



BOTANICAL SOCIETY

OF OTAGO

Newsletter Number 74 February 2015

BSO Meetings and Field Trips

Wednesday 11th February 5.20 pm Vegetation response to past climate change in New Zealand. Tammo Reichgelt, Geology Department. With increasing concern for the stability of the climate system, ice-caps melting, change in ocean circulation, and heightened atmospheric carbon levels, one can't help but wonder: how will this affect my backyard? Past climate reconstructions often focus on ocean-based proxies, because climate systems have a strong interchange with the ocean, and the ocean provides clearly defined, well-datable archives. Terrestrial climate is often subject to small-scale variation and terrestrial geology can be a challenge to understand, not to mention find age calibrations for. Nevertheless, the terrestrial realm is our backyard, and therefore terrestrial paleoclimate reconstructions are important in providing context and constraints of the environment under differing climate regimes. Paleobotany provides an important tool in unravelling terrestrial paleoclimate. Through diversity, diversification and extinction rates, and the relation between morphology/habit and the environment in vegetation communities, plants are ideal terrestrial paleoclimate indicators. Paleoclimatic reconstructions have been made for Miocene vegetation assemblages of Otago, indicating an environment that strongly contrasts to the present. Large-scale variation appears to be in concordance with reconstructions from marine proxies, but there is evidence of small-scale variation such as is caused by topography and seasonality.

Saturday February 14th - Sunday February 15th Field trip to West Dome, Northern Southland West Dome (1270 m) is a prominent feature located on the southern edge of the Eyre Mountains near Mossburn, Northern Southland. Mossburn is approximately three hours travelling time from Dunedin. At this stage we plan to travel to Mossburn on Friday evening and find accommodation somewhere in the Lumsden-Mossburn area so we can start on the mountain early on Saturday. People have the option of travelling back to Dunedin on Saturday evening or staying an additional day and to look at further sites on Sunday. West Dome has an area of ultramafic rocks which weather to soils that contain low concentrations of major nutrients and high concentrations of toxic metals. This has considerable influence on the vegetation growing there and a number of species are restricted to these substrates. Included amongst ultramafic endemics for the area are the rare *Celmisia spedenii* and a species of *Myosotis*. Contact David Lyttle, 454 5470 or djlyttle@ihug.co.nz

Wednesday 11th March 5.20 pm QEII Covenants in Otago. Robin Thomas, Coastal Otago representative for QEII will tell us how Queen Elizabeth II National Trust helps private landowners in New Zealand protect special natural and cultural features on their land with open space covenants. He will make special reference to covenants in Otago. He will also talk about aspects of management of his own protected tussock and schist tor block on the Strath Taieri.

Saturday 28th March 9 am Field trip to Bungtown Conservation Area and Lake Mahinerangi
The Bungtown Conservation Area is a small (c. 3.5ha) reserve in the headwaters of the Waitahuna River. It's a great example of an upland copper tussock bog with stands of bog pine (*Halocarpus bidwillii*). There's also a population of the declining *Carex tenuiculmis* sedge. After exploring this area we'll visit the shore of Lake Mahinerangi where some lake shore turfs have tiny herbs such as the nationally vulnerable *Gratiola concinna*, mudwort (*Limosella lineata*) and Maniototo button daisy (*Leptinella maniototo*). Meet at the Botany department car park at 9am. Return by 4 pm. Leader John Barkla, ph. 476 3686 email jbarkla@doc.govt.nz.

Wednesday 8th April 5.20 pm BSO AGM and Photographic Competition

A popular and eagerly anticipated event for anyone interested in Botanical photography. Learn what makes a good photograph and how to improve your photographic skills from our panel of expert judges. The best photographs will 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 April 18th - Sunday April 19th Field trip to the Southern Catlins

We will leave Dunedin Saturday morning and head down to the south end of the Catlins to visit a number of sites of botanical interest. We will stay near Curio Bay on Saturday night (Hector's dolphins might join you for a swim if you're brave enough to enter the water) and return to Dunedin late afternoon Sunday. Contact Marcia Dale, 454 6706 or imaginarycrayfish@gmail.com

Saturday 2nd May 9.30 am Molteno's Regenerating Bush, Opoho Tess and Anthony Molteno will host the BSO on a visit to their property at 236 Signal Hill Road, Opoho. Tess and Anthony have owned the property for the past 25 years. The property was originally a dairy farm and later a nursery but had been neglected for the 30 years or so before they bought it. At the time they fenced off a 2-3 Ha stand of kanuka on the west in the hope of regenerating the native bush. Since then that area has been little disturbed and they thought members of the Botanical Society might like to explore it, and any other part of the property that might interest them. Meet at the Dept of Botany car park 464 Great King St at 9.30am. Finish 4.00 pm. Contact Robyn Bridges, Ph: (03) 472 7330.

Wednesday 13th May 5.20 pm O' mice an' men* on remote Antipodes Island: understanding the place of mice in a subantarctic island ecosystem Geoff Rogers - Science and Capability, DOC, Dunedin and Brian Rance - Conservation Services, DOC, Invercargill. Of all New Zealand's subantarctic islands, the Antipodes has a flora reflecting the tyranny of remoteness and physical uniformity – there are just a few score vascular species and very few woody ones at that. The islands also have highly distinct soils, plant biogeography, vegetation composition, birds, and insects and just one introduced pest - mice. The mice are targeted for eradication, a task that will call upon all New Zealand's globally-esteemed expertise in island pest eradication. This is an account of a team of biologists' challenging, mid winter attempts to understand the island's history and ecology and whether mice disrupt that highly distinct animal and plant life. * *Of Mice and Men* is a novella written by [John Steinbeck](#) and published in 1937. The title is taken from [Robert Burns'](#) poem "[To a Mouse](#)", which read: "The best laid schemes o' mice an' men / Gang aft a-gley." (The best laid schemes of mice and men / Often go awry.)

Wednesday 3rd June 5.20 pm An introduction to NatureWatch NZ. Jon Sullivan, Lincoln University. NatureWatch NZ <http://naturewatch.org.nz/> is a place where you can share what you see in nature, meet other nature watchers, and learn about New Zealand animals, plants, and fungi. It aims to build a living record of life in New Zealand that scientists and environmental managers can use to monitor changes in biodiversity, and that *anyone* can use to learn more about New Zealand's amazing natural history. **NatureWatch NZ** is run by the New Zealand Bio-Recording Network Trust, a charitable trust dedicated to bio-recording. [Jon Sullivan](#) from [Lincoln University](#) along with [Colin Meurk and Jerry Cooper](#) from [Landcare Research](#) got things underway in 2005. Starting off as NZBRN it later adopted the international iNaturalist platform and a New Zealand optimised blend of iNaturalist was launched in August 2012 as **NatureWatch NZ**.

Saturday 6th June, 9.30 am Lichen Field trip up Leith Saddle Track. The ancient and regenerating mist forest above the top of the Northern Motorway harbours a variety of old growth inner forest lichens. We will concentrate on the large 'leafy' foliose lichens that are so characteristic of New Zealand's rainforest. The Botany Department has kindly allowed us to bring specimens back to the lab to examine identifying and interesting features more closely. Bring hand lens. Meet at the Dept of Botany car park 464 Great King St at 9.30am. Finish time 4.30 pm. Bad weather date Sunday. Contact Allison Knight 487 8265, email alli_knight@hotmail.com

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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Chairman's Notes

David Lyttle

Now that we are at the beginning of another year we can look forward to another round of talks and field trips. We can take some satisfaction on how the 2014 programme unfolded. The final field trip of the year, an excursion to the Rock and Pillar Range, proved very popular. It was particularly gratifying that two family groups came on the outing. It has seemed at times that the BSO Committee and membership have been growing older but now the Society is in good heart as we welcome Gretchen Brownstein and Kate Caldwell on to the Committee. Gretchen has taken up a position at Landcare Research after a period of postdoctoral study overseas and Kate has recently been appointed to the position of Curator of the Native plant collection at the Dunedin Botanic Gardens.

For those of you who like the experience of negotiating and interacting with the world via social media, the BSO now has a Facebook page. Thanks to Kelly, Aimee and Nicola it is running very successfully and contains posts of our recent field trips and activities. There is a particularly good set of photos of our November field trip to Macraes Flat and our December field trip to the Rock and Pillar Range. So if you don't like walking far, hanging off bluffs or the vagaries of weather and sandflies you can now vicariously enjoy our field trips. However, I would still encourage you to come along as there is no substitute for the real thing especially as you can interact with our botanical experts who are very willing to participate and share their knowledge with anyone who is interested in learning more about the New Zealand flora and plants in general.

Over the summer I have continued to document the plants growing wild on the Otago Peninsula for a project that John Barkla and I set up on the Nature Watch website. See <http://naturewatch.org.nz/projects/otago-peninsula-biodiversity> This project has so far accumulated 793 observations from 7 contributors. Nature Watch is an excellent

vehicle for recording and obtaining feedback on your natural history observations. There is a great network of people who are able to identify and comment on any plant/animal you photograph and post and by posting you are contributing to a searchable database that is becoming increasingly valuable for further scientific and environmental studies. BSO members are welcome to contribute to this project or set up their own projects that reflect their own interests ie naturewatch.mylocalwetland etc.

On a personal note I have made several field trips into Central Otago. A highlight for me was finding and photographing *Myosotis cheesemanii*, a nationally endangered forget-me-not on the Pisa Range. It was originally collected from the Pisa Range and described by Donald Petrie in 1886. I also encountered



Myosotis cheesemanii growing on steep faces of shingle above the snow-drifts. Specimen photographed above Lake Mackay, Pisa Range (Photo: David Lyttle)

numerous un-identifiable small alpine buttercups on my excursions. One particular entity proved to be challenging to identify, a small very hairy rosette forming buttercup growing above the south end of the Fraser Basin on the Old Man Range. As well as the familiar plants there is always the possibility of finding something novel or intriguing on these outings so life of a botanist is never dull. We look forward to 2016 with a sense of optimism and hope you all continue to attend and enjoy the events on our programme.



Unidentified Ranunculus. Note the very hairy leaves and achenes. Specimen photographed at the south end of the Fraser Basin, Old Man Range (Photo: David Lyttle)

Secretary's Notes

Allison Knight

The mail has kept coming in while I've been out enjoying the wonderful summer. Our calendar is gaining widespread appeal - orders came in from around the country and even from America. Only a few orders keep trickling in for the Lichen Guide, which is just as well, as the second print run is nearly sold out. It was in good use at the Wellington Bot. Soc. summer trip in the Nelson Lakes. This was marvellously organised with excellent trips through diverse ecosystems from alpine fellfields, ultramafic, scree and boulderfields to shrublands, forests and valley floors. Lara Shephard has posted an enticingly illustrated blog on scree inhabitants <http://blog.tepapa.govt.nz/2015/01/26/living-life-on-the-edge-plants-of-screes/>

Our calendar was much admired by the botanists at St Arnaud, too. The saddest news to come in was that of the untimely death of David Galloway. His passing leaves a huge void in New Zealand lichenology. There will be a commemoration of David's life on the 28th of February.

New Members

A warm welcome is extended to the following new members: Rebecca Brown-Thompson and Gregory Nelson

Message from the Treasurer

Mary Anne Miller

Please note that 2015 subscription fees are due by 28 February 2015. The form is on our website and on the inside back cover of this issue. If unsure whether fees are due, because you previously paid five years in advance, please email maryanne.miller53@gmail.com and I'll confirm your status.

Editor's Notes

Marcia Dale

Please submit copy for next newsletter by 15th April 2015

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 the editor: imaginarycrayfish@gmail.com 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.

Farewell to committee members

The committee would like to farewell three members, Kelly Frogley, Aimee Pritchard and Nicola Baines. Thank you all for your contributions over the years.

Correspondence and News

Botanical identification of species from early cooking fires

Jill Hamel

Every so often I send charcoal or wood to Dr Rod Wallace in Auckland who has a long career of identifying material for C14 dating, which of course needs to be done on short-lived species. These sporadic bits of

information do carry a bit of ecological interest as well. For instance, Rod found 5 bits of kamahi among 70 bits of charcoal I sent him from Taiaroa Head - the deposit would have been remains of cooking fires beside a hut on the headland around the 1840-50 period. When I queried Rod, he said it was a reasonable identification, and he had seen kamahi also in charcoal sent to him from an early site at St Clair.

New Zealand Coprosma Key

Murray Dawson

The first of our Landcare Research LucidMobile identification apps for smartphones and tablets is now available in both Android and Apple (iOS) formats.

The *Coprosma* key is publicly available on the Android Google Play Store (<https://play.google.com/store/apps/details?id=com.lucidcentral.mobile.coprosma>)

and also Apple's iTunes (<https://itunes.apple.com/nz/app/nz-coprosma-key/id953914847?mt=8>).

Thanks to TFBIS funding these apps are free. This free app is for the identification of coprosmas, a large genus of native New Zealand woody plants.

It was created to help identify plants during ecological survey work, but will also be useful to students, researchers, and others in the New Zealand botanical community. A hand lens (10–20×) or dissecting microscope will be needed to see hairs on leaves and stems that are used for identification.

Key authors: David Glenny, Jane Cruikshank, Jeremy Rolfe, and Chris Morse.

The New Zealand TFBIS (Terrestrial & Freshwater Biodiversity Information System) Programme funded creation of this app.

This LucidMobile key is part of a series of free interactive keys for identifying New Zealand native and naturalised plants. Other LucidMobile plant id apps will include native and naturalised grasses, native orchids, flowering plant genera and weeds of New Zealand. PC (Java-based) versions are hosted by Landcare Research at (<http://www.landcareresearch.co.nz/resources/identification/plants>).

Obituary Part One, David Galloway (1942 – 2014)

David Lyttle

I first encountered David in 1967 when I enrolled for Advanced I Biochemistry which I took in my second year at the University of Otago. David was an Assistant Lecturer at the time and was tasked with delivering lectures on vitamins to the undergraduate class. At the time the Biochemistry curriculum was comprehensive, dry and encyclopaedic and David was completely inexperienced as a lecturer. Several years later David told the story of when he approached Professor Norman Edson HOD of Biochemistry at the time to ask him what content to include in the lectures, Prof Edson said tell them about the Hopkins' milk experiment. (Sir Frederick Gowland Hopkins was an English biochemist and Nobel Laureate credited with recognizing the existence of "accessory food factors" ie vitamins; a portrait of Hopkins took pride of place on the wall of Prof Edson's office). My notes on this point are fairly terse "1912 Hopkins fed rats on a highly purified food diet. Died. Milk contains accessory food factors which kept the animals alive." However one gem of information that David imparted which I remember to this day was that "primates, guinea pigs, Indian fruit bats and the red vented bulbul are unable to synthesise ascorbic acid" ie vitamin C. His lectures were interspersed with anecdotes and odd bits of information that had been culled from places other than the formal scientific literature. That year Norman Edson retired as professor and head of the department and was succeeded by George Petersen in 1968. The transition brought many changes to the Department and as a consequence David found himself without a supervisor for his PhD on enzymes of polyhydric alcohol metabolism in *Acetobacter* micro-organisms. The research on the metabolism of the polyols (sugar alcohols) that was a major research interest of the Department during Edson's tenure was effectively discontinued and David was urged to submit his thesis which he did and graduated with a PhD in

biochemistry in 1972.

During his years at Otago David was ruled by two passions lichenology and climbing. His introduction to lichenology and the development of his interests are covered in his own words in the Obituary he wrote for Peter James in the BSO October newsletter (Galloway, 2014). He flatted in Geoff Baylis' mansion in High St and was on friendly terms with the Botany Department staff and active in the Otago University Science Students Association. In the summer of 1969 he led Otago University Science Students Association expedition to Dusky Sound. The success of this expedition owed a huge amount to David's enthusiasm and organisational skills. It just seemed to come together. We enjoyed a happy and harmonious stay there and were very much aware of Captain James Cook's visit in the Resolution in 1773 almost 200 years earlier. This was Cook's second voyage to New Zealand and like his first was notable for its scientific accomplishments. We felt very much we were following in the footsteps of Cook and his scientists. The sense of history, discovery and science has a powerful effect on the imagination and I am sure it was one of the factors that provided great impetus for the hard work that enabled David to succeed in his subsequent career.

David's other preoccupation, mountaineering, was perhaps in the mind of a senior member of the Biochemistry staff when he muttered something about "the climbing mafia" "doubtless expressing a view that the postgraduate students should be concentrating on their research rather than disappearing, periodically, for several weeks at a time, into the mountain fastness of NW Otago. It is not until ones postgraduate years that the budding mountaineer has acquired sufficient bushcraft, climbing skills and maturity to tackle this challenging terrain (and survive). David was not one to let such opportunities pass and his fascination with the Olivine Range, its history, exploration and geographical complexity led him to undertake several trips into this remote and inaccessible region He wrote about this topic at length in the New Zealand Alpine Journal at the time and

latterly was planning to write a more comprehensive account covering the history and exploration of the area, a project which sadly has not come to fruition. He subsequently edited the 1971 and 1972 editions of the Journal introducing changes which include a photographic cover in 1971 followed by further changes in layout in 1972 which included the elimination of advertising from the publication. His intention was to make the Journal a vehicle for more creative writing but this has not been borne out in recent years.

David left Dunedin in 1969 for a position at DSIR Applied Biochemistry Division. A career as a biochemist was not for him but fortunately for New Zealand science, in 1972, he was able to transfer to DSIR Botany Division Lincoln where he was able to work on his true passion, lichens. He was sent to the British Museum by Eric Godley then Director of Botany Division where he worked to prepare a New Zealand lichen flora. The landmark publication Flora of New Zealand lichens in was completed in 1982 and published in 1985. In 1982 David became a Senior Research Fellow in the Department of Botany at the Natural History Museum, London, and from 1987 to 1994 he held the position of Head of the Lichen Division at that institution. He returned to New Zealand in 1994 he moved to Millers Flat becoming a consultant lichenologist and on his eventual return to Dunedin became a Research Associate at Landcare Research. He was awarded a DSc (Botany) from the University of Otago in 1998, academic recognition of his status as a lichenologist. During his time at the British Museum his interests expanded to include Southern Hemisphere lichenology and this was important in compiling the second edition of the Lichen Flora. He commenced work on a second edition in 1996 and the revised Flora was published in two volumes in 2007. It is described as "an updated and definitive guide to the country's rich and diverse lichen flora" and covers 1706 taxa in 354 genera. His last major completed work was a monograph on the lichen genera *Aspiciliopsis* and *Placopsis* in New Zealand published in 2013.

Many people have also enjoyed the hugely successful Symposia held in Dunedin that David has in some cases initiated and in all cases been heavily involved in organising.

- 2007 Symposium “Nature named and ordered. The legacy of Carl Linnaeus (1757-1820) in Aotearoa-New Zealand”, Otago Museum, 30 August, 2007, Dunedin, New Zealand. [Co-organizer with Prof. Carolyn Burns].
- 2004-2007 Secretary of Linnaeus-Solander
- 2007 Steering Committee, organising exhibitions at the Otago Museum, the De Beer Gallery, Otago University Library, a one-day Symposium (see above) at the Otago Museum and the Solander Memorial Nature Trail in the Botanic Gardens, Dunedin.
- 2009 Symposium “Aspects of Darwin: A Bicentennial Celebration” Knox College, Dunedin, 3 September 2009. Chairman of Organising Committee [Friends of the Knox College Library, Co-organiser, with John Timmins (Hewitson Librarian) and Alice Baxter (College Bursar)]
- 2012 Symposium “A Celebration of John Buchanan FLS (1819-1898)” NZ Artist, Botanist, Explorer”, Salmond College, Dunedin 29-30 November, 2012, Salmond College. Chairman of Organising Committee. [Friends of the Knox College Library, Co-organiser with Prof. Linda Tyler, University of Auckland]

On this latter occasion, David’s enthusiasm, organisational skills and sense of history allowed a very diverse group of people to come together and hold a very successful meeting recognising a man who had made some important contribution to New Zealand science and had been overlooked to some extent.

David was particularly aware of the cultural and human dimensions of the practise of science; science for him was not a just a matter of acquiring received knowledge from textbooks and the scientific literature but also

of understanding the personalities, motivations and interactions of the individual players and placing their achievements in historical context. On the occasion of his last public talk to the Otago Alpine Garden Group in October 2014 entitled ‘The Personalities of People who Described Plants (1769 – 1867)’ David delivered a masterful presentation that traced the networks formed by the botanists of the period back to Linnaeus. He described how botanical knowledge of the New Zealand flora developed, initially through the discoveries of Banks and Solander, how the different botanists and plant collectors corresponded and influenced one another culminating in the work of Joseph Dalton Hooker who produced the ‘Handbook of the New Zealand Flora’ in 1864 (a copy of which David displayed at the meeting).

David was a long-standing member of the Botanical Society of Otago. Last year he led a guided lichen walk in the Dunedin Botanic gardens as part of the Bioblitz celebrating the 90th anniversary of the Botany Department. He participated in a the field trip to Kakanui Peak in Dec 2013 and led a very cold lichen trip to Sutton Salt Lake in August 2006 when the hoar frost lay thick on the ground. On all these occasions his great enthusiasm for lichens came to the fore.

David was a warm and engaging friend to many of us. On long drives he would often entertain his companions with stories; incidents and occasions that reflected the incongruities of life told in the inimitable Galloway style. He will be remembered with affection and sadly missed.

Obituary Part Two, David Galloway (1942 – 2014)

Janet Ledingham

My first real acquaintance with David was when I gave him a ride on a Botany Society trip to Moores Bush in June 2004. I had heard him speak on lichens two or three times but had never been out in the field with him until then and my lichen education began that day with a lengthy stop while we looked at the lichen covered gates and adjoining fence. On

the trip to and from Moores Bush it soon became evident that we had many acquaintances in common since I had been working in the Medicine Department of the Medical School since 1960 while he was engaged in biochemistry studies in the same building. I mentioned that there were some impressive lichens to be seen at the South end of the Rock and Pillar Range around McPhees Rock and asked if he would like to come the next time I went up there and he jumped at the chance; he knew the Big Hut and Leaning Lodge areas from trips up there with Alan Mark and others but had not ventured to the McPhees end.

The trip up to McPhees took place in early spring and I was immediately made aware of the genus *Umbilicaria* which was well represented on the tors. Indeed I found one lot of specimens on a large rock overhang and for a while David thought it might be a new species which he proposed to call *otagoana* but alas it proved to be the already described *Umbilicaria subglabra*. Up until then my main interest had been the alpine and sub-alpine plants but that day I was converted to having an interest in lichens which went beyond simply observing them without understanding their role. My next challenge was to work at getting good lichen photographs, not always an easy thing to do. That trip was the first of many to Rock and Pillar and we roamed along the range as far as Stonehenge and Museum Rock as well as exploring all the wetland areas of the infant Styx which I had always loved and appreciated for their plant biodiversity. David's dog Lily proved to be just as enthusiastic about those expeditions as we were.

Since 2004 we have had trips together to Rock and Pillar, Te Papanui, Teviot Swamp on Beaumont Station, the Old Man Range, the Old Woman Range, Poolburn, Lake Onslow, Mt Pisgah, Shortlands Station, Awakino, Mt St Cuthbert on Omarama Station, the Quailburn Area, Ahuriri, the Black Rock area at Benmore, the Eglinton Valley and Gertrude and Homer areas, Peel Forest and the upper Rangitata. We have also visited Pisa Flats and Sutton Salt Lake and numerous spots along

the Otago and South Otago coast and the Catlins. Then there are our local places such as Flagstaff, Swampy, Mt Cargill and Mt Allan and Silver Peaks, Mt Watkin, various cemeteries and latterly we had been looking extensively at the lichen population on Peninsula stone walls. My involvement with tenure review inspections for Forest and Bird has been useful for acquiring more photographs to show David and to spot places that I could revisit with him.

David was an ideal field trip companion and I much enjoyed his company and conversation ranging from lichen identification to anecdotes and information about the early lichen and botanical collectors who came to NZ ranging from Banks and Solander to the Hookers, Archibald Menzies, Colenso, Andrew Sinclair, Knight and of course William Lauder Lindsay. He was a fount of knowledge on such subjects. He had a gift for inspiring enthusiasm in people from all walks of life.

A source of pleasure for me has also been the fact that many of my lichen photographs have been included in David's publications in recent years including those in the lichen section of Alan Mark's book 'Above the Treeline', most of those in a monograph on 'The lichen genera *Aspiciliopsis* and *Placopsis* (Galloway, 2013) as well as in several other papers and a book chapter. I have also enjoyed formatting illustrations for his historical papers and putting together Powerpoint presentations for him.

The Dunedin Naturalists Field Club, of which David was an active member has been privileged to have an annual talk from David on historical topics and they were always well attended. He had been a member of the Field Club in the past, inspired by the naturalist and lichenologist William Martin's connections with the Club in its early days when it fulfilled the role now taken by the specialist societies such as the Botanical Society of Otago. He became an active member again in 1974 serving on the Committee for several years and always enjoyed coming on the Field Trips when he could. The Field Club members in turn benefited from his infectious enthusiasm for not only lichens, but natural

history in general. He will be sorely missed by the Club. Sadly we had almost completed a book sponsored by the Club on Dunedin Lichens, one more month would have seen it completed. His last outing with the Club, which he much enjoyed, was to Bull Creek, Watson's beach and Quoin Point just the Saturday before a chest X-Ray showed that all was not well with him.

In 2005 when I was in UK David arranged for me to visit the Linnaean Society in London and the Natural History Museum as well as the Herbarium at the Botanical Gardens in Edinburgh where I checked on some of the information attached to some Lauder Lindsay specimens on his behalf. This meant I met several of his colleagues and was left in no doubt of the esteem in which he was held. Going behind the scenes to the Gunroom at the Linnaean Society to see the incredible specimens held there and a tour of his old patch at the NHS were much appreciated. Subsequently I have been privileged to meet and take on field trips several of his overseas colleagues, among them Professor Lars Arvidsson from Goteborg and Leo Sanchez from Madrid; Leo is co-author with David and myself of a large paper on *Umbilicaria* which we hope we will still be able to complete.

All I can do now is be thankful for the years I have known David and Patricia and David's companionship over lichen matters and on all those field trips. He was a very good and generous friend - the regrets are for those unfinished books and all the plans we had for summer expeditions and beyond. I will miss him greatly.

David's international reputation is secure. Amongst the honours he has received are;

1998 - elected fellow of the Royal Society of New Zealand.

2008 - awarded the Acharius Medal of the International Association for Lichenology.

2010 - awarded the Hutton medal for his significant contribution to the understanding of the New Zealand environment through

great advances in knowledge of New Zealand's richly diverse lichen mycobiota.

2011 - elected Foreign Member of The Royal Society of Arts and Sciences in Gothenburg, Sweden.

David's contribution to New Zealand Botany is equal to that of any other botanist who has worked on the New Zealand Flora (first New Zealand Lichen Flora, second revised New Zealand Lichen Flora and over 300 specialist publications on lichens). This is a monumental record of achievement especially as it has been made in the difficult and challenging field of lichenology. On behalf of the Botanical Society of Otago we would like to extend our sympathy and condolences to Patricia, his wife, and sisters, Judy and Sandra, for their sad loss.

References:

Galloway DJ 2014 Obituary, Peter James (1930-2014) *Botanical Society of Otago Newsletter* **73**, 7-9

Galloway DJ 1985. Flora of New Zealand lichens. Wellington, New Zealand, P.D. Hasselberg, Government Printer ix-662 p. (Book, 1985)

Galloway DJ 2007. Flora of New Zealand lichens. 2 v. Lincoln, New Zealand, Manaaki Whenua Press. ix-2261 p. (Book, 2007)

Galloway DJ 2013 The lichen genera *Aspiciliopsis* and *Placopsis* (Trapeliales: Trapeliaceae: Ascomycota) in New Zealand. *Phytotaxa* **120**, 1-194.

Dr David Galloway Commemoration

There will be a commemoration of David Galloway's life on Saturday 28th February 2015. If you would like attend then the celebration will begin at 2pm in the All Saints Anglican Church, 786 Cumberland Street, Dunedin.



David John Galloway, Lichenologist 1942-2014



Support the Competition and the Calendar Entries Due March 31th 2014

Categories are:

1. Plant Portrait
2. Plants in the Landscape

Photographs must be submitted in digital format (JPEG file). Each electronic photo needs to be at a resolution of 6 × 8 inch (30.5 × 20.3 cm), ideally 300 pixels/inch and can be in landscape or portrait orientation. A glossy print of the same size must also be submitted. Pictures in landscape orientation are more suitable for the calendar. Each member may enter up to five photos in total. A prize will be awarded for the first and second placed entries in each category. First prize is \$50 and second is \$25. Entries will be judged on technical and artistic merit by a panel of three judges. A separate prize of \$50 will be awarded for members' choice on the night. Entry forms available: on the BSO website <http://www.otago.ac.nz/botany/bso/>; opposite BSO noticeboard in a rack in the corridor just inside main door of Botany Department and at the Feb. & March BSO meetings.

Post entries to Botanical Society of Otago, PO Box 6214, North Dunedin 9059 or hand to the Secretary, Department of Botany, Otago University.

Articles

Skeptics views on climate change a major deterrent to political action

Alan Mark ΦBK, Hon DSc (Otago), FRSNZ, KNZM, Emeritus Professor, Department of Botany, University of Otago

"As a Bot. Soc. member, I wish to briefly respond to the 'Opinion' piece in the most recent Newsletter (#73; Oct., 2014) by Bot. Soc. Committee Member, Bastow Wilson, on "Different opinions on climate change", in which he refers to the report by the NIPCC (Non-governmental International Panel on Climate Change)." Firstly, Bastow has more than a mere 'opinion' on this major issue of our time: indeed he was a reviewer of relevant sections (biological/ecological) of their recent report, which was produced to counter most of the views and warnings contained in the recent reports of the IPCC (International Panel on Climate Change).

As Bastow concludes: "any political actions that seek to fix the "global warming problem", need to be based on a thorough knowledge and understanding of all sides of this complex and challenging scientific dispute." As 'opinion', Bastow says he has the impression that "both IPCC and NIPCC are selective in the facts they cite. [and] There's also a scientific opinion that we are heading into another Ice Age, and any human-induced warming would stave that off."

I commend to all Newsletter readers to download and digest the most recent (Nov. 1) IPCC 40-page "Climate Change 2014 Synthesis Report" (www.ipcc.ch), produced by 51 specialists from 27 countries, including Andy Reisinger, Deputy Director Agricultural Greenhouse Gas Research Centre, with an additional 14-member "Core Writing Team" (including Prof. Ralph Sim of Massey University), and 10 additional Review Editors from about as many countries.

This report makes 21 succinct statements, the first of which reads: "*Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate*

changes have had widespread impacts on human and natural systems". These pronouncements are also supported by a wide range of factual evidence which I find highly compelling.

This on-going debate could be tolerated if it wasn't for the skeptic's line offering politicians an excuse to sit on the fence, for which future generations are likely to pay an enormous price.

Otago University Science Students' Association expedition to Dusky Sound, February 10-21, 1969

David J. Galloway

This article was originally submitted by David Galloway to be published at the time of the 90th Anniversary of the Botany Department. It was held over due to constraints on space but we have decided to publish it together with his obituary in this issue of the newsletter. Accompanying pictures are from scanned slides taken by David Lyttle. At the time of this expedition the forests and alpine vegetation of Dusky Sound suffered heavy damage through deer browsing (and perhaps the occasional moose). It would be interesting to go back and see to what extent the vegetation has recovered now the deer have been removed.

"...1969 is the centennial year of Otago University and in order to mark the occasion the OUSSA decided to mount a full-scale scientific expedition to an area that would yield significant results in several fields, and at the same time prove appealing to a wide cross-section of interested scientists. Various places were thought of ranging from the west coast of Stewart Island to the romantic Red Hills ultramafics, however the year 1769 and a proposal of George Scott's¹ of some years ago focussed Dusky Sound as a venue for such a centennial expedition. What more romantic place than Dusky? Its associations with Cook are well-known to all, and in a year which will see widespread celebration of the bicentenary of his rediscovery of New

Zealand, it seemed the ideal place. The suggestion was greeted favourably by the OUSSA Executive, and at the beginning of the third term 1968, I was asked to lead the trip.

A party of 14 was eventually chosen to make the trip, this number comprising 11 scientists and a base-camp group of three. The total expedition personnel was later swelled to 20 with the inclusion of the skipper and crew of RV *Munida*, and a three-man crew from the National Film Unit. The University offered the expedition the use of the Marine Station vessel *Munida*, and together with the Royal Society of New Zealand, contributed generously to the expedition's cost.

The deadline for stores and equipment to be on board *Munida* was 10th January 1969, and thanks to the considerable help of Bruce Barnes (who acted as a clearing house for the expedition's stores), Tom Wall and Bill Tubman, this was satisfactorily achieved. The

boat and her crew left Dunedin on 12th January, and through Alec Black who kept a daily radio schedule from the yacht *Southerly*, we were able to follow *Munida's* progress to Dusky Sound. Bad weather in Foveaux Strait can often keep small boats confined to an anchorage on the wrong side of Puysegur Point for considerable periods of time, however, apart from some fog, *Munida* encountered no difficulty in rounding Puysegur Point to the west. After anchorages at The Nuggets, Port William, Stewart Island and Chalky Inlet, she nosed past Five Fingers Peninsula into the island-studded Dusky Sound, four days out from Dunedin. In the time before the scientific party arrived at the head of the Sound, *Munida's* crew set about establishing the campsite at Cascade Cove. The five Bell tents from the New Zealand Army were erected on levelled and drained sites near the edge of the bush, and a substantial cookhouse was built adjacent to the Civil Aviation Hut which itself was renovated and considerably improved. A



Seascape Dusky Sound. It is easy to imagine that Cook and his crew would have seen this view from the deck of the Resolution in 1773 as very little has changed since that time.

commodious open fireplace was set up on the beach in front of the hut, and the final civilised touches were added with the building of two toilets which were quickly tenanted by Fiordland Crested Penguins. Everything was now ready for the arrival of the scientific party.

We left Dunedin by bus in the grey dawn of 10 February. A very tired National Film Unit crew (what had arrived late the previous night) and their 700 pounds of equipment were manhandled aboard at the City Hotel and we proceeded southwards to a dismal cup of tea at Mossburn. At Manapouri, the expedition's gear was loaded aboard the *Fiordlander* for the trip across to West Arm. As we sailed west across the lake, clouds lifted from the Divide peaks which augured well for our later flight to Supper Cove. West Arm was hot, dusty and noisy and it was a relief to leave the construction site and head up through the bush to Wilmot Pass before winding down to Deep Cove at the head of Doubtful Sound. Here we unloaded luggage yet again and piled it up on the wharf alongside Tourist Air Travel's Cessna ZK-CHQ, the fragile looking float plane that was to take us over the mountains and down into the head of Dusky Sound. Six trips were necessary to transport the complete party, and Doubtful Sound was deep in shadow when we climbed into the Cessna for the final flight. Once airborne, we turned into Hall's Arm, making height rapidly in order to cross a high pass between Doubtful and Breaksea Sounds. Many ridges fell away beneath us, and quite suddenly we were high over the still, dark waters of Super Cove. Far below, *Munida* was swinging lazily at anchor. A couple of tight turns and we were down into the shadows taxiing in close to the familiar craft lost in a darkening world of bush, sea and sky. It was a happy reunion aboard *Munida* and the noise of the departing Cessna was soon lost as it lifted out of our sight heading east for home behind a high saddle. The Skipper, Bill Tubman, brought us about and we sailed off down the still reaches of the Sound into a glowing sunset and a landfall at Cascade Cove.

Predictably enough, the first night at the camp was rather chaotic as people struggled to sort out possessions in the close darkness of a strange new environment. By midnight all the gear was ashore and we found that in the rush to disembark at Deep Cove, three packs had been left behind in the bus. Fortunately this proved to be not too great an inconvenience and they were duly delivered by plane two days later. Our cooks, Jessie and Margaret Anderson, assisted by Tom Wall quickly settled down to offer an efficient and highly edible meals service night and morning, and so the scientific group were left to get on with the business of investigating our various problems in the area. It took a while to reconnoitre the surrounding countryside and for the first few days *Munida* was extremely busy round the mouth of the Sound, and advantage was taken of the fine weather to sail some way out to sea to allow the National Film Unit to photograph the remarkable Five Fingers headland that is such a conspicuous feature of the entrance to the Sound.

A group of us were interested in having a look at the country above the bushline and so, taking advantage of the prevailing fine weather, pushed up through the bush behind the camp. In many parts of the Sound the bush is severely devastated by deer, consequently, after an initial struggle with supplejack, it is an easy climb to bushline which is reached in about two and a half hours. A belt of particularly savage subalpine scrub is the major barrier to setting foot on the snowgrass slopes above the Sound, however, once through the scrub, travel along the open tops presents few difficulties being confined in the main to steep ridges. To the south of Cascade Cove, the countryside is more gentle, and extensive areas of open country occur above bushline though much of this plateau-like land would be more easily accessible from Preservation Inlet.

In fine weather finding water above the bushline can be a problem as streams are almost non-existent even though the ground is quite waterlogged even in the driest weather. We were fortunate in finding a small trickle



David Galloway examining a stump of a tree cut by Cooks crew (1773) at Astronomers Point, Pickersgill Harbour, Dusky Sound. About an acre of bush on top of the point was cleared so the astronomer William Wales could conduct observations to accurately fix the geographical position of New Zealand. The totara tree stump shown here had remained intact for almost 200 years at the time the photo was taken.

on the far side of the hill, and it proved useful on the two subsequent trips that we made to the slopes above the camp. Predictably enough, the deer have eaten out most of the alpine vegetation and what remains today is a plant succession that is not particularly palatable to deer or rewarding to the botanist. Lichens however were in great abundance in various places and it was thrilling to find further additions to the New Zealand flora including a very large species known only rarely from Tasmania [*Stereocaulon trachyphloeum* (Galloway et al. 1976)].

Back at camp, those hardy enough to withstand the considerable sandfly menace (we brought with us undiluted dimethyl phthalate to counteract this problem) swam in the warm waters of the Cove before dinner. Over a meal, places in the Sound were discussed with great eagerness. Five Fingers Peninsula, Indian Island, Anchor Island, Pickersgill Harbour, Astronomer's Point, within the next ten days were all to become familiar. On board *Munida* we listened to the 9.30 pm weather forecast and were relieved to hear a good report for the south west area. Plans for the next day were made and duly

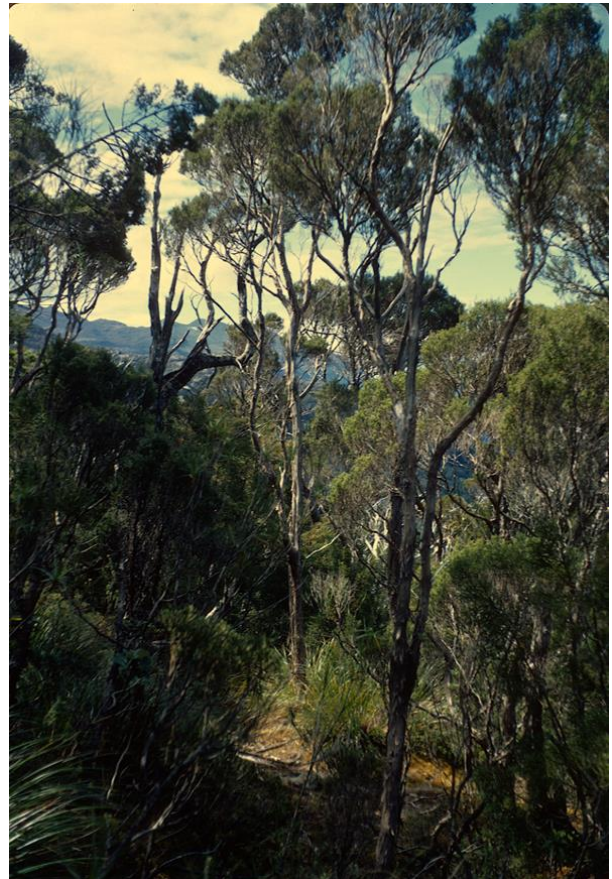
entered in the Intentions Book; the pattern for succeeding days set.

The zoologists had first call on the services of *Munida* and used it to establish a series of collecting stations from the mouth of the Sound to its head at Supper Cove. The geologists using either Tom Wall's boat or *Munida's* dinghy set about describing in detail shore outcrops, an endeavour that entailed long hours in many parts of the Sound. Their work culminated in an overnight camp above bushline on Mt Burnett. The botanists spent several days in making a close examination of the bryophyte flora of Astronomer's Point and later made an extensive survey of Heron and Curlew Islands, two small islands at the mouth of the Cove and still little affected by deer. On Curlew Island they found a massive totara having a circumference of 23 feet.

A day was spent in Wet Jacket Arm, and near its head *Munida* sailed into a dense bloom of a small red alga which had turned several acres of the Sound into what looked like tomato soup. On the way into Wet Jacket, several of us were landed on the eastern shores of Resolution Island and struggled up through the bush onto Mt Clerke, the highest point of New Zealand's fourth largest island. Once through the difficult scrub layer, a rather dismal botanical prospect met our eyes as deer had rather thoroughly devastated the tops, although among the many garnet-encrusted granite outcrops there sheltered many interesting lichens. The descent to the shore was spectacularly steep through failing to locate the deer trail used on the way up.

Besides their work on the marine waters of the Sound, the zoologists also investigated two freshwater lakes, one being Lake Forster at the head of Cook Stream which runs into Pickersgill Harbour, and the other being the lake on Anchor Island. An unusual craft was used for this work and consisted of a tractor inner tube and a pair of lilos lashed together. When paddle with a broom it proved a quite sea-worthy craft.

Throughout the course of the expedition the National Film Unit crew were occupied in shooting scenes for a forthcoming film on Captain Cook, and they spent a great deal of time looking for the exact locations of places recorded by the brush of Cook's artist William Hodges. In between times they took shots of expedition members at work



A site on Mt Hodges at 800 m. The forest is fairly open. This vegetation type is found on thin soils overlying rocky ridges. Manuka, Leptospermum scoparium is locally dominant. Other species present are Halocarpus biformis, Lepidothamnus intermedius, Fuscospora cliffortioides, Leptecophylla juniperina subsp. juniperina, Pimelea gnidia, Dracophyllum longifolium, and the large sedge, Gahnia procera. Numerous bryophytes including the moss Dicranoloma cover the ground. Pimelea gnidia was among the species collected and described by the Forsters, Cook's botanists on the Resolution during their stay in Dusky Sound.

however, I think that most of us felt that their standard of performance required from us was a little too rigorous.

A week passed without rain and while the fine weather lasted it seemed imperative to explore the alpine habitat as fully as possible. With this thought in mind, David Lyttle and I packed a tent and some food and arranged to spend a night out in an effort to survey Mts Hodges and Forster towards the head of the Sound. Struggling through the scrub which clothes Mt Hodges from sea level to over three thousand feet required more than six hours and so the traverse of the long ridge to Mt Forster was regrettably called off. A survey of the rich flora of the summit ridges took most of the remaining daylight and at dusk we were faced with the task of finding an adequate campsite and water, both commodities at a decided discount. However,

good Fiordland rain, the first of the trip, later that night soon put an end to the temporary drought and a fair-sized stream was soon racing through the tent. It was comforting to realise that within twelve hours we would be safely aboard *Munida*.

The rain did not last long and the closing days of the trip were completed in fine weather. It was only towards the end of the trip that we began to come to grips with problems in the field and we all felt that we could profitably use extra time. However, further work will have to wait until another time and another expedition. Our results should serve as a useful basis for extended work in the scientifically neglected coastal country of Fiordland. It is to be hoped that in the future scientific exploration of this region Otago University will take an active part.



David Galloway on Mt Hodges. The view is looking down Dusky Sound towards the entrance. The thickening cloud is a forerunner of the rain which fell that night resulting in water flowing through our tent site and sleeping bags.

The Phenomenon of Urban Beekeeping

Elaine Westcott

Paris, France, is a trendsetting city for more than just fashion. In the past few decades, “the city of lights” has become “the city of bees”. The city currently hosts colonies of honey bees on a diverse assortment of rooftops including the Paris Opera House, the headquarters of the French post office, the Louis Vuitton flagship store and apartment buildings throughout the city. Rooftop apiaries are now found round the world from Tokyo to Berlin, Melbourne to New York City. The next time I visit New Zealand, I’ll find my jet-lag fix at the C1 Espresso shop in Christchurch, which hosts a post-earthquake urban apiary atop its roof.¹

Why bring bees to a city? What is driving this phenomenon across the world and across cultures? Simply put, bees are in trouble and people want to help.

In the past several decades, beekeepers round the world have observed a high number of colony losses. French beekeepers reported significant colony losses in the mid-1990s, followed by beekeepers throughout Europe. Possible explanations for these mysterious losses vary by region. Research suggests that multiple factors are involved such as exposure to pesticides, malnutrition due to monocrop-style agriculture and general colony weakness from an array of pathogens and parasites which plague honey bees, including the *Nosema* fungal pathogen and the aptly named *Varroa destructor* mite, first discovered in Southeast Asia in 1904 and now almost worldwide.

Especially disconcerting is the apparent evacuation of worker bees from the hive, dooming the queen and her brood to starvation. These symptoms are inconsistent with any known causes of honey bee death, and losses from these symptoms are attributed

to “Colony Collapse Disorder” (CCD). Overwintering colony losses are expected in the beekeeping business, though beekeepers are unable to explain the sharp increase to 30-90% of colony losses during the winter of 2006-2007 in the United States, as reported by the US Environmental Protection Agency.² The losses have continued since then.

Honey bees are the most economically significant pollinator of food crops in the world according to a 2010 special report on pollinators by the United Nations Environment Programme.³ Needless to say, farmers are worried.

Many governments, including those of France, Italy, Germany, and most recently the Netherlands, have taken the precautionary measure of restricting pesticides (mostly neonicotinoids) which have been implicated in honey bee colony losses. The US Environmental Protection Agency on the other hand is doing a thorough job of evaluating all potential factors first, but I’m not sure if we have time to spare. However, government bans are not clearly linked to honey bee recovery. Whatever the cause I believe that we can use this heightened awareness of bees to showcase their extraordinary value.

The major hurdle to garnering grassroots support for bees is a simple misconception: most people have a fundamental fear of any flying insect which sports black and yellow stripes. The honey bee, *Apis mellifera*, is the charismatic representative of bees in particular and pollinators in general. I recognise that *Apis mellifera* and its subspecies are domesticated species native to

² United States Environmental Protection Agency, 2012: “Pesticide issues in the works: Honeybee colony collapse disorder” <<http://www.epa.gov/pesticides/about/intheworks/honeybee.htm>>

³ United Nations Environment Programme, 2010. “UNEP Emerging Issues: Global Honey Bee Colony Disorder and Other Threats to Insect Pollinators”

¹ <www.naturalbees.co.nz>

Western Europe and Northern Africa and I understand that championing the cause of “imported” insects in the United States may seem inappropriate. However, as the “mascot” for pollinators, honey bees provide a remarkable gateway through which we can explore environmental stewardship. The potential for engaging a diverse community is especially potent when honey bees are introduced into an urban setting.

I enjoy talking with school children in my area of Los Angeles on the subject of bees, and why they are important. So far I have given presentations to over two hundred students and I can assure you that everyone, from the four year-olds to the teenagers and their teachers, is fascinated to learn that honey bees have two stomachs; that honey is the only food product which cannot spoil and that one-third of our foods are pollinated by bees! Bees are inherently fascinating creatures and it is my mission to help people realise this. Each one of those students will have at least a bit more respect and appreciation for pollinators and I hope that over time, we can reassess our collective fear of striped, flying insects.

For those establishments with beehives on the property, beekeeping is a successful marketing tool: consumers associate the presence of bees with environmental stewardship and more and more businesses round the world are hosting a few thousand buzzing insects in exchange for a public image boost. In order for this strategy to be effective however, the public must first support urban beekeeping. The paradigm of fear around bees is improving, thankfully: I have seen bees both wild and domesticated thoughtfully incorporated into urban agriculture schemes in several countries and the trend is spreading.

Our city council here in Los Angeles is currently debating whether to withdraw its ban on beekeeping within the city limits. In 2010, the beekeepers of New York City set a precedent when they successfully petitioned to legalise beekeeping in the city. Since then cities across America have been following suit; hopefully we're next. Along with my beekeeping friends, I will touch wood - on the beehive, of course - and hope for the best.



Urban beekeeping – beehives in a public park in Paris (Photo: Elaine Westcott)

Meeting and trip reports

13th Annual Geoff Baylis Lecture, Dr Peter Johnson, "Long Leaves and Fat Roots", 10th September 2014

John Barkla

This year's Geoff Baylis lecture was given by Dr Peter Johnson. It was particularly appropriate that Peter, who gained his PhD under Professor Baylis, was the Geoff Baylis lecturer for the Botany Department's 90th year.

The lecture provided an opportunity for Peter to do what he does best – tell evocative stories about the plants and people that have helped shape his distinguished career in botany. It was never going to be a conventional talk and we got an inkling of that when we saw the numerous botanical props he had brought with him – mostly from his and Prue's exceptional Broad Bay garden. Peter anchored his talk in an examination of a couple of plant traits; namely long leaves and fat roots. His stories wove together science, personalities and places that best illustrated the points he was making. Form and function were cleverly exposed – how better to look at root morphology than by observing their ability to block drains!

As was fitting, we heard much of the influence of Geoff Baylis and also Alan Mark, both of whom stimulated Peter's life-long interest in Fiordland. John Holloway, David Galloway, Peter Bannister, Bastow Wilson and Peter Smith were others singled out for special mention.

Peter had some sage advice to anyone interested in studying plants. This included; observe plants closely (especially their leaves and roots), always take notes, draw what you see, and grow plants yourselves – there's no better way to get to know them. His advice for students – write a thesis that can be read in an evening.

Thank you Peter for a richly illustrated, stimulating, insightful, and humorous lecture that was hugely appreciated by the large audience.

Field trip to QEII Covenant on Saddle Hill, 31st August 2014

John Barkla

A large group of members visited this 20 hectare block of dry coastal Otago forest on the Saddle Hill property of Majorie Orr and Colin Mackintosh. The area has been protected by a QEII covenant for some time and comprises regenerating kanuka-dominated forest in a steepish gully. The understorey is quite dense with a variety of broadleaved shrubs and ferns. There has been a long history of replanting that has included many tree species not native to the area. These include kauri (*Agathis australis*), makamaka (*Ackama rosifolia*), taraire (*Beilschmiedia tarairi*), kohekohe (*Dysoxylum spectabile*), rewarewa (*Knightia excelsa*) and titoki (*Alectryon excelsus*). Many of these had been helpfully labelled but others not so were the cause of some debate. Lunch was had in the late winter sun at a picnic table on the valley floor. Afterwards we were led to a site where peripatus, first located here by Anthony Harris, could be found. After some searching we located a few individuals and subjected them to intense scrutiny (they didn't seem to mind).



Members admiring the peripatus on Maureen Howard's hand (Photo: John Barkla)

We were then led up past recently milled plantation forest where the disturbed ground had been abundantly colonised by a couple of our native "weedy" daisies (*Senecio minimus* and *S. glomeratus*). The circuit was

completed through pasture, a small *Eucalyptus* plantation and finally back through kanuka dominated scrub. At the final stop, a horse paddock, the resident horses performed some well-rehearsed tricks for which they duly rewarded. Many thanks to Marjorie and Colin for allowing the Society access to this interesting covenant and for showing us around.

Moss, Liverwort & Lichen Walks and Workshop - the Lichen section, 13th September 2014

Allison Knight

The final activity that BSO organised to help celebrate the Department of Botany's 90th Anniversary celebrations was the Moss, Liverwort and Lichen walks and workshop on Saturday September 13th.

This day brought into focus the myriads of non-vascular plants that are all around us, yet so often are hidden in full view. It was the inspiration of Aimee Pritchard and Kelly Frogley. A light mist helped display these non-vascular plants at their best. In the morning Kelly and Aimee headed off to Nicols Creek with those who were most interested in bryophytes, while Lars and Allison took a tour round the lichens in the Botanic Garden.

First stop was the herb garden, where railing was covered with lichens of all the main growth forms. Among the foliose lichens with flattened lobes were several genera showing a range of distinguishing colours: the pale yellowish hue of *Flavoparmelia haysomii* stood out from the slightly yellowish-green of *Xanthoparmelia*; the *Punctelia* species were slightly bluish green whereas the *Parmelia* species were more greenish-grey. *Menegazzia* and *Hypogymnia* with their narrow, inflated lobes were pale grey, while the *Physcia* had a grey-white appearance. Orange *Xanthoria parietina* was the most distinctive of all the foliose lichens. Shrubby fruticose lichens included pale *Usnea* species, the greyer *Ramalinas* and orange *Teloschistes*. Then there were the tiny crustose lichens with their flat thalli slightly embedded in the wood and

concrete. David Galloway's lichen list was a great help in identifying the two species of pale *Lecanora*, the yellow-orange *Candelariella* and the orange *Caloplaca* on the concrete pillars.

Some of the wooden surrounds of name plaques in the rose garden were beautifully decorated in lichens, while closer examination of some of the "white-barked" deciduous trees showed that they were actually covered in a mass of *Lecanora carpinea*. A maple near the duck pond was covered in so many different lichens that it brought to mind the strong correlation between the cleanness of the air and the number of lichen species present. The rock garden was full of a different suite of lichen diversity, including the cyanobacterial *Pseudocyphellaria crocata* protected by a brown melanoid sunscreen. A couple of *Xanthoparmelia* species were also dark brown with sunscreen, in this case protecting the green alga just beneath the upper cortex. The prettiest lichen on the clay banks on the path above it was the white crustose *Dibaeis arcuata* with its baby pink apothecia held up by slender white stalks. By then we had more than enough lichens to look at more closely in the afternoon. The treasures in the upper garden will have to wait until another day.

Thanks to the generosity of the Botany Department, and especially of Vickey Tomlinson for setting it all out, the afternoon in the laboratory revealed another whole world of microscopic detail, from the cilia fringing the apothecia of *Teloschistes chrysophthalmus* right down to the chains of the cyanobacterium *Nostoc* inside *Pseudocyphellaria crocata* that so entranced Robyn.

Another 12 lichens species, 1 lichenicolous fungus and 1 alga were added to the David Galloway's Botanic Garden list for the Bioblitz, which will bring the total on Nature Watch to over 100. The two most exciting finds to emerge were *Usnea wirthii*, new to the South Island, confirmed by Jennifer Bannister, and *Xanthoparmelia hypoleia*, new to New Zealand, confirmed by Jack Elix. Altogether a day full of fascination and discovery.

Field trip to Macraes Flat 1st November 2014

Moira Parker

Several car loads departed Dunedin at 8.45am and more people were picked up in Palmerston and further on. The plan for the day was to explore three newly created QEII covenants established as mitigation for mining activities by Oceana Gold Ltd.

The first of these, the 47ha Cranky Jims Creek covenant, is a bushy gully with access from Cranky Jim's Road. After leaving the vehicles on a grassy slope it was a short walk to a newly fenced gully. This deep gully comes as a surprise after walking through a relatively flat landscape of tussocks, matagouri, exotic broom and briar rose. The Y shaped gully is dramatic with its almost vertical schist walls and dense vegetation of

mature trees. Lancewoods, *Pseudopanax crassifolius*, are scattered among the vegetation like lollipops and over on the other side of the gully, we could see the large flower heads of *Celmisia hookeri*.

The first plant to catch our eye was a small-leaved clematis in full flower scrambling over a low *Discaria toumatou* bush. The clematis was later identified as *Clematis marata* because of the wide, green or greenish white, sepals. Shrubs of *Discaria toumatou* with their masses of creamy flowers were abundant on the approach to the gully, many with the orange stems of *Muehlenbeckia complexa* twining among the branches..

Not everyone managed the steep climb to the bottom of the gully, and it would be excellent to have a return visit with more time to find an easier route down to the creek. But those who did scramble down found a jumble of large boulders in the bed of the steep sided, shady creek.



Alf Webb looks over part of the deep gully in Cranky Jim's Creek covenant (Photo: Moira Parker)



Helen Clarke and Kate Caldwell admire *Clematis marata* (Photo: Moira Parker)



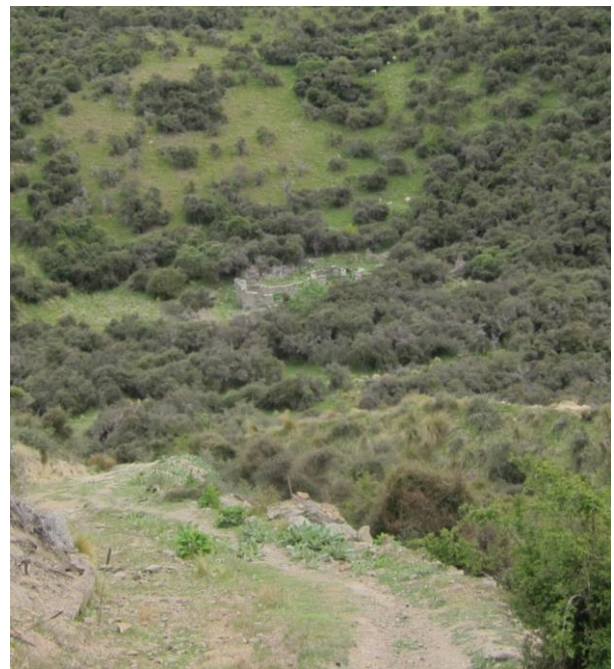
Clematis marata flowers, each with 4 wide, green sepals (Photo: Moira Parker)

Carpodetus serratus, *Griselinia littoralis*, and *Pittosporum tenuifolium* formed the main canopy, with an understory of *Astelia fragrans*, *Blechnum* and *Asplenium* fern species. I saw one spindly *Carmichaelia kirkii*, with a few small leaves and classed as Nationally Vulnerable. Another Nationally Vulnerable species, *Gingidia grisea*, growing in cracks or on ledges of the rock walls, was in flower with its strong smelling, grey green foliage and characteristic leaf shape. Right beside the creek was a small patch of *Arthropodium candidum*, which always looks to me like a miniature of *Arthropodium bifurcatum*, rengarenga lily, widely planted in gardens.

With two more sites to visit, we reluctantly scrambled up the steep sides of the gully and back to the vehicles for the drive to the 103 ha Deepdell Station Covenant. This is more typical of the Macraes area. After walking downhill, battling the strong wind, through tussocks of *Chionochoa rigida* and low growing *Thelymitra* sp, *Ranunculus multiscapus*, *Leucopogon fraseri* and *Raoulia subsericea*, we came to a tall, schist, rock face above a small creek. In this damper site at the base of the rock face were *Olearia bullata* shrubs, *Coriaria sarmentosa*, *Polystichum vestitum* ferns and occasional *Dracophyllum uniflorum* var *frondosum*. Other *D. uniflorum* var *frondosum* were dangling over the cliff top. *Blechnum vulcanicum* is present beneath rock ledges but the search for the rare fern *Anogramma*

leptophylla, which has previously been recorded in rocky outcrops, proved unsuccessful.

Our last stop was the 17ha Highlay Creek, which is both an ecological covenant and a historic reserve. The ruins of what is thought to be an old coaching station are situated at the base of a steep slope close to the creek. Close to the stone ruins of the building relicts of the farming era can be seen: two large rowans *Sorbus aucuparia* subsp. *aucuparia*, elderberry *Sambucus nigra* and gooseberry *Ribes uva-crispa* bushes.



The old stone ruins on the Highlay Creek Covenant (Photo: Moira Parker)

All in all, a very interesting day. Many thanks to John Steel for leading the trip and Marcia Dale who compiled the original species lists and was closely involved with establishing the covenants. Please email John Steel at john.steel@botany.otago.ac.nz if you would like a copy of his species list for this trip.

Editors note: If anyone would like to visit the covenant sites then please arrange access through Debbie Clarke at Oceana Gold via email: debbie.clarke@oceanagold.com.



Blechnum vulcanicum (Photo: Moira Parker)

Plants hanging on like grim death: 12th November 2014

Bastow Wilson

Dr Pernille Bronken Eidesen spoke about the Arctic islands of Svalbard (Spitsbergen to stick-in-the-mud me). She is Associate Professor at the University Centre in Svalbard. It doesn't award its own degrees, but students can visit to take papers and count them towards their degree back home.

In parts of Svalbard there is a polar desert, with temperatures 1-2 °C in summer, very dry, windy, low-nutrients. In other parts it can reach 6 °C. Quite like a Christchurch winter. There's 24-hour daylight in the summer, but the sun's so low in the sky and weak it almost needn't bother. There are no trees, nor shrubs except creeping ones. Svalbard is sort of international territory so in theory you don't need a visa to get there, though why anyone should want to I personally don't know (actually, to get there you have to pass

through Norway, so you do need a visa; Svalbardians seem to like imagining they are more independent than they actually are). Norwegian laws apply in Svalbard (most of them), so you can't murder people and stuff (well, you can, but you'll get into lots of trouble). There's also a Russian settlement, where they speak Russian (apparently to Pernille's surprise). [I should add, for balance, that Lorna Little worked on Svalbard as part of her Ph.D. and gave the BSO a highly-enthusiastic talk about it, as only Lorna can.]

The plants seem to share my view that they'd rather be somewhere else. Only two of the 170 vascular plant species are annuals, the others realise they have to hang on like grim death from one year to the next. Some creep to avoid the wind. Others (or even the same species in other places) form cushions to keep warm and recycle nutrients within themselves (like living on your own dung heap). Ann Wylie asked the age of the pictured cushion, perhaps hoping it was as old as she, but at c. 40 years it turned out to be less than half her age. Pat Mark suggested they go to see it. There aren't many pollinating insects (apparently they have the same impression of the place as I do) so many species have to use runners or bulbils instead of sex, or as insurance. Others self-pollinate.



Saxifraga oppositifolia cushion (Photo: Pernille Bronken Eidesen)

You have to study a lot of the vegetation lying down. This reminds me. Rudy Schuster came to Dunedin several times to study



Sampling on Svalbard (Photo: Pernille Bronken Eidesen)

liverworts (pronounced ‘liverwurts’, colonials please note). He was arguably the world expert on them (except that he was obsessed with oil bodies), probably choosing liverworts because he was extremely short-sighted and could get up really close without needing a hand lens. Once when he was examining tree-trunk liverworts a passing child asked its mother: “Mummy, why is that man eating the tree?”

Back to Svalbard, the low-nutrient status of the soil was illustrated by a reindeer skeleton where the NPK released had caused luxuriant grass growth (by Svalbard standards). Alan Mark has shown similar fertilisation of the vegetation where a flock of merino sheep died huddled together in a storm on the top of the Old Man Range (*Austral Ecology* 36, 581-592). Mind you, the Svalbard reindeer are miserable little buggers. “No bigger than your NZ sheep”, Pernille said. When Father Christmas visits Svalbard he has to use 18 of them, instead of his usual six. There are 700 species of lichen on Svalbard, but they’ve been almost eaten out because the sheepy reindeer love them.

The islands were completely denuded of life in the last glaciation, Pernille assured us, being right in the middle of the Arctic ice sheet. You’d think they’d be re-colonised from Norway, the nearest land, but DNA analyses shew that the nearest relatives of the



Svalbard sheep-like reindeer (Photo: Pernille Bronken Eidesen)

Svalbard plant and animal populations are in Greenland and Russia. From Greenland, seeds blew across smooth ice (the islands presumably above the ice by then). From Russia, they hitch-hiked for a five-year trip on logs floating down Russian rivers and across to Svalbard shores. The logs in the photo looked like they were from a sawmill, but I suppose they have sawmills in Russia. The reindeer walked from Greenland or from Russia, 1000 km over the ice towards they-knew-not-what, rather like the would-be Māori sailing out into the blue (I wonder what the reindeer ate on the way). How did the insects get there? On the wind? Those indoctrinated with Croizatian Panbiogeography and suspicious of dispersalist explanations needed more convincing. We were assured there were no ice-free refugia. Well, there was one mountain-top, but it's bare rock now so it must have been then. The endemic species are a problem: how did they get there? For plants, there's one endemic named hybrid and 2½ (sic) endemic species. The two might be recent hybrids that don't conflict with the glaciation-extinction theory. The half is *Ranunculus wilanderi*, dismissed because it comprises only one population of *c.* 50 plants (but why is that relevant?). There are endemic insect species too, an endemic ptarmigan bird subspecies, and the sheepy reindeer is an endemic subspecies. Have all these evolved in the 10,000 years since the ice sheet left? The Croizat disciples in the audience were not convinced.

It was an excellent talk, with lovely pictures carrying a fascinating story, science clearly explained, and sufficient ideas to argue with for those of us who like arguing. Pernille clearly loves living and working there, even if she expressed it in a lower-key sort of way than Lorna. Thanks Pernille!



BSO trip to the Rock and Pillar 6th December 2014

David Lyttle

In the face of an uncertain weather forecast that kept changing by the day, we decided to go as it seemed there would be a sufficient time on the day before the predicted southerly front would strike. We organised the party into 4WD vehicles at the base of the mountain and drove up the access road on to the crest where our guide and mentor Emeritus Professor Sir Alan Mark planned to collect samples from one of his more recent study plots, a small isolated tarn at 1400 metres. The origin and maintenance of this feature has intrigued Alan, and he and his colleague Professor Ulf Molau, have set up a long term project to investigate its formation and monitor the vegetation changes occurring round it in response to climate change. For a video and description of this feature see; <https://www.youtube.com/watch?v=8B7svUKGKz4>. The party spread out and botanised over the cushionfield and the base of the tors until the strong wind and cold temperatures forced a retreat back to the vehicles and Leaning Lodge Hut where we had lunch. After a brief skiff of rain the party resumed botanising at the snowbank sites around Leaning Lodge where a number of species were observed flowering; *Ranunculus enysii*, *Dracophyllum muscoides*, *Acrothamnus colensoi*, *Ourisia glandulosa* and *Caltha obtusa*. Also prominent was *Celmisia*



Celmisia prorepens, plant growing in snowbank area, Rock and Pillar Range (Photo: David Lyttle)

prorepens, a species that seems to be confined to snowbanks unlike its close relative *Celmisia densiflora*, the alpine shield fern *Polystichum cystostegium* with its unfurling delicate green fronds and colonies of the foliose alpine lichen *Solorina crocea* with striking orange margins. The lichenologists in the party encouraged by Allison Knight had a productive day as well and made a number of significant observations. Further stops were made to look at ploughing rocks and learn about the water harvesting capacity of snow tussocks. As the weather was still holding three of us made a stop at Sutton Salt Lake on the way home to look for the lichen *Buellia epigaea* - only recorded from there. Allison collected numerous lichens from bare patches of soil amongst which was a tiny fragment of the aforementioned one.

Our thanks to Alan for his comprehensive explanations of his and his collaborators research findings gained from work on the Rock and Pillars over many years.

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



Polystichum cystostegium, newly emerging fronds, Rock and Pillar Range (Photo: David Lyttle)



Solorina crocea growing in snowbank area, Rock and Pillar Range (Photo: Allison Knight)



Celmisia haastii var *tomentosa* plant with opening flower, Rock and Pillar Range (Photo: David Lyttle)

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Gingidia grisea growing in cracks of the rock face (Photo: Moira Parker)



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