



BOTANICAL SOCIETY

OF OTAGO



Newsletter
Number 78

June 2016

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BSO Meetings and Field Trips

Wednesday 15th June 5.20 pm Fire in the Desert: Plant Community Responses in the Mojave and Great Basin. Speaker: Richard Gill, Associate Professor of Biology at Brigham Young University and visiting scientist at the University of Otago. Richard has been working on invasion biology and restoration in the deserts of the southwest United States. In this talk he will share some of the unique attributes of two desert systems and how they are responding to annual grass invasions.

Saturday 18th June 9.00 am Field trip to Heyward Point Scenic Reserve. Heyward Point Scenic Reserve is a rare example of podocarp/broadleaved forest with many special features including fragrant tree daisy (*Olearia fragrantissima*) and climbing daisy (*Brachyglottis sciadophila*). With luck, lunch will be in the sun admiring the interesting shrub and herb communities on the coastal cliffs and headland. We'll do a return trip from Aramoana so be prepared for a steep, though scenic climb, up through farmland until the reserve is reached. Meet at the Botany Department carpark at 9 a.m. Contact Robyn Bridges 472 7330. (Rain day backup, Sunday 26th June).

Wednesday 13th July 5.20 pm The Moriori: an example of precontact innovation in plant management. Speaker: Dr. Justin Maxwell, Department of Anthropology and Archaeology, University of Otago. The technical challenges to successful Polynesian colonisation were substantial in the New Zealand archipelago at the cool-temperate margins of south-western Polynesia. This talk is concerned with the last and arguably most difficult place to be permanently settled by Polynesians in the New Zealand region: Rekohu of the offshore Chatham Islands. A combination of archaeology, anthracology, palynology and ethnographic records are used to determine how the Moriori, the first people of Rekohu, modified the environment and adapted ancestral Polynesian ideas and technologies. The results demonstrate the resilience and technical skills of early Polynesian settlers to successfully adjust to a new climate zone. Central to the success of Moriori settlement was the translocation of *Corynocarpus laevigatus* from mainland New Zealand to Rekohu and the management of the coastal broadleaf forests. The management of fruiting *Corynocarpus* trees was a core economic activity with major implications for questions of Moriori socioeconomic development. This research also highlights the historical adaptability of Polynesian societies to overcome major changes in climate.

Sunday 10th July 1.00 pm Field Trip to the Botanic Garden: Weedy Dunedin. As part of the Our Living World adjunct to the New Zealand International Science Festival we are running a field trip in the Dunedin Botanic Garden to identify common weeds and examine their impact on native ecosystems. There are numerous examples of horticultural plants becoming serious environmental weeds. Strategies that identify and mitigate the risk of cultivated plants jumping the fence and becoming weeds will be discussed together with methods for the proper disposal of garden waste. Meet at the visitor centre beside the duck pond. Contact David Lyttle (03) 454 5470, email djlyttle@ihug.co.nz.

Saturday 23rd July 9.00 am Field Trip to Outram Glen. The track leaves the carpark near the Outram Bridge and follows the Taieri River upstream to its confluence with Lee Steam. At the beginning of the track the vegetation is dominated by exotic species but this gives way to dry forest

dominated by kanuka (*Kunzea robusta*). There is a rich understorey of shrubs and ferns. The shrub, *Teucrium parvifolium*, and the bamboo grass, *Microlaena polynoda*, are two uncommon species present at this locality. The track is fairly easy but climbs in a couple of places. Meet at the Botany Department carpark at 9.00 am; return mid-afternoon. Contact David Lyttle (03) 454 5470, email djlyttle@ihug.co.nz.

Wednesday 10th August 5.20 pm Breaking Down Decomposition: Using Teabags to Investigate Decomposition Rates along Aspect and Elevation Gradients. Speaker: Dr. Barbara J. Anderson, Ecologist and Research Scientist, Landcare Research. Barbara and her colleagues use the newly developed Tea Bag Index (TBI) to investigate the relative effects of microclimate on decomposition rate along aspect and elevation gradients on Mt. Cardrona, Central Otago, from 500m to 1936m. The Teabag Index exploits the difference in relative decomposability of Green Tea and Red Tea to construct a decomposition curve over a single three month time period. This allows them to estimate both the decomposition rate and the litter stabilisation factor. Taking advantage of the standardised and cost-effective nature of the Teabag Index they were able to investigate both the fine-scale and whole mountain differences in decomposition rate.

Saturday 6th August 9.00 am Field Trip to Lower Taieri Gorge. The 8 km long Taieri River and Millenium track follows the true right of the lower Taieri River from the end of Taieri Ferry Road near Henley to Taieri Mouth. It traverses interesting dry hillslope broadleaved forest with many rare species including fragrant tree daisy, fierce lancewood, native verbena, wind grass and *Coprosma obconica*. We'll leave a car at Taieri Mouth so that drivers can be returned to their vehicles. Depart Botany car park at 9.00 am return early afternoon. Contact John Barkla 476 3686, email jbarkla@doc.govt.nz.

Wednesday 14th September 6.00 pm 15th Annual Geoff Baylis Lecture: Life on Zealandia. Speaker: Dr. Nick Mortimer. Castle 1, University of Otago (drinks and nibbles starting from 5.15 pm in the concourse) Note change of venue.

The Geoff Baylis Lecture is held annually by the Botanical Society of Otago, in conjunction with the Botany Department. It is named in honour of Dr. Geoff Baylis, the first Professor of Botany at the University of Otago. This year's lecturer is Dr. Nick Mortimer a geologist and petrologist with GNS Science in Dunedin. He has travelled and worked in many parts of onland and offshore Zealandia including Otago, Southland, New Caledonia, the Norfolk Ridge, and Chatham Rise and Islands. He is co-author with Dr. Hamish Campbell of the book "Zealandia: Our Continent Revealed" which explores the geological origins and history of the New Zealand continental land mass.

The recognition of Zealandia as a 94% submerged continent in the SW Pacific Ocean provides a new context for many aspects of natural science. The development of Zealandia's distinct cargo of plants and animals has been shaped by its 100 million year geological haerenga from the South Pole to where it is today. In this illustrated lecture, Nick will paint a picture of Zealandia's ever changing geography and life. He will talk about how geologists make maps of ancient landmasses and how Zealandia's biota has changed through time.

Saturday 3rd September Field Trip to Waianakarua Scenic Reserve. This reserve covers over 4000 hectares of mainly regenerating native bush with some snow tussock on the higher ground near 900 m – but it is not intended to cover all of it! Our trip will concentrate on the lower level vegetation

where it is recovering from years of grazing, logging and regular burning so it will be interesting to note how it is faring. Further details will be posted on our website nearer to the time. Contact John Steel 021 2133 170, email john.steel@otago.ac.nz

Wednesday 12th October 5.20 pm “Botanical Show and Tell” evening. BSO periodically runs a members’ night. This is a chance for members to bring some item of botanical interest to the meeting and talk about it. This year prizes will be presented to the winners of the Audrey Eagle Botanical Drawing Competition and their drawings will be on display. Some of the drawings may be for sale and members are welcome to bring other botanical art for display and/or sale. Other items of interest may be plants, books, photos or other printed material, a brief PowerPoint presentation or anything with a botanical theme. So turn up with your treasures, trophies, experiences and questions and share them with fellow BSO members for an entertaining and lively evening.

Saturday 29th October 8.30 am Field Trip to Knights Bush, Tuapeka West. Knights Bush is one of the last remaining remnants of indigenous forest on the banks of the Clutha River. There are diverse plant communities spread over the 228 ha block which support a rich community of lichens! Remnants of the original kowhai and small leaved shrub community hang on to the sunny north-facing slopes; kanuka stands from historic to recent are evidence of milling operations through the 19th and 20th centuries and the extensive Nothofagaceae forest is also at various stages of regeneration (and taxonomy). There is a stand of ancient totara and matai on a south facing slope which dates back hundreds of years while on the river flat kahikatea are emerging again from the broad-leaved forest and totara are regenerating well. A fenced biodiversity reserve within the forest aids regeneration. 4WD is needed to get across the paddocks and boots with good grip are advisable. There is way more than can be seen in one day, so you are welcome to stay in the primitive log hut (book ahead) or to carry a tent in. You are also welcome to take home seedlings from under the biodiversity fence. Rain date Sunday 30th October. Contact Allison Knight (03) 487 8265 or 027 487 8265.

Saturday 5th November 8 am Field Trip to Fiddlers Flat, Manuherikia River. Fiddlers Flat is a relatively new conservation area arising from the tenure review of Home Hills Pastoral Lease. It is alongside the Manuherikia River below Falls Dam near St Bathans. Terraces and small rock outcrops support a range of dryland vegetation communities that include at least 10 nationally threatened plants (including three species of native brooms). This trip involves 2 hours driving each way (approx. 340 km). Depart Botany carpark at 8 am return 6 pm. Contact John Barkla 476 3686, email jbarkla@doc.govt.nz.

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/>



Participants in BSO's February field trip pose for a photograph at Borland Lodge before venturing out to Mt. Burns for the day (Photo supplied by Gretchen Brownstein).

Contents

BSO Meetings and Field Trips.....	2
Chairman’s Notes.....	7
Secretary’s Notes.....	7
Treasurer’s Notes.....	8
Editor’s Notes	9
Correspondence and News	10
Peter Bannister Student Field Grants Report	10
Audrey Eagle Botanical Drawing Competition 2016	12
Articles	
Beware! The triffids are coming!	14
Botanical Gems of Little Hellfire Beach, Stewart Island/Rakiura.....	16
Meeting and trip reports	18
Borland Lodge Weekend, 12th – 14th February 2016.....	18
Around the World in 80 Plants, a talk by Dylan Norfield, 10th February 2016.	24
Field Trip to Taieri River Track, 5th. March 2016.....	24
Plants and People in the Pacific Past: A Microscopic Perspective, a talk by Monica Tromp, 9th March 2016.....	27
BSO Annual General Meeting, 13th April 2016.....	28
The BSO Photographic Competition, 13th April 2016	28
BSO Membership Form	31



Chairman's Notes

David Lyttle

The year started with a weekend field trip to the Borland Valley in February, ably organised by Gretchen Brownstein. Having no particular responsibilities I was in the fortunate position of being able to spend time high on Mt Burns photographing plants. It is not often one can wander round in shirt sleeves in the alpine zone on firm, grippy rock through a marvellous alpine garden; Mt Burns is perhaps the best place to see alpine plants in New Zealand. Although *Ranunculus buehneri* had finished flowering, *Dolichoglottis scorzoneroides* was still in full bloom with one particular patch covering several square metres. The other highlight of the day was finding a specimen of *Gentianella montana* with mauve flowers growing amongst the *Chionochloa* tussocks lower down on the mountain.

On ANZAC weekend the BSO organised a Bioblitz for the Hereweka /Harbour Cone Block. The event was aimed at educating the public about natural values and biodiversity present on the Otago Peninsula. We were based at the Pukehiki Hall which proved an ideal venue for the event with ample space to set up equipment and displays. I would like to thank all who were involved for their efforts and contributions to the Bioblitz. Although the weather was against us and the public attendance was not as great as we hoped for, the feedback I have received was all very positive. It seems everyone very much enjoyed the event and came away with a much greater appreciation of the biodiversity values of the area. The Harbour Cone Trustees have requested us to produce a report which I have undertaken to do. This is likely to be used when they consider their management plan for the block and when completed will be available on our website. It was a great team effort and I am very happy the way it all came together.

The 2016 Fungal Foray took place at Glenorchy this year from the 6th to 9th May. This year was the 30th anniversary of the event and it was preceded by the conference of the Australasian Mycological Society in Queenstown. I have attended Forays periodically since 2006 when I was induced by David Orlovich (who plays a leading role in organising the South Island Forays) to accompany him and his students to the Foray that year at Westport. The event is unique in that both professional mycologists and lay persons interested in fungi attend and interact. The aim of the Foray is to collect and record the fungal diversity at the locality where the event is held. Specimens are collected, identified and entered into a database, tasks that requires a lot of expertise and stamina as working up specimens often continues late into the night. This year's event was very successful with many collections returning to Otago for David's ongoing research into the evolutionary diversity and ecology of the genus *Cortinarius*, an ectomycorrhizal genus that forms symbiotic associations with the roots of *Nothofagus*, *Kunzea* and *Leptospermum*. This year many photos of specimens in the field have been posted on the New Zealand NatureWatch website. Each is identified by their unique FUNNZ number and so can be linked back to the collection that is catalogued in the FUNNZ database.

Secretary's Notes

Allison Knight

We're nearly half way through the year already and two of the themes that seem to be emerging are lichens (surprise!) and weeds. Thanks to everyone who responded to my call for sightings of the Data Deficient *Dibaeis absoluta*. NatureWatch has proved to be a great resource for putting up photos and having them identified and we now have so many records

from around the country that this lichen's conservation status can be more accurately assessed.

Word has just come today from Jack Elix in Australia to say that the strange white crust that intrigued me and others near the bleak sheep cemetery in the top of the Old Man Range turns out to be a very stunted version of the common *Baeomyces heteromorphus*. I'd never seen a hunkered down un-stalked form before – something to add to my next book. The *Introductory Lichen Guide* has sold out so I am working hard on an updated and expanded book. First I have to finish identifying the lichens collected on the Harbour Cone/Hereweka Bioblitz. There were so many different species that Alf and I scarcely got beyond the multitudes growing on the roadside bank!

Also at the BioBlitz Moira Parker of STOP (Save the Otago Peninsula) alerted people to the invasive weeds growing on the Otago Peninsula and put up a very compelling display. On the national level, Murray Dawson's online key to the weed species of New Zealand is now available free from landcare at:

<http://www.landcareresearch.co.nz/resources/identification/plants/weeds-key>.

The weed theme will continue into July when, as part of the Our Living World section of New Zealand International Science Festival, the Botanical Society will lead a Weedy Dunedin field trip in the Botanic Garden to identify common weeds and examine their impact on native ecosystems. There is at least one 'weedy' lichen in New Zealand that has altered our landscape. DNA studies have shown that the widespread bright orange *Xanthoria parietina* originated in Europe. Luckily it prefers deciduous trees (and concrete) so is more invasive in the urban landscape than in native ecosystems and it is a very cheerful

weed. By the time the next newsletter comes out I should have been to the northern hemisphere and seen it in its 'native' context and maybe seen some New Zealand natives in their 'weedy' context too!



Piper excelsum
(drawing by Dave Kingan)

Treasurer's Notes

Mary Anne Miller

Since the last Newsletter our Annual Financial Report has been submitted to the Charities Commission. This was the first year under a new format, which not only included our usual Detailed Statement and Financial Position for the past year, but also outlined how we operate as an entity. Included were: a mission statement; objectives; structure; our main source of cash and resources; methods of raising funds; and a summary of our service performance. This summary not only covered the past year, but indicated how we plan to perform in the coming year. All this information is available to the public through the Charities Commission website <http://charities.govt.nz/>.

The BSO Committee have been working on this for two years now and I'm grateful for their valuable input.

Please contact me if you would like a copy of the 2015-16 reports or clarification on any issue.

maryanne.miller53@gmail.com

Editor's Notes

Kate Caldwell

Another edition of the newsletter has come together thanks to a number of different contributors. To everyone who has put their time into reports, articles, photographs and drawings – thank you!

The drawing on the cover was sketched by Carla de Boer during our February outing to Mt Burns.

Please submit copy for the next newsletter by 15th September 2016.

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 the following new members:

Harper Garthon

Rebecca Brown-Thompson

Mary Cane

Gaye Robertson

Dave Toole

Lesley Smith

Chris Hinton

Warren Jowett

We thank the following for their kind donations:

Tony Aldridge

Mary Cane



Donatia novae-zelandiae and *Chionochloa teretifolia* on Mt. Burns. (Photo: Alf Webb)

Correspondence and News

Sad news

In May we lost two stalwart BSO members, Diana Wilson and Cliff Donaldson. Diana was always good company. She cheerfully helped Bill produce varied fare for our meetings, and find even more varied places to eat after meetings. Cliff showed a lively interest in trips and meetings, and generously showed us round his own large and well stocked garden on the site of the old Donaldson's nursery. Both will be remembered fondly and sadly missed. Obituaries will follow in the October newsletter.

Peter Bannister Student Field Grants

A report from the third of the inaugural Peter Bannister Student Field Grant recipients is now presented. Grants are awarded annually to suitable applicants studying botanically related topics at the University of Otago. In 2014 Amy Clarke, a Masters student with the Department of Geography, was awarded \$1000 for a vegetation survey at two alpine field sites.

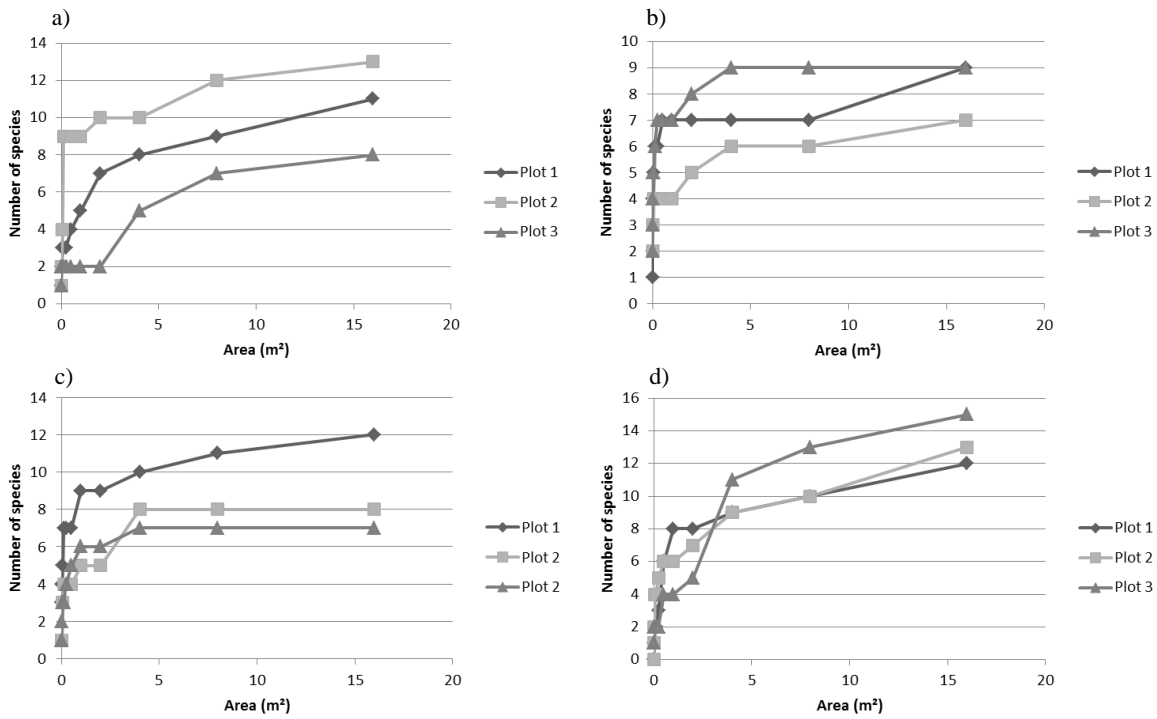
Peter Bannister Field Grant Report

Amy Clarke

This Master's research analysed the similarity in vascular species composition and climatic conditions in endemic rich and poor regions across New Zealand. Because of the scope of this research, which included all of the South Island, species and climate data from freely accessible online databases were utilised. The

field work undertaken using the Peter Bannister field grant was a valuable ground truthing exercise used to understand how accurate and reliable species records from online databases can be. Ground truthing occurred in two alpine herbfield sites in each of the northern and southern endemism centres of the South Island. The field sites in the northern South Island were located on Mount Arthur, Kahurangi National Park, and the Lewis Tops, Lewis Pass. In the southern endemism centre sites were located in the Rock and Pillar Range, Otago, and Key Summit, Fiordland National Park.

At each site a nested plot sampling design (from 0.0025m² to 16m²) with three plots per cluster was used to gain quantitative species data at each location and also provide a representative sample of species presence. The presence of species observed in the field at each location was then compared with species recorded on both online databases used in my research; the Global Biodiversity Information Facility (GBIF) and the New Zealand Plant Conservation Network (NZPCN). Total species numbers observed at the four sites were; 15 species at Mt Arthur, 11 species at Lewis Tops, 16 species at Rock and Pillar and 17 species at Key Summit. Comparison showed that overall NZPCN provided a good record of species observed in the field, whilst GBIF lacked the presence of species that both NZPCN and I had recorded. This field work has therefore provided an important understanding of the precision of two online species databases at specific sites in the South Island. These databases have not proven to have incorrect records, but rather do not have a complete record. The scope of the research generally determines which data will be used, and while these databases do not have a complete record of species present in some sites, on a national scale they are a more efficient way of utilising large quantities of data than site specific field surveys.



Species-area relationships in herbfields in four alpine areas across the South Island. a) Mount Arthur (1330 m a.s.l.), Kahurangi National Park, b) Lewis Tops (1420 m a.s.l.), Lewis Pass, c) Rock and Pillar Range (1340 m a.s.l.), Otago, d) Key Summit (914 m a.s.l.), Fiordland National Park.



Species-area quadrat sampling in alpine herbfield on the Rock and Pillar Range, Otago. (Photo: Amy Clarke)

BSO Audrey Eagle Botanical Drawing Competition 2016

Announcing the Botanical Society of Otago's Audrey Eagle Botanical Drawing Competition. Botanical artistry is not a widespread skill, so there's a good chance of winning the first prize of \$100, second prize of \$50 or third prize of \$25! Remember that you must be a current member to enter.

Judging criteria

1. Botanical accuracy
2. Detail, especially of important identification features
3. Clarity of lines
4. Proportional representation and scale
5. Layout
6. Suitability for reproduction in newsletter (grey scale) or website (colour)
7. Accurate caption, eg botanical name of plant, where it came from, date drawn.
8. Botanical notes or comments of interest eg key to botanical details, history, distribution, uses, variations etc. (The NZPCN website could be helpful)
9. Preference will be given to plants that have been rarely illustrated eg a lichen or an uncommon wetland plant would be more valuable scientifically than a kauri.
10. Above all, artistic merit carries the highest rating.

Conditions of entry

1. Unframed entries must be submitted with an entry form, by **Monday October 3, 2016** to the Botanical Society of Otago, PO Box 6214, Dunedin North 9059, or handed in to the Department of Botany Office between 1-3 pm.
2. The drawing must be your original work. A drawing from life is preferable and a copy of an existing botanical drawing is not acceptable.
3. There is a limit of 3 entries, with a minimum size A4, maximum A3.
4. You should include a title and notes of botanical interest.
5. Judges will be kept unaware of your identity while judging - so don't sign the front!
6. Entries will be displayed and prizes awarded at the Members Night, Wednesday 12 October 2016.
7. BSO may use copies, with due acknowledgement, in the Newsletter and website.
8. Entries are open to current BSO members – our subscription is very low! There is a special subscription rate of \$5 for school students. Members who have won first prize in 2 consecutive competitions are not eligible, though they may display their drawings for sale.
9. No prizes will be given if there are no entries of sufficient quality.
10. If there are insufficient entries the competition may be postponed.
11. There is no entry fee, so please include an addressed, pre-paid envelope or tube if you would like your drawings returned.
12. Entries may be put up for sale at the Members Night.

ENTRY FORM
Botanical Society of Otago
Audrey Eagle Botanical Drawing Competition, 2016

Name

Address

Email

Phone

Title of entry(s) [limit of 3]

- 1.
- 2.
- 3.

Botanical notes enclosed: *yes/no*

Return: I would like my drawings back: *yes/no*
I have included prepaid and addressed packaging: *yes/no*

Membership/Declaration: This is all my own work and I am a current member of the Botanical Society of Otago.

I am a school student aged:..... years. School:

Signature

Date



Detail of *Pittosporum patulum* by Pippa Lucas, 2012

Membership forms for the Botanical Society of Otago are available on the back page of the newsletter, the BSO website, <http://www.otago.ac.nz/botany/bso/> at meetings and on the rack opposite the BSO noticeboard in the corridor inside the main Botany Department entrance. If you are a school student there is a special membership rate of S5. Please indicate which school you are from on the membership form.

Articles

Beware! The triffids are coming! Or something like that

John Steel

Readers of a certain local daily newspaper might have been concerned at the report of 12.5 metre tall, broad-leafed herbs, bearing one thousand, two hundred and fifteen segments per seed head currently invading the fodder-beet paddocks or rural South Otago and Southland. However, not to worry: in these times when everything has to be couched in violent terms, these were just “facts” to “arm farmers for fight” – one could almost hear the tanks rumbling down the rural byways.

Facts should never be allowed in the way of a good story so a little sensationalism never goes awry these days. The scare referred to a troublesome malvaceous weed, *Abutilon theophrasti*, some seed of which was imported from Italy with bulk seed of fodder beet. The plant has been in the North Island for many years and is a nuisance there. It has also been reported in Canterbury going back to the 1930s, but nevertheless, it is not welcome here and the forces of the Regional Councils and volunteers were duly mobilised, armed with gumboots and despatched to plod the affected fields and remove the offending plant – and I am pleased to say, they appear to have won the battle, if not, the war.

You may know it better as butter-print because the rather delightful fruit (or camarium) was used to decorate butter pats in those good old days when people had little else to do with their time: or pie maker when rural wives would

similarly deal to the edges of home-made pies. It has many common names (58 at my last count), only nine of which contain the word, weed; the rest cover a variety of practices, uses and descriptions depending on the interests concerned, all favourable. It has been domesticated in China from early times where it produced valuable fibres for hemp- and jute-like products and was introduced to North America in the mid-1700s. The leaves are (or were) a popular food in China and India and, apparently as an ingredient in the national dish of the Maldives (thank you Google – until now I never even knew they had a national dish, or even a dish of any kind for that matter). Oh yes: you now know it as velvetleaf.



Abutilon theophrasti camarium (Photo: John Steel).



A.theophrasti schizocarp (Photo: John Steel).

Why the concern? This plant is at its worst amongst corn, wheat and other such crops where it competes with them and because of its growth habit, is almost impossible to detect and once introduced to the vast grain fields of North America it was in weed Heaven. The fibrous nature of its stem means it is not very co-operative with machinery either. It is a plant of disturbed ground – read arable farmland – produces about 30 seeds per camarium (not the 3000+ possible mentioned above!) and certainly not welcome here. The answer is to catch it while it is starting out or the next step will be more herbicides as is the non-answer in North America.

How to recognise it? Well it's not the most exciting plant; it can be a rather scrawny thing reaching about one to one and half metres, usually with a single stem, dropping its leaves as it grows, but can, and will, fruit when much smaller. Its leaves are velvety to touch and not unlike those of the Chinese lantern abutilon popular in home gardens, or of the common tree mallow. The flowers are yellow to orange and again look like smaller versions of the garden abutilon. Once in the soil, its seeds are nigh impossible to detect so it is important to catch it before it seeds

What can you do? If you find it, or even something like it, don't remove it, mark the spot somehow and report it to the landowner or your local Regional Council so they can put in place effective practices.



adaxial surface of leaf (Photo: John Steel).



Abutilon theophrasti (Photo: John Steel).



original drawing by Dave Kingan
<https://davekingan.com>

Botanical gems of Little Hellfire Beach, Stewart Island/Rakiura

John Barkla

First published in *Trilepidia E-Newsletter* no. 148 March 2016.

In February my wife Marilyn and I walked the Stewart Island/Rakiura northwest circuit from Mason Bay clockwise back to Oban. It took eight days and the weather remained mostly fine throughout. Along the way we camped at Little Hellfire Beach, just a few hours walking north of Mason Bay on the north side of Mason Head. This beach, like several others on the wild western side of the island has a mainly native vegetation cover on its dunes. This merges into a band of coastal “muttonbird” scrub which itself gives way to taller forest that includes southern rata (*Metrosideros umbellata*), pink pine (*Halocarpus biformis*) and rimu (*Dacrydium cupressinum*).

While pitching the tent in the back dunes I noticed a few plants of the pygmy forget-me-not (*Myosotis pygmaea*) in a sandy hollow. Alongside was the short-flowered cranesbill (*Geranium sessiliflorum* var. *arenarium*) with both flowers and fruits, and a patch of New Zealand iris (*Libertia peregrinans*). In between was a large mat of the bidibid *Acaena microphylla* var. *pauciglochidiata*.

The dunes nearby were covered in pingao (*Ficinia spiralis*) along with abundant sand tussock (*Poa billardierei*). Sand plains had mounds of southern sand daphne (*Pimelea lyallii*) and sand coprosma (*Coprosma acerosa*) while stable herbfields had creeping sand musk (*Mazus arenarius*) and New Zealand mint (*Mentha cunninghamii*). Rocky outcrops above a small stream opposite the camp site had clumps of the large Stewart Island forget-me-not (*Myosotis rakiura*) and Lyalls carrot (*Anisotome lyallii*).

These 12 plants are ranked as ‘Threatened’ or ‘At Risk’ in the most recent list of the conservation status of New Zealand indigenous vascular plants (de Lange et al. 2013; Table 1 below). Their occurrence at one small site within 20 m of our campsite is remarkable and testament to the intactness and naturalness of the Stewart Island western coast plant communities.

As well as an impressive array of ‘Threatened’ and ‘At Risk’ plants, there are extensive coastal turf communities in the dune swales. Some were dominated by the shore gentian (*Gentianella saxosa*) while others were a blaze of orange from the abundant fruits of *Nertera balfouriana*. Places like Little Hellfire Beach are fascinating and inspirational but also poignant reminders of what we’ve lost from the mainland coast.

Table 1: Threatened and At Risk plants observed at Little Hellfire Beach, Stewart Island/Rakiura

Scientific name	Conservation Status
<i>Acaena microphylla</i> var. <i>pauciglochidiata</i>	At Risk – Naturally Uncommon
<i>Anisotome lyallii</i>	At Risk – Naturally Uncommon
<i>Coprosma acerosa</i>	At Risk - Declining
<i>Ficinia spiralis</i>	At Risk - Declining
<i>Geranium sessiliflorum</i> var. <i>arenarium</i>	At Risk - Declining
<i>Libertia peregrinans</i>	Nationally Vulnerable
<i>Mazus arenarius</i>	At Risk – Naturally Uncommon
<i>Mentha cunninghamii</i>	At Risk - Declining
<i>Myosotis pygmaea</i>	At Risk - Declining
<i>Myosotis rakiura</i>	At Risk – Naturally Uncommon
<i>Pimelea lyallii</i>	At Risk – Naturally Uncommon
<i>Poa billardierei</i>	At Risk - Declining

Reference

de Lange, P.J.; Rolfe, J.R.; Champion, P.D.; Courtney, S.P.; Heenan, P.B.; Barkla, J.W.; Cameron, E.K.; Norton, D.A.; Hitchmough, R.A. 2013: Conservation status of New Zealand indigenous vascular plants, 2012. *New Zealand Threat Classification Series 3*. Department of Conservation, Wellington.



Nertera balfouriana fruits, Little Hellfire dune slacks (Photo: John Barkla)

Meeting and Trip Reports



BotSoc Weekend 12th – 14th February, 2016.

John Steel

Duncan, Guy, Lydia and I set off early on the Friday to try to make the most of what turned out to be a great weekend of botanising capped off with perfect weather and good company.

The Wilderness Scientific Reserve at the Key on State Highway 94, 25 kms SE of Te Anau was the point of interest for our early travel. The reserve encompasses 105 hectares of outwash gravels and is dominated by *Halocarpus bidwillii* woodland in a carpet of the moss, *Racomitrium lanuginosum*, in near pristine condition. Within the reserve, gentle undulations are covered with large, old *Halocarpus* trees which provide shelter for a range of species, mostly native, such as *Lycopodium volubile*. Beyond these islands where there appears to be at least a modicum of shelter for the herbs, *Hypericum minutiflorum*, *Lagenophora petiolata*, and the sub-shrubs, *Leucopogon fraseri*, *Androstoma empetrifolium*, *Acrothamnus colensoi* among others, native and exotic, to somehow survive.

The larger, flatter areas comprise an almost monoculture of *Racomitrium* with much smaller *Halocarpus* shrubs throughout.



Open areas of the reserve with a carpet of Racomitrium lanuginosum with small Halocarpus bidwillii shrubs scattered throughout and larger specimens on the slightly raised areas beyond.

The reserve has been in place since 1964 and sometime in the 1970s a well-intentioned local family decided to 'improve' the area by planting the ericad, *Calluna vulgaris*, in deference to their Scottish origins. *C. vulgaris* (or for those of you who are cursed with the need for common names, you can try Scotch heather (not politically correct today), Scottish heather, ling, bissom, black ling, dog heather, mountain mist, red ling or a dozen others if you don't like any of those!) is a lover of poor acid soils and it was soon apparent that it was in its element here and quickly became a threat to this special area. Ever since then, efforts have been made to clear it from the area. My delight at not being able to find any was soon dashed when Lydia found a substantial patch well within the reserve boundary, including a fine specimen of the white-flowered form, an especially lucky find for those of you who believe in such things. It had not yet set seed

and the area was judicially cleared and the invaders duly despatched along with isolated individuals found scattered close by. This area is always worth a visit - and don't forget to take a plastic bag with you.



Lydia, Guy and Duncan looking very pleased with themselves and their haul of Calluna vulgaris. (Photo: John Steel)

Please email John Steel at john.steel@botany.otago.ac.nz if you would like a copy of his species list.

Borland and Beyond

Mary Cane

Finishing a kiwi fruit, she folded the scooped out shell and tucked it neatly into her ruck sac. She then wiped the penknife on a gaiter, snapped it shut and stowed it with her P.L.B. Hoisting on her pack she then set off up the steep track like a robber's dog. We followed less confidently, up through shadowy beech trees their branches hung with lichen. We fitted our feet into steps formed from loops of beech

root. In just 15 minutes we emerged out into bright tussock lands above the trees.



Unnamed tarns on Mt Burns, looking Southwest toward Island Lake and the Grebe valley. (Photo: Alfred Webb).

As with the Old Man Range trip we had piggy backed on the energy and communications infrastructure by following the industry's service roads built in the seventies. We were able to drive up to the high vantage point of Borland Saddle past fast falling streams and flowering Lacebarks. The line of pylons that carry the power lines from Lake Manapouri down to the aluminium smelter at Bluff, stride over the Hunter Mountains and tower over Borland Lodge where we were staying.

When one of your party has to carry a Personal Locator Beacon you know you're in for a good walk...and so it was. The unmade road had brought us up to 900 metres and within an hour we had hiked up another 250 meters to a high mountain plateau. We were able to look up to the summit of Mount Burns and down at mirror dark lakes fringed by Beech forest. From a tuffet of tussock our leader Jesse pointed out both the normal and inverted treelines across the mountain range. She then took the more able members on a yomp up onto the scree areas and higher tarns. Those of us left had a comfortable time botanising amongst the hillocks and tarns. We had the luxury of quietly

observing dracophyllums and celmisias in their natural habitat and taking in the truly astonishing mountain views.



fossicking amongst Southland's endemic *Chionochloa teretifolia*. (Photo: Kate Caldwell)

There is a delight to be had in botanical fossicking. There is the recognition of old friends, the uplift of the rarity and the sudden joy of the unexpected. Amongst the curly snow tussock, *Chionochloa crassiuscula*, we saw soft white edelweiss and down at the tarn edge there were the sticky red leaves of *Drosera arcturi*. Whilst trying to decide between them as a subject for a watercolour sketch I heard an excited shout from a few yards away. It was the abrupt cry of an expert finding something unusual. A few steps away there it was, in the shelter of a granite rock: a variant of the usually white *Gentianella montana*. It was sugar pink ...the colour of ladies smock. 'That's the find of the day,' said our chairman when he arrived having heard the call and he got down on his knees to set up his tripod.

When the photographs had been taken I knelt down, opened my watercolour kit, spread out a piece of white rag paper to pay my own obeisance.



The author settling into the tussocks to portray pink gentian flowers and *Celmisiafoliage*. Her painting is printed on the following page. (photo supplied by Mary Cane)



Celmisia hectori (Photo: Kate Caldwell)



Ranunculus buchananii growing higher up the mountain. (Photo: Dave Toole)



Borland Bog

John Steel

Sunday dawned as Sundays do and there was a certain lethargy in the air after the brilliant day on Mount Burns the day before. However, a small group ventured out on to Borland Bog just beyond the Lodge. It is twenty years since I mapped the bog, one of the largest raised bogs, and at 12000 years one of the oldest, in New Zealand, so it has a special place in what is left of my memory bank and I was keen to see it again.

Bogs are not quite as glamorous and showy-offy as the mountains and forests so a bit of patience and enthusiasm is needed to search for the oft-hidden treasures. From what I remember, the restiad, *Empodisma minus*, has become more dominant over the *Sphagnum*, something I think I have noticed on similar sites elsewhere. Borland Bog covers a considerable area and comprises two bogs that have joined together and there was some comment on the scale of the place when the much higher dome of the southern half could be seen away in the distance – somewhat daunting for

those still a bit weary from the previous day's exertions.

Once into the bog and the taller *Dracophyllum* and *Leptospermum* gave way to the lower versions we were on the top with *Halocarpus bidwillii* indicating the drier areas and lowering of the acrotelm. Here the more common and typical plants such as *Nertera depressa* with its abundant red fruits, *Oreobolus strictus*, *Celmisia gracilentia*, *Pentachondra pumila* and *Androstoma empetrifolia* were soon found. The big lichens, *Cladia retipora*, *Cladia sullivanii* and *Hypogymnia lugubris* along with the mosses, *Dicranum robustum* and *Pulchrinodus inflatus* were at their best in the morning dampness and several specimens of the lichen *Lichenomphalia alpina* were collected for the ongoing research work currently under way at Landcare Research.

The call of the nearby forest was a bit too much for some and the group started to break up after a couple of hours as some members headed for the trees. Nevertheless it was a pleasant start to the day and a good wind down after the excitement of the previous day's adventures on Mount Burns.



Bot soccers divaricate to examine botanical treasures in the vast Borland bog. (Photo: Kate Caldwell)

Lake Monowai

Lydia Turley

The Borland trip finished with a few stragglers making it to Lake Monowai. Lake Monowai is a large glacial lake and a popular fishing destination. Our interest was the lakeside beech forest. After the bog, this seemed very dry, but the vegetation was much more diverse and it was a fern-lovers heaven.

By the lakeside, hidden behind many *Blechnum* spp. was a bank full of little *Notogrammitis*. These turned out to be *Notogrammitis heterophylla* (previously *Ctenopteris*) and the commonly seen *Notogrammitis billardierei*.

A few paces into the bush, away from the lake, carpets of mosses and filmy ferns covered the ground and the tree trunks. A friendly robin kept following us around, with apparently little fear.

A slime mould (*Fuligo septica*) growing over the moss groundcover was the highlight of the lakeside growth. It looked like a cauliflower, with its bumpy surface (I'm not convinced by the usual comparison to dog-vomit) and had a sticky texture which didn't quite match the appearance when (naturally) we prodded it. *Fuligo septica* is a Myxomycete which tends to grow on rotting wood. It moves along the ground slowly and engulfs its food.



Fuligo septica (Photo: Lydia Turley)

Around the World in 80 Plants, a talk by Dylan Norfield, 10th February 2016.

Kate Caldwell

In this presentation we were introduced to a variety of intriguing plants from around the world that are growing well in cultivation here in Dunedin. Our speaker was the curator of the Geographic Plant Collection at Dunedin Botanic Garden, Dylan Norfield, who emigrated to New Zealand from England almost a decade ago. He said it was the wide range of plants that can be grown here that appealed to him about Dunedin in particular.

Dylan's talk began with an introduction to the Geographic Plant Collection, which covers about 6.2 hectares of the Upper Botanic Garden. The collection houses about 2500 species of plants, many of them rare and unusual. The plants are displayed in sub-collections based on geographical regions (North America, South America, Mexico, the Himalayas, North Asia, Shanghai, South Africa, Australia, and the Mediterranean). Where possible the plants have been sourced from the wild, through seed exchanges with other Botanic Gardens.

The bulk of Dylan's presentation was made up of beautiful photographs of a diversity of flowers and plants from around the world. With each picture we were offered a glimpse into a unique quality of the plant or its wild habitat. I enjoyed these stories and appreciated the insight that was also given into some of the considerations and challenges that go into managing the plant collection. Along with keeping the large area of garden maintained, there is pressure to propagate and preserve all the precious species in the collection, some of which may be impossible to get back again due to Ministry of Primary Industries regulations and/or their rarity in the wild.

Field Trip to Taieri River Track, 5th March 2016

John Steel

The weather report more than lived up to its promise of a glorious day for Duncan Nicol, Moira Parker, Bridget Thomas, Lydia Turley and I to walk from Crab Flat at Taieri Mouth to John Bull's Gully. This is an old track that was used to link Taieri Mouth with John Bull's ferry to Taieri Ferry at the landward end of the gorge. In the early days it was as quick to travel to the southern end of the Taieri plains, if not quicker, by sailing ship from Dunedin to here rather than walk or ride overland across what was then swampland. The track passes through a variety of vegetation types: saltmarsh, mud flats, carr, dry coastal forest, old regenerating native bush, fern-clad gullies and remnant podocarp forest.

The track begins with a swathe of exotic species and we hadn't moved far before we were slowed down by a goodly supply of ripe blackberries. After a short stretch of mud flat, the native forest closed in and the exotics miraculously vanished – until Moira spoiled it by pointing out a solitary *Dryopteris affinis*. We were kept slow as the intricacies of the small-leaved shrubs were explored and then we were into a small, tidal outlet rich in *Triglochin striata*, *Cotula coronopifolia* and *Isolepis cernua* among other mud flat regulars. Again it was through more of the dry forest with some wilting, but very fruitful, *Coprosma lucida*, giving an indication of how dry it has been of late, before dropping down to Paruparu-Awa (Muddy Gully or Taieri Carr) for a fine example of carr vegetation. I have watched this place for many years since they installed the boardwalk bordered by a metre-wide clearance on each side. This clearance, once wet and muddy, now hosts a wide range of glorious exotics, *Erythranthe guttata*, *E. moschata*, *Ranunculus sceleratus*, *Scrophularia auriculata* etc. which fail

to make any attempt at invading the tall, carr vegetation beyond it. The old track used to head up to the head of the carr where the Waikoura stream enters and then back down the other side. There are still traces of the track going in, but not coming out; maybe a possibility for exploration on another day.

Then it was a gradual climb through the bush over Governors Point to the top of the track at about 200 metres with spectacular views up and down the gorge and native bush as far as the eye could see. Track clearance has maintained the gorse that had established itself after the land was cleared, but a glance through the gorse reveals the steady progress of the native resurgence beyond. Sadly we started to come across small specimens of the Portuguese or Spanish heath, *Erica lusitanica*. Duncan duly despatched a large plant which may unfortunately have already discharged its seeds

and highlights the problem of track-maintenance creating disturbed areas for invasive exotics to establish. Ralph Allen and Peter Johnson's 1978 survey listed a solitary *Pseudopanax colensoi* surviving animal attack and it was while passing through the next gully that Moira spotted the first of a number of young plants, all still rather small, but promising nonetheless. I was on the lookout for any notogrammitids or hymenophyllids as there haven't been any public records from here of these and I was pleased to find *N. billardierei* covering a trackside bank - only to find that Lydia had beaten me to it! By now the heat of the day was making its presence felt and the seat at the summit – only 200 m! – was a welcome respite for lunch complemented by yet more views; the view beyond Te Rereka a Tuo Kairaki along the delightfully named, Humbug Reach, being especially dramatic



Sub-adult Pseudopanax ferox keeping watch over the native bush covering the sides of the gorge. (Photo: John Steel)



John Bull's Gully (Photo: John Steel)

The track continued through more dry bush and cool gullies before dropping down into the appropriately named, Fern Glade, with its abundant tree ferns, *Cyathea dealbata*, *C. smithii*, *Dicksonia fibrosa*, *D. squarrosa* and the ground ferns, *Blechnum colensoi*, *Leptolepia novae-zelandiae* and *Leptopteris hymenophylloides* among others. Out in to the open again before we made the final drop into John Bull's Gully. Bridget spotted *Polyphlebium venosum* growing on *Dicksonia fibrosa* and Lydia's sharp eyes picked up on *Hymenophyllum flabellatum* covering another. We followed the stream and soon came to the substantial area of flat land that marks the old ferry site and where John Bull apparently had his large, vegetable garden. Much of it has been taken over by exotic grasses and forbs, but a close inspection revealed the area to be equally well inhabited by potatoes! Are these the remnants of John Bull's vegetable gardens? I have often found potatoes near old house sites or garden rubbish dumps, but never to this extent. Maybe the heritage-vegetable people could be interested. A solitary gooseberry bush was also found struggling to survive among the natives at the edge of the bush so it is just possible that there are plants here with a story of their own to tell.



*Solanum tuberosum at John Bull's Gully.
(Photo: John Steel)*

Asplenium obtusatum and *A. polyodon* were listed in Allen and Johnson's survey and I was keen to find the latter which is apparently poorly recorded for the east coast. Likewise a watch was kept for the lichen, *Dibaeis revoluta*, also poorly recorded, that Allison Knight is keen to find, but in neither case could we claim success – maybe next time.

It was a hot walk back to the car and the end of a great day out: a big thanks to my fellow-travellers for their company and tolerance of my devil's advocacy on the various topics of invasion, competition and common *versus* scientific names!

Reference: Allen, R.B.; Johnson, P.N. (1978) Taieri River Scenic Reserve. In Allen, R.B. Scenic Reserves of Otago Land District. Biological Survey of Reserves Report 4. pages 225-230. Department of Lands and Survey, Wellington.

Anyone wanting a copy of the species list for the Taieri River Track to John Bull's Gully, please contact john.steel@otago.ac.nz.

Plants and People in the Pacific Past: A Microscopic Perspective, a talk by Monica Tromp, 9th March 2016

Allison Knight

Monica gave a brilliant talk at short notice when Justin Maxwell withdrew (he'll speak in July). It was astonishing to hear just what could be gleaned about the diet of ancient people by examining the plaque on their ancient teeth using multiple microscopy techniques. People colonized Rapa Nui (Easter Island) around 700 years ago, and after 200 years of occupation most, if not all, of the nourishing palm trees were gone. Monica examined phytoliths and starch grains in the plaque from several coastal sites and built up a

picture of the starchy diet dominated by sweet potato. Phytoliths from the extinct palms were a mystery until she realised that they were probably picked up from the soil the plants were growing in. Monica also studied the plaque and deduced the plant diet of the Lapita people from a 3000 year old cemetery in Teouma, Vanuatu. When they colonised Remote Oceania from the west these fascinating people brought with them their distinctive pottery along with chickens, rats, pigs, bananas, yams and taro. They also ate fruit, ginger, bats and extinct turtles as well as medicinal bark, Malay apples, sponges and sea grass. The very limited diet of the colonists on Rapa Nui 500 years ago was in stark contrast to this richly varied diet of their potential ancestors. Altogether an extraordinarily interesting talk with much food for thought. Thank you Monica.



the rather desolate looking landscape on Rapa Nui. (Photo: Monica Tromp)

BSO Annual General Meeting, 13th April 2016

Gregory T. Nelson

The minutes of last year's AGM, the Chairman's report and the Treasurers report were presented and accepted. The chairmen commented on the high quality of talks and field trips that were organized over the past year, and thanked the committee for their continued efforts. Of special note was the first Bioblitz held on harbor cone, which was a success and hopefully will continue to be in the following years. The secretary reported that we are financially sound, being sustained by memberships and guide sales.

The following were elected unopposed:

Chairman: David Lyttle

Secretary: Allison Knight

Treasurer: Mary Anne Miller

The BSO Photographic Competition, 13th April 2016

Gregory T. Nelson

This year's photographic competition was a success with 12 contestants submitting a total of 41 photos. Numbers were down slightly from the previous year, but seem to be holding stable around these levels. There were three categories, each with a winner and two commendations (plant portrait, other botanical subject, and a new members category). Both Peter Johnson and Kelvin Lloyd attended to present judges' comments and discussed the merits of each

Committee:

John Barkla (Calendar; Newsletter proofreading)

Robyn Bridges (Communications and Programme)

Gretchen Brownstein (Social coordinator)

Kate Caldwell (Newsletter and Facebook editor)

Esther Dale (Student liaison)

Marcia Dale

Greg Nelson

David Orlovich (Web manager)

John Steel

Tina Summerfield (University liaison)

Lydia Turley

Bridget Thomas

The meeting finished in 11 minutes.

photograph in depth. Luckily Peter held the floor most of the time with Kelvin interjecting throughout; otherwise we would have spent the entire meeting discussing the single *Acaena* photo that was submitted (*A. caesiiglauca*, David Lyttle). Despite the wall paper debacle of 2013 (BSO NL vol. 69), Peter insisted on using the terminology "wall paper pattern" to describe some photos, but was articulate in that he meant a photo with a repetitive pattern throughout that lacks a clear focal subject and clarified that he only stares at wall paper on the weekends.

The first commendation for **plant portrait** was a shot of a naturally arranged bunch of yellow flowers against a backdrop of flax leaves (*Ranunculus verticillatus*, David Lyttle). The yellow in the flowers contrasts well with the green

in the leaves. Additionally, although the flowers repeat they are in different orientations which calls to observer to look at each one individually. The eyes are initially drawn to the cluster near the bottom and then move upwards to this end.



'Floral Arrangement (*Ranunculus verticillatus*) (David Lyttle)

The second commendation for plant portrait was a skyward view of a stalk of coral broom (*Carmichaelia crassicaulis* subsp. *crassicaulis*, Gregory T. Nelson). The picture had nice composition being made up of multiple triangles formed by the sky and hillside in the distance, as well as the rocks beneath the plant in the foreground. The tips of the plant are in focus, catching the viewer's attention, which is then drawn down the stalk to the ground and through the rest of the photo. This picture really demonstrates that humble plants can be great subjects for good work given correct perspective and composition.



'Broom Stick' (Gregory T. Nelson)

The winner of the portrait category was a close up shot of a flower belonging to a more charismatic plant (*Protea* sp., Cara-Lisa Schloots). This photo has it all – color, texture, depth. The center of the opening flower is especially entrancing. Even though the focal subject envelops the centre, it isn't in the exact centre and is asymmetrical - thus allowing the observer to move through the rest of the photo.



'Centre of the Globe' (Cara-Lisa Schloots)

The first commendation for **other botanical subject** was a stunning landscape photo of an herb field between two towering dunes filled with little red fruits ballooning towards the sky (*Nertera balfouriana*, John Barkla). I don't often associate 'cute' with plants, but I think the adjective is apt here. The yellows-oranges of the fruits contrast nicely with the green leaves. The background of the sky and especially the flanking dunes really put the picture in context in terms of size. The other commendation went to an action shot of a

volcanic eruption spewing an ash cloud, viewed through a veil of palm trees (Ash through the palms, Jaz Morris). Here the sunny day produces vibrant greens through the fronds and other leaves as well as a clear blue sky, allowing the observer to clearly see the dark cloud rising. When the palms in the foreground are compared with the palms in the background the observer gets a sense of the depth of the photo.



'Ash through the Palms' (Jaz Morris)

The winner of other botanical subject depicted a flat rock face covered in free living algae (*Trentepohila* spp., Gregory T. Nelson) along with moss and some lichen. The photo had nice contrasts in terms of color (orange vs. green) as well as textures (rough and mottled vs. soft and spiky). Compositionally, the various lines created from cracks in the rocks work to move the observer's eye throughout the photo. Moreover, it tells a story of how even diminutive plants fight hard for space and other resources.



'Free Living Algae' (Gregory T. Nelson)

Despite the general disagreement between the judges, the winner for the **new members** category was easy to decide because there was only one submission. It was a close up of some of New Zealand's most charismatic moss (*Hypopterygium* sp., Duncan Nicol). The lucid texture of the bed of moss evokes the senses of the furry feeling of anyone who has touched them. The mosses themselves give us most variations of green. A triangle of the right half of the photo spreads further away, drawing our attention from the moss into the background.

The **peoples' choice award** went to John Barkla for his *Nertera balfouriana* picture. Perhaps worth noting that this year the judges tried to rob John of his annual contracted prize money but the people responded with spite, overturning the judges to ensure John got his cut.

All in all, it was a great night filled with stunning photos, reminiscing of field trips past, drama, and great feedback to submit better photos next year. Many thanks for the to the two judges for their time and insights as well as to John Barkla for arranging the photos into the 2014 calendar!



John, Cara-Lisa and Greg with their winning entries.



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