata, Parmotrema perlatum* and orange *Xanthoria parietina*.

On rocks outside the covenant grew what we know as *Pseudocyphellaria crocata*, though Robert Leucking and the Field Museum may well decide it is a different species and we have a draft paper in preparation. Some of the rocks had a brilliant orange cover of *Dufourea ligulata*, previously known as *Xanthoria ligulata*, and then *Jackelixia ligulata*. *Physcia jackii* is also named after Jack Elix, an eminent Australian lichenologist. Four collections of Buelliod lichens, from *Coprosma* twigs, boulders and coastal rocks are being sent to him for a revision of New Zealand Buellioid lichens. These lichens have tiny flat black apothecia. The most obscure lichen of the day was *Collemopsidium*, with immersed thalli and perithecia looking like tiny black raised dots growing on barnacles in the intertidal zone. Sergio Perez-Ortega is doing a world revision of this genus.

Thanks to Robyn for arranging this trip, and to Sue Chapman for letting us explore her covenant and farmland.

Orange Teloschistes chrysophthalmus *framed by the flattened grey branches of* Ramalina ovalis *adorning a* Coprosma crassifolia *twig*. (*Photo Allison Knight)*

Black perithecia of Collemopsidium *sp. growing on barnacles*. (*Photo Allison Knight)*

Pot-luck dinner at Woodhaugh Gardens, 2nd December 2017

Allison Knight

Three conscientious committee members – Lydia, Robyn and Allison (accompanied by John) shared a very pleasant BBQ in the sun at Woodhaugh Gardens. We came to the conclusion that end of year celebrations would be better held as a shared picnic or pot-luck dinner on the last field trip of the year.

Field trip to Waikaia Valley and Piano Flat, 8th - 10th December 2017

David Lyttle

This was the first time I had visited Piano Flat and did not know what to expect so I was delighted by the pleasant DOC camp site by the Waikaia River (even more so by the absence of sandflies).

The forest is predominantly beech and contains a mixture of three species; red (*Fuscospora fusca*), mountain (*Fuscospora cliffortioides*) and silver (*Lophozonia menziesii*). The composition of the forest with its high proportion of red beech suggested that it is drier and perhaps warmer than the beech forests further to the west and south (Fiordland and Catlins).

On the forest margin near the camp site we found the scarlet mistletoe (*Peraxilla colensoi*) in flower. There were numerous orchids flowering in the beech forest. The most common species was *Aporostylis bifolia* but *Gastrodia cunninghamii* was plentiful as well. The mountain tree fern, *Cyathea colensoi*, was very abundant even though no other tree fern species were found. Two uncommon exotics, the yellow-flowered *Potentilla anglica* and a species of galium, *Galium palustre* subsp. *palustre* were recorded in the grassy clearings near the river. The latter species was growing in boggy, wet areas in the clearings and was conspicuous because of its numerous, small white flowers.

The party headed up through the forest on the track to Titan Rocks. This feature is a prominent escarpment above bushline on the edge of the Garvie Mountains slightly to the north-west of the camp site in the valley.

After several hours of steady climbing with multiple breaks for lunch and botanising, we reached a series of boggy clearings at about 850 metres elevation.

Some botanical finds were the grass lily, *Herpolirion novae-zelandiae*, delicate little *Epilobium tenuipes*, and the curious little plant *Stylidium subulatum* which although widespread, is never very common. However it appears to be abundant here as there was a large patch of it in one of the clearings.

Two species of fungi were found growing in the beech forest, the spectacular hen-of-the-woods fungus (*Grifolia colensoi*) and a nondescript tan bolete *Xerocomus nothofagi*. The northern hemisphere hen-of-the-woods (*Grifolia frondosa*) is prized for its edibility but whether the local species is edible or not is unknown. I am proposing that in order to distinguish *Grifolia colensoi* from its northern hemisphere counterpart we name it fowl-of-the-forest.

Jonathan Wilson, Thom de Jong, Brooke Searle, Thomas Stevenson, Lucy Parsons.

Hen-of-the-Woods fungus (Grifolia colensoi) *(Photo David Lyttle)*

BSO group sharing an evening meal at Piano Flat camp site (Photo: David Lyttle)

Piano Flat Lichen Report

Allison Knight

Phil said we should have camped at the more beautiful campsite just up the river and so we should. A quick (relatively) look at one large beech tree near the bridge across the gloriously clear Waikaia River (despite the *Didymo*) revealed at least 10 species of lichen up to eye level. The split pseudocyphellae on the upper surface of a wide-lobed *Notoparmelia tenuirima* came out clearly in a stacked photo, and we collected a dangling *Usnea* for Jennifer Bannister's taxonomic study.

On the track up river a dark *Peltigera dolichorhiza* with a cyanobacterial photobiont caught Robyn's eye. The lobes were curling over to protect the photobiont in the dry weather and the long black rhizines showed up clearly against the white lower surface.

The track to Titan Rocks yielded several crustose lichens needed for metagenomics research – *Baeomyces heteromorphus* consolidating the soil; *Trapeliopsis congregans* on a rotting stump; *Sagenidiium molle* on beech trunks and *Arthonia cinereopruinosa* and *Lepraria* sp. on bark in the dry overhangs at the base of old-growth beech. Lichens have an associated microbiome of several hundred microbes, mainly bacteria, and some of these have an important role in producing the protective metabolites that are unique to lichens.

Kate and Brooke lingered over a fascinating trio on a smooth trunk, described in photo 1 (overleaf). Even lichens create war zones, releasing herbicides and antimicrobial chemicals to repel invaders or to help invade new territory.

The filamentous form of *Trentepohlia* was clearly seen in some fuzzy looking *Coenogonium implexum*. Unusually for a lichen the body of this lichen takes the form of the agal partner, with the fungal hyphae running along the algal filaments. Only the fungal orange discoid apothecia give a clue to the symbiotic lichen arrangement.

Higher up the long dangling *Usnea articulata* decorated a patch of beech trees and provided another photo opportunity and specimen for Jennifer. Altogether around 40 lichen species were recorded, but that was just scratching the surface. Thank you, David, for another splendid end of year trip.

Dolamore Park, 10th December

Lydia Turley

Sunday morning started with a detour to see the bottle house ("bottle shop" in Elizabeth's words) in Waikaia, followed by a trip to Dolamore Park. "Been there, done that" to the bottle house, but Dolamore Park was lovely and much more extensive than we could visit in one afternoon, and will be very much worth another visit sometime. Hoping to check out Hokonui Alpines later on, we just took a short walk along a loop track. The vegetation here was beautiful old podocarp forest, with lovely big matai, kahikatea, totara and rimu trees the standout stars. The undergrowth was full of ferns – swathes of crown ferns with trunks betraying their age were the highlight for me.

Hokonui Alpines Visit, 10th December

Kate Caldwell

Some of the gardeners among us were keen for a sniff around Hokonui alpine plant nursery, since we were in the neighbourhood, and brother and sister dream team Louise and Peter Salmond were kind enough to oblige.

After a look through the growing houses and at the garden, the incurable illness of plant greed soon overtook some of us and we trickled off with boxes of treasures from all around the globe as well as some local beauties from the mountains of Otago and Southland.

Photo 1. A jagged black line of fungal hyphae indicates a territorial dispute between two crustose lichens; Megalaria *above and* Thelotrema *below. The liverwort on the left is losin the war and being overgrown by both lichens. Orange fuzz on the surface of the* Thelotrema *is a free-living form of the green alga,* Trentepohlia. *A species of* Trentepohlia *is entrapped as a photobiont in the* Thelotrema *symbiosis – perhaps some of it has escaped! (Photo: Allison Knight)*

Photo 2. *Filamentous, fertile* Coenogonium implexum.

Photo: Allison Knight)

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Buttons for botanical pundits – still available at BSO meetings or at https://ahi-pepe-mothnet.myshopify.com/

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