



# BOTANICAL SOCIETY

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## OF OTAGO

## Newsletter Number 73 October 2014

### BSO Meetings and Field Trips

#### **Wednesday 15<sup>th</sup> October 5.20 pm Talks by Department of Botany Colloquium speakers**

Talks from the Department of Botany student colloquium winners showcasing some of the latest research by our most capable young botanists. A stimulating and varied evening is in store so please come and support the speakers.

#### **Saturday 1<sup>st</sup> November 8.30 am Field trip to Macraes Flat**

A trip to Macraes Flat to explore the newly created QEII covenants established as mitigation for mining activities by Oceana Gold Ltd. Weather and time permitting we will visit all three areas, the first a tussock grassland with little gems, such as *Dracophyllum uniflorum* var. *frondosum*, *Pimelea pseudolyallii*, *Celmisia hookeri* and *Anogramma leptophylla*, hidden away in rocky outcrops. The second site doubles as a historical reserve with the ruins of schist stone buildings thought to be an inn for travellers seeking the goldfields. The ruins are surrounded by grey scrub featuring *Discaria toumatou*, *Coprosma propinqua* and *Melicytus alpinus*. The third site is unusual in the Macraes landscape in that it consists of a bushy gully, native trees being few and far between in the surrounding area. Tree species include *Pseudopanax crassifolius*, *Pseudopanax colensoi* var. *ternatus*, *Griselinia littoralis*, *Carpodetus serratus* and *Sophora microphylla*. Other tidbits include *Carmichaelia kirkii* and *Gingidia grisea*. Rain day Sunday 2<sup>nd</sup> Nov. Meet at the Botany car park to depart at 8.30am. Contact Marcia Dale, phone: 4546706, email: [imaginarycrayfish@gmail.com](mailto:imaginarycrayfish@gmail.com)

#### **Wednesday 12<sup>th</sup> November 5.20 pm Plant life at the margin: colonization and survival on the northern rim of the world**

The speaker is Dr Pernille Bronken Eidesen, Associate Professor at the University Centre in Svalbard, who is presently visiting Botany Department University of Otago. Svalbard is a Norwegian archipelago in the Arctic Ocean that was fully glaciated during the last glacial maximum. It is assumed that all current plants in Svalbard have colonized during the last 10000 years. Remarkably, many seeds have managed to cross large oceans to reach Svalbard, though few have managed to establish. The harsh climate, the short growing season and the low nutrient availability require a range of adaptations. Through pictures and video, Professor Eidesen will present how plants have recolonized the Arctic and in particular Svalbard after the glaciation and discuss some of the adaptations needed to survive on the margin. This promises to be a very

interesting talk as the physical environment and vegetation of the High Arctic is very different to anything found in New Zealand.

**Saturday 6<sup>th</sup> December 8.00 am Field trip to the Rock and Pillar Range**

The Rock and Pillar Range is located northwest of Dunedin. Travelling time to the base of the Range from Dunedin is approximately 1 hour 30 minutes. The eastern side of the range rises steeply from the Strath Taieri and reaches an altitude of 1450 metres. There are extensive areas of alpine herbfield on the upper slopes with the summit plateau being dominated by cushion vegetation. At this time of the year the late snowbank species will be emerging and flowering. We can expect to see *Ranunculus* species, *Caltha obtusa* and the Rock and Pillar endemics, *Kelleria villosa* var. *barbata*, *Abrotanella patearoa* and *Celmisia haastii* var. *tomentosa* in addition to numerous other alpine species. There is 4WD access to Leaning Lodge hut and the top of the range. Dress warmly as the summit plateau is cold and subject to strong winds. Contact David Lyttle, 454 5470 or [djlyttle@ihug.co.nz](mailto:djlyttle@ihug.co.nz)

**Thursday 11<sup>th</sup> December 6.00 pm End of Year Dinner**

At Zucchini Brothers Restaurant, 286 Princes Street, The Exchange. If you would like to come please contact Robyn Bridges phone: (03) 472 7330, email: [robyn.bridges@otago.ac.nz](mailto:robyn.bridges@otago.ac.nz)

**Wednesday 11<sup>th</sup> 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 14<sup>th</sup>- Sunday February 15<sup>th</sup> 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 3 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](mailto:djlyttle@ihug.co.nz)

**Wednesday 11<sup>th</sup> 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 28<sup>th</sup> March 9am 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](mailto: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/>.

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*Counts Point, Larapinta Trail (Photo: John Barkla)*

## Chairman's Notes

*David Lyttle*

This year the Botany Department celebrated its 90<sup>th</sup> anniversary. On such occasions, there is a certain amount of looking back and looking forward, both of which occurred at a symposium held on Friday 12th September to mark the event. Looking back is the easy part of the exercise and justifiable pride may be taken in the achievements of the Department in teaching, research, and service to the nation over the ninety years of its existence. Predicting what the future holds for the Department is not so easy, particularly in times of transition such as is being experienced at present. It would seem likely that climate change and its effects on the New Zealand biota will be the focus of much of the core research undertaken in the Department in the immediate future. Alongside that, and equally important, modern techniques of genomic analysis and informatics promise to deliver an avalanche of data on the plants, fungi and other organisms chosen for study. Careers will be forged asking the right questions and ordering this data to answer them.

This leads arguably to the most important role of the Department, the teaching and education of the students who enrol there. Undergraduate students are expected to learn a lot of stuff; facts and methodologies that may or may not be interesting to them and that in many cases are somewhat tedious. At a recent meeting of the Otago Peninsula Biodiversity Group it was of considerable interest to hear Dr Haseeb Randhawa, Senior Teaching Fellow, Ecology Teaching Programme present the analysis of the data collected by OPBG volunteers that was done by the students of ECOL212 (Ecological Applications) as a practical class exercise. Not only was this analysis of immediate use to those managing the possum eradication programme for the Otago Peninsula, but the students were able to connect with a real, ongoing environmental project and the people running it. According to Dr Randhawa the realisation that their nascent skills were of

value and could be harnessed to advance a community based project was a revelation to the students involved. Fostering an attitude where science is seen as a means to achieve outcomes that makes life for the community more enjoyable and interesting, as in this example, by preserving biological diversity, is the hallmark of a successful teaching programme.

This year's Geoff Baylis lecture was given by Dr Peter Johnson, who spoke about "Long Leaves and Fat Roots". It was particularly appropriate that Peter, who gained his PhD under Professor Baylis, was the Geoff Baylis lecturer for the Department's 90<sup>th</sup> year. Peter covered much botanical ground, but ventured into unfamiliar territory when he showed an inventive appreciation of the virtues of harakeke (*Phormium tenax*) that delighted the audience.

The final event of the week, the workshop on mosses, liverworts and lichens organised by Allison Knight, Kelly Frogley and Aimee Pritchard was a great success. The BSO was fortunate in being able to call on such a group of knowledgeable people to run this event which was very much appreciated by all who attended. Thanks are due to Allison for all her hard work and special thanks to Kelly and Aimee for initiating us into the mysteries of mosses and liverworts.

Congratulations to the Botany Department on attaining its 90<sup>th</sup> anniversary. The BSO looks forward to help celebrate the Botany Department Centenary in 2024.

## Secretary's Notes

*Allison Knight*

Many interesting items have crossed my computer screen since May. It's always interesting to see what other Botanical Societies are up to. Bastow brings their newsletters to our monthly meetings for you to peruse and you can visit the NZPCN website to read their excellent newsletter and see a collation of all the Bot. Soc. activities for the month. The monthly Hort Talk at the Dunedin Botanic Garden is also full of botanical interest. And of course we would

also appreciate any suggestions you might have that would extend the range of BSO talks, trips or activities! In September BSO administered the first round of the annual Peter Bannister Student Field Grant, generously donated by Jennifer Bannister, and three lucky students will be able to extend their research activities. September was a busy month with BSO arranging the Calendar production, the Audrey Eagle Botanical Drawing competition, the Geoff Baylis Lecture and a day of Moss Liverwort and Lichen Walks and Workshops all in the space of 4 days to coincide with the Botany Department 90th Anniversary celebrations. The standard of entries in the Botanical Drawing competition was very high. There's not room in this newsletter for much detail – look forward to a treat in the February newsletter. For a Christmas treat, the beautifully illustrated 2015 calendar and the lichen book are both still available at the Botany Department office. At just under 200g and fitting into an A5 envelope, the lichen book is ideal for posting. Be in quick – the calendar has sold out the last two years. Please come to the office after 1pm and bring correct change.

## Editor's Notes

*Marcia Dale*

**Please submit copy for next newsletter by 15<sup>th</sup> January 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](mailto: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.

## New Members

**A warm welcome is extended to the following new members:** David Galloway, Lydia McMillan, Dylan Norfield, Wayne Easson, Andrea Easson, Pernille Eidesen, Tegan Lamont, Sharon Jones, Joy McCullough and Alex Ghaemaghamy.

**We thank the following for their kind donations:**

David Galloway, Hugh Wilson, Helen Clarke.



*Celmisia ramulosa*, Kaherekoau mountains. (Photo: Kate Caldwell)

## Correspondence and News

### Obituary, Peter James (1930-2014)

David Galloway

Peter Wilfrid James died on Wednesday 10 February, 2014 in Birmingham after a long illness. He enjoyed a wide and richly deserved international reputation as one of modern lichenology's great lichen "generalists", these days a distinctly endangered species. In his capacity of Head of the Lichen Section at the British Museum (Natural History), or the BM as it is widely known by biologists, he was a friend and mentor to a worldwide range of lichenologists of all levels of expertise or ignorance during his term of office there from 1958 to 1990.

Peter was born on 28 April 1930 in the Cornish village of St Just in Roseland across the Fal estuary from Falmouth. His botanical education was a B.Sc. with First Class Honours in Botany from the University of Liverpool. A possible Ph.D. study on the lichens of the Lake Bala region in North Wales never eventuated and instead in 1955 he joined the staff of the Botany Department at the British Museum (Natural History) where he became the BM's resident lichenologist. Almost immediately he was called up for National Service training, being posted to West Germany for most of the next two years, during which time he met the lichenologist Josef Poelt. In 1958 Peter returned to the BM and when the British Lichen Society was formed in that year he became foundation and sole Editor of its journal *The Lichenologist*, a position he held until 1973 when David Hawksworth joined him in an Editorial Board of two.

In December 1958 Peter joined a small, mobile alpine expedition to the Patagonian Andes near Lago Argentino in southern Argentina. Organised by the Tasmanian Geoff Bratt, who was finishing a PhD in Chemistry at Imperial College, his climbing/exploration partner was the well-known mountaineer Eric Sipton, with Peter James providing the scientific impetus which helped with funding.

The trip lasted for three months and Peter returned to the BM in March 1959, with some 2500 lichen specimens and 1500 flowering plants and ferns. It was his first introduction to cool-temperate Southern Hemisphere lichen genera such as *Menegazzia*, *Placopsis*, *Psoroma*, and *Sticta sens. lat.* and their bewildering species diversity, in contrast to Northern Hemisphere populations where only one or a few species are present. In January 1960 he met the Dunedin lichenologist James Murray (1923-1961) who had a sabbatical year in London working at Imperial College but in reality spending most of his time in the BM researching the diverse Australasian collections held in the Lichen Section and at Kew. Peter James and James Murray became close friends and began a fruitful collaboration on all known species of *Sticta* to which they then referred *Pseudocyphellaria* and related genera.

On James Murray's return to Dunedin in January 1961 he began an intensive spell of curating and naming lichens based on his recent experience overseas. He packeted and named the collection of John Buchanan lichens that had surfaced in the Otago Museum the previous year, attended to a large collection of Antarctic lichens that had arrived for him in 1960, and made new collections of his own. I met him as a second-year Chemistry student in March 1961. I haunted his room at the university and he fed my interest in lichens in all sorts of ways and we began making a study of *Ramalina* in the Dunedin area. Jas Murray (as he was known to friends and colleagues) was extremely knowledgeable and helpful and he began opening windows for me into lichenology both here and overseas. His death in June 1961 was a cruel blow to New Zealand lichenology which he was very much in the process of establishing as a viable research study, having published his first three taxonomic papers the year previously. His wife Audrey generously gave James Murray's collections and papers to the university, so now the university was faced with how to handle this munificent gift. Thanks to the foresight of Prof. Geoff Baylis, and the University Council of the day, the Botany

Department Herbarium (OTA) was to become the permanent home for Murray's lichen collection.

*Peter James and the lichen herbarium at OTA*  
The Murray Collection, as it was subsequently known, was moved in 1962 from a storeroom in the Chemistry Dept, to the old Botany Dept building behind the Museum. The Royal Society of New Zealand, the University and the Nuffield Foundation, with the encouragement of Profs Baylis (Botany) and Corbett (Chemistry), arranged for Peter James to have 6 months in Dunedin (October 1962 – March 1963) to identify and curate the Murray lichens to herbarium standards then operative internationally. During this time also, Peter visited the Auckland Islands for a month as part of a Royal Society of New Zealand expedition. I was made Peter James's research assistant as a holiday job at a salary of £12 a week for 8 weeks. During those busy two months I helped Peter with the curation of the Murray Collection, our workplace being the old Stage I laboratory in the Museum Basement. During this time we had visits from two overseas lichenologists who were *en route* to Antarctica, Wolfgang Maass from Canada and Emmanuel Rudolph (1927-1992) from the US. Peter also collected lichens in the Dunedin area and visited Central Otago, Mt Brewster and Fiordland with Alan Mark and Geoff Baylis. He contributed useful lichen notes to Alan Mark's study of forest succession on the Lake Thomson landslides. Peter worked very long hours, and in between curating and identifying, he and George Scott prepared James Murray's lichen keys for publication. After Peter returned to London in March 1963, and until I left for a DSIR job in Palmerston North at the end of January 1969, I acted as Hon. Lichen Curator at OTA with an honorarium of £25 a year (left over from Peter's Nuffield grant). This financed lichen collecting trips to Stewart Island and elsewhere, though these botanical jaunts were frowned on by Prof. Norman Edson my boss in the Biochemistry Dept where I was an Assistant Lecturer. Peter and I kept in touch by letter on a fairly regular basis from 1963 onwards until I went to London 10 years later

to work alongside him at the BM. Peter guided me into and through the convoluted process of preparing a New Zealand lichen Flora, and I have recorded my gratitude to him for this.

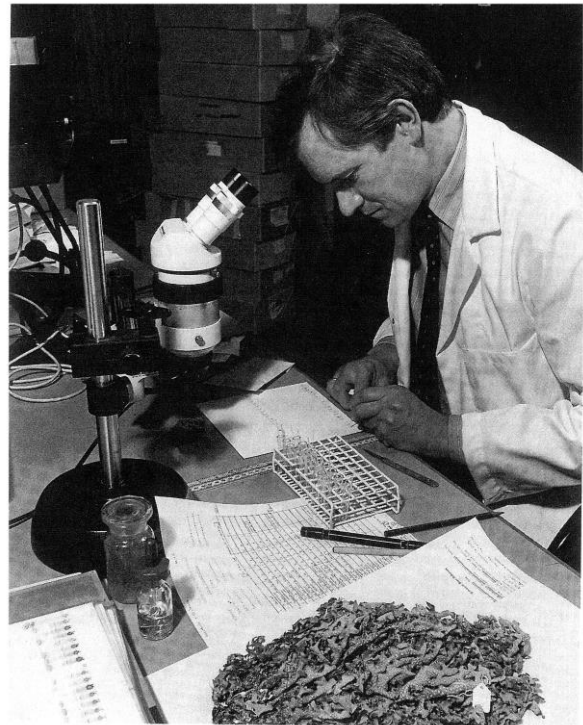
The lichen herbarium at OTA dates from February 1963 when the Murray Collection (some 5000 numbers) began to be laid in to the existing Botany Department Herbarium which was then a series of cupboards in the old preparation room, behind the Botany Library which lined the wall leading to Prof. Baylis's Office. A year later when Botany expanded into the space formerly occupied by the Dept of Zoology, an expanded set of herbarium cabinets formed the outer walls of a herbarium space that had tables and a good amount of room for examining specimens, quite unlike the rather poky space that is OTA these days. The John Buchanan Collection which James Murray curated in January 1961 was laid in, in manila folders at the start of the lichen collection, and I made a detailed catalogue of this in January 1973 before I left for London. Then followed the rest of the lichen collection in folders arranged alphabetically with much easier access than the present restrictive compactus system allows. It followed the arrangement used by most of the international lichen collections such as BM and UPS. The Murray Collection was complemented with additions from William Martin, Alan Mark, David Scott, George A.M. Scott, and from 1964 onwards, with OUSSA collections from various May trips. The Scott Thomson collections were still in their tobacco tins in crates but over the years, several hundred specimens were put in OTA packets under the direction of the late Dr G.A.M. Scott before he moved to Monash University. When the Botany Department moved from the Museum Basement across the road to the old Surveying Department building, the working space available for the herbarium was diminished by the herbarium being accommodated (mistakenly in my view) in compactus units, with the lichen collection put into boxes with specimen packets stored vertically.

On my return to NZ in November 1994 we



lived in Dunedin for a year until our house was built in Central Otago. The late Peter Bannister found some funding for curation of the Jack Scott Thomson collection (of some 4000 collections) and over the ensuing two years with Jennifer Bannister's help, for four hours or so each week we put names on a significant number of JST specimens, uncovering many type specimens in the process.

Peter James's death marks the end of an era in New Zealand lichenology in general and for Otago lichenology in particular, as he has a special place in the formation of Otago University's lichen herbarium (OTA). In this note I am pleased to place on record Peter's distinctive contribution to both Otago lichenology, and also the founding of the lichen herbarium at OTA which was, in large part, due to his patient yet energetic curatorial work.



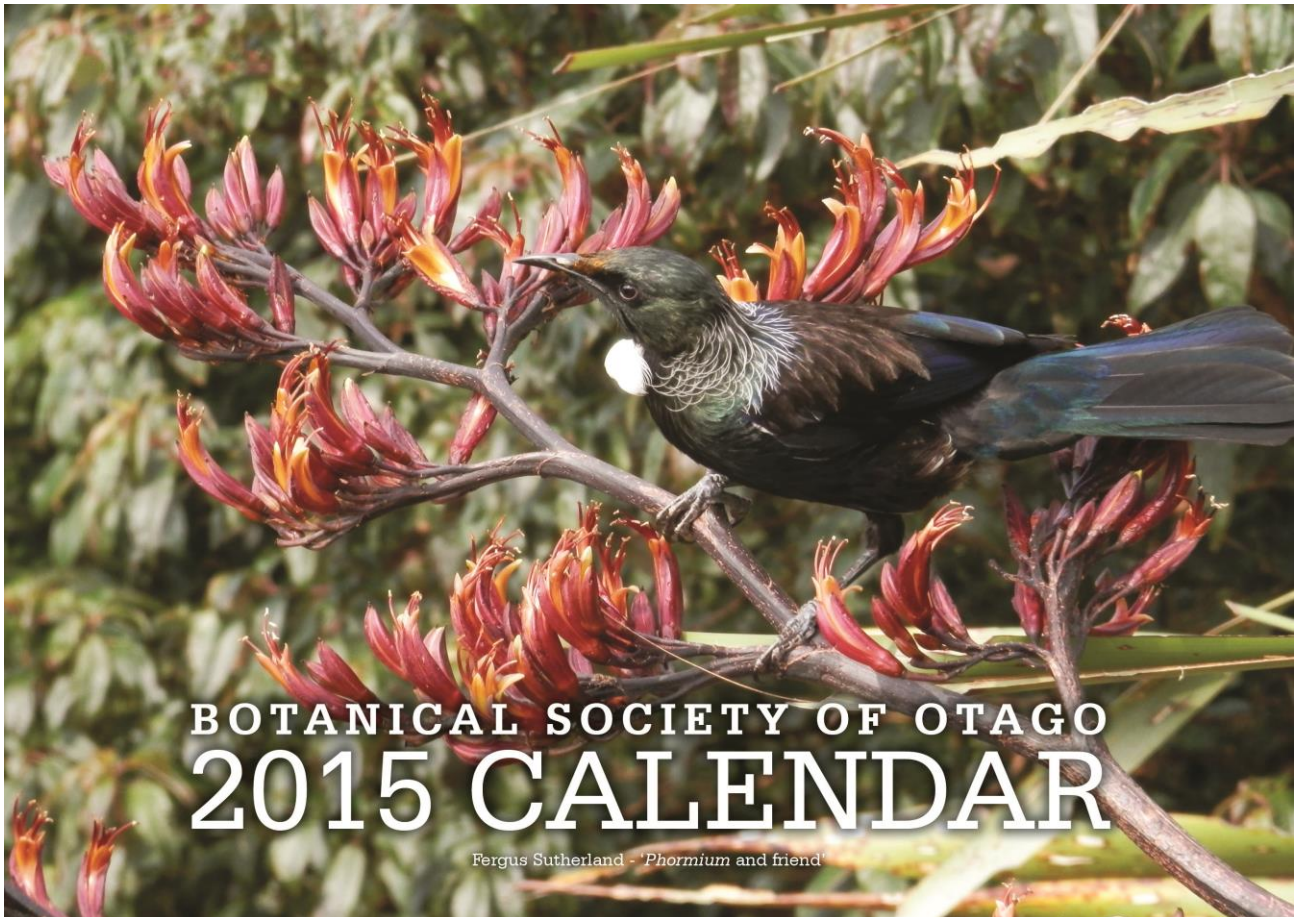
*The late Peter James. (Photo: Colin Keates)*

## NZIFSB Dunedin Seed Collector Training Workshop 10-12<sup>th</sup> November 2014

The second South Island seed collector training workshop for the New Zealand Indigenous Flora Seed Bank (NZIFSB) will be held at the Dunedin Botanic Garden. This workshop will cover the appropriate methods and protocols for collecting seed for the New Zealand Indigenous Flora Seed Bank. Attending a workshop is a requirement for anyone wishing to be involved in this project as a collector. Numbers for the workshop will be capped at 25 people. The workshop will be led by the NZIFSB Project Leader, Mr Craig McGill. The first day of training will cover theory and the second and third days the practical side of collecting through expeditions into the surrounding forest parks. Full details are:

- **Date and time: Monday 10<sup>th</sup> November – Wednesday 12<sup>th</sup> November 2014 (9.00am – 4.00pm each day)**
- **Venue: Dunedin Botanic Garden**
- **Refreshments for morning and afternoon tea will be provided.**
- **There is no workshop registration fee but you will need to bring your own lunch, or food can be purchased from the Croque-O-Dile Café (which is open from 9.30am to 4.30pm and is located in the lower garden beside the Information Centre), or food can be purchased from the Gardens shopping centre which is a 5 minute walk from the training room.**

Please register your interest early to avoid disappointment! To register or for further information, please contact the Seed Bank Coordinator, Mrs Jessica Schnell at (06)356 9099 Ext 83236 or email [J.L.Schnell@massey.ac.nz](mailto:J.L.Schnell@massey.ac.nz) by Wednesday 5<sup>th</sup> November 2014.



**The Botanical Society of Otago's 2015 calendar is on sale now**

**\$20 ea. (or multiple copies for \$18 ea.)**

[add \$2.50 for mail orders]

Available after 1pm from the Botany Department Reception, University of Otago  
(**cheque or correct amount of cash only**) & at Society meetings

For electronic payment email the Botanical Society of Otago ([bsotago@otago.ac.nz](mailto:bsotago@otago.ac.nz))  
with your name, address, and whether you want to collect the calendar from Botany  
Department reception or have it posted, and payment details will be sent

All proceeds to the Botanical Society of Otago <http://www.otago.ac.nz/botany/bsotago/>



## **Lichens of New Zealand: An Introductory Illustrated Guide** *Allison Knight*

A5, 56 pp, full colour, laminated cover.

Published by the Botanical Society of Otago using the Audrey Eagle Botanical Publishing Fund.

This introductory guide celebrates the extraordinary diversity of New Zealand lichens with full colour images of over 250 common lichen species plus a glossary illustrating over 60 useful identifying features. Species are divided into four colour-coded ecosystems and displayed in order of the three main growth forms. New Zealand is exceptionally rich in lichens and harbours around 10% of the world's lichen species. They are an important, yet often overlooked, component of every ecosystem from the seashore to the mountaintops and contribute over 1800 taxa to New Zealand's biodiversity - nearly as many species as seed plants.

### **Ordering details**

\$20/copy. 10% discount for members of Botanical Societies and JCBLW participants (\$18/copy)

25% discount for orders of 10 or more (\$15/copy)

### **Pick-up at the Department of Botany Office, ONLY after 1pm,**

479 Great King St., Dunedin North, New Zealand

Only **CORRECT CHANGE** or **Cheques**, please.

**Cheques payable to Botanical Society of Otago**

Or order in advance by **Internet banking:**

Westpac Account No: 03 0905 0029158 00.

Code: *Lichen Guide*

Reference: *Your name*

### **Postal orders: add Postage and packing:**

1–2 copies @ \$2; 3–6 copies @ \$5; 7–12 copies @ \$6

**Email:** Pay by **Internet Banking** as above.

**Post:** Send **cheque**, as above, to: Treasurer, BSO

PO Box 6214, Dunedin North 9059

**Be sure to enclose or email your delivery address to: [bso@botany.otago.ac.nz](mailto:bso@botany.otago.ac.nz)**



web: <http://www.otago.ac.nz/botany/bso/>

All proceeds will go to the Botanical Society of Otago to replenish the Audrey Eagle Botanical Publishing Fund.

## Social Convenor required

The BSO committee is still lacking a social convenor. The position requires someone who is able to organise drinks and nibbles for each monthly meeting followed by dinner afterwards at a restaurant of their choice. Please contact Marcia Dale ([imaginarycrayfish@gmail.com](mailto:imaginarycrayfish@gmail.com)) if you would like to take up this role.

## The Peter Bannister Student Field Grant Awards

The Peter Bannister Student Field Grant Fund was established 2014 by Jennifer Bannister in memory of Peter Bannister, Professor Of Botany, University of Otago 1979–2005. The grant is administered through the Botanical Society of Otago. Grants are awarded to students enrolled for postgraduate degrees at the University of Otago to assist with fieldwork related expenses. The research projects to be supported are chosen on the basis of appropriateness to the objects of the Society, namely to encourage the study and knowledge of botany.

This is the first year that the Peter Bannister Student Field Grants have been awarded. The 2014 Grants were awarded to the following recipients:

**Amy Clarke** (MSc, Geography) **Project Topic:** *Climatic drivers of large-scale alpine plant diversity in New Zealand* \$1000.00 to survey the vegetation at two alpine herbfield sites in order to ground truth a data driven and theoretical study.

**Bryce Kahlert** (MSc, Botany) **Project Topic:** *Canopy soil mycorrhizal effects on microbial diversity* \$500.00 to undergo a specialist training course in tree-climbing techniques to enable the collection of tree canopy soil samples.

**Matthew Desmond** (PhD, Marine Science) **Project Topic:** *The impact of land modification on coastal-reef primary*

*productivity* \$500.00 for assistance for boat time to sample macroalgal communities.

Congratulations to Amy, Bryce and Matthew. We trust that these grants will assist them in bringing their research projects to a successful conclusion.

## Articles

### Cultivating Wilderness

*By Kate Caldwell, curator of the NZ Native Plant Collection at Dunedin Botanic Garden*

Going from earnest horticultural apprentice, to baffled field botanist, to managing a plant collection, has been the most enjoyable learning curve I've ever embarked on. As a gardener, I am interested in how we can translate the unique character of our New Zealand plants and landscapes in a way that's effective, accessible and practical. The following is a reflection of some of the ideas that lie behind my gardening practice – a few thoughts on native plants, working at Dunedin Botanic Garden, and being inspired by the wild.

There are plenty of botanists who dabble in gardening, and a lot of gardeners who are botanically-inclined. Two breeds of fleecy-wearing, weather-sniffing plant whisperers – I think we can learn a lot from each other. If you see me at work in the NZ Native Plant Collection at Dunedin Botanic Garden, do come up and say hello. There is nothing better than meeting fellow plant lovers.

Even though I worked all over the Botanic Garden when training as an apprentice, I have always loved native plants the best. What fascinates me most about plants is their morphology, the visible adaptations to their environments which have made them unique and beautiful. With natives, I like to picture the habitats, the climatic conditions and the plant and animal communities each species has evolved with, while I weed my way around it or snip with secateurs.

As an avid appreciator of the natural forms of plants, I used to feel a bit torn as an

apprentice. I wasn't sure about all the preening and pruning we gardeners do. Nature's garden is so unfathomably complex and aesthetically perfect, I felt, in moments of doubt, that gardening was a frivolous pursuit. I felt drawn to the wild.

I am happy to report that I have lost this sense of unease about the proprietorial nature of gardening. It was a stint working for the Department of Conservation in some of the truly wild places of New Zealand that re-inspired my enthusiasm for native gardening. For a couple of years after my apprenticeship at the Botanic Garden, I worked doing biodiversity monitoring throughout the South Island, and spent a winter on the Chatham Islands doing revegetation planting. During this time I became a data-gathering field robot. I joined a team of ecological superheroes, with measuring tapes for grapple guns, and hand lenses providing the power of super-magnified vision. Dropped from a helicopter on the side of some remote mountain, we would proceed with our 20x20m measurement plots, shouting coordinates and rattling off six letter species codes.

In truth, there have been, and will be many more, greater, tougher, and faster field workers than me, with sharper memories, more pluck under pressure, and greater wits when it comes to hairy stipules and indusium flaps. But I did develop a much better toolbox for identifying plants in the wild. I enjoyed this game of botanical twitchery. It was like a really complicated game of 'Guess Who'. And, as a curious horticulturist, I couldn't help thinking about what I could do with these plants back at home.

When waiting for a helicopter on the top of a mountain, I would be gazing around the schisty landscape, wistfully stroking raoulias, picturing how I might make my own mini mountain in a hypertufa pot, or wondering how one might translate a hillside of flowering aciphyllas into a garden setting. In the forest I would wonder how the tiered structure of a forest could be replicated in a backyard. I pondered about moss gardening, and the best ways to grow droseras, orchids, or the tiny herbs from the seepy forest-floor.

Of course, like any of you, I would never take even an ounce of seed from our conservation estate, even with a whole ridge of perfectly ripe *Celmisia* seeds and a bundle of bryophyte collecting bags in my pocket, but I couldn't help but notice there was a lot of it around.

The environment a plant grows in in the wild, of course suggests to us what cultural requirements should be mimicked in a garden setting. And I really believe that nature provides us with the best planting combinations, and the most harmonious ways to use colour, texture, contrast, and shape.

I have always felt inspired by the wild, but the more time I spent in remote ecosystems, the more I came to think, a garden is not the wild, and never will be. The sight of a *Myrsine divaricata* in the forest understorey - etiolated, leggy, and dripping with *Usnea*, is a far cry from the huge, tight, bushy specimens in the Botanic Garden. The soft, feathery *Aciphylla dieffenbachii* I had first met as a garden plant looked completely different on the cliff top herbfields of its native Chathams home. It was small, hard and compact - and it was being crawled over - and fornicated upon - by the endemic nocturnal weevils that live almost exclusively on those particular plants, on those particular cliffs.

In a way it is liberating to accept that gardens are mostly artificial environments. However, within these environments it is still possible to provide an interpretation of wild places, at the same time making a haven for insects and birds. A hillside of *Carex trifida* waving around in a salt storm on Mangere Island is a feast for the eyes. But in a manicured garden context, the *Carex* looks messy with its scraggly old leaves and needs to be judiciously placed if the casual visitor is to appreciate its charms. In a beech forest, dead standing trees, melting away into moss and mycelium, seem as at home as anything else in the forest, but in a public garden, dead trees could be considered unsightly by some, take up valuable space, house pathogens and may be safety hazards.

It's great to take inspiration from nature, but nature seldom has to grow such a huge mixture of plants in such a small area while providing labels and interpretation, paths and



*Checking out plants on Mangere Island (Photo: Kate Caldwell)*

lawns, water pipes and rubbish bins. A reality of gardening is living with a tension between the desire to display plants in a way that at least vaguely represents their natural communities, while growing as many species as possible in a small space.

The design of a garden has to allow for efficient maintenance too. As caregiver of the Native Plant Collection I would love to spend my days pulling out every weed, finding jaunty ways to grow epiphytes on tree branches, arranging rocks in an artful fashion and doing mini experiments to see what grows best where. The need to keep super-thorough records of where every plant comes from is equally as desirable. So is giving each plant individualised attention all year round, but with only one apprentice plus me and the occasional volunteer to maintain the entire collection, it is crucial to develop practical, low maintenance designs and systems so there is time for all the other jobs involved in managing a plant collection – keeping up with plant records and labelling, maps of the borders, monthly reports, training apprentices,

a phenology diary, responding to questions from the public and the educational and scientific community, and making plans for the future.

I've now embraced the need for endless cultivation and titivation that is inherent in botanic gardening. The necessity of weeding, pruning and differentiating is now obvious to me in this relatively small area where we are trying to captivate, educate and demonstrate. Within the defined limits of a plant collection, there is huge scope for interesting planting designs that use the textures, colours, layers and plant combinations seen in nature.

Spending some time roaming our conservation estate has also given me a greater appreciation for the role of botanic gardens in conservation. I like to think we are playing an active role in safeguarding our native plant species and not what some people might think of as just fluffing around making things look pretty (not that making things look pretty isn't an honourable pursuit in itself!) There are many ways in which botanic gardens play an active role in conservation,

that are more tangible to the average person than helicoptering around the hills with a measuring tape.

Dunedin Botanic Garden quietly abides at the edge of the valley, full of riches that are accessible to everyone. The Native Plant Collection is here as a resource for people who want to learn about the plants and ecosystems that inhabit this remarkable archipelago we are lucky enough to share with them. It is also a horticultural resource where we can see the interesting variety of plants that can grow in our local climate. Of course, from a conservation perspective, eco-sourced local species are always the best choice for our own backyards, but then again we do have horticulture to thank for bringing plants such as *Clianthus puniceus* and *Pennantia baylisiana* back from the brink of extinction.

I must admit I was always mildly sceptical of the notion that growing populations of threatened plant species in a garden, hundreds of miles away from where they are naturally found in the wild, was doing all that much for them apart from providing advocacy, but so many of our plant species really are that threatened, their distributions are that small, and their populations are so vulnerable to natural or human-made disturbances, that we really do need to cultivate them in *ex situ* populations to ensure their survivability. Coastal Otago conditions may be far less than ideal for growing rare alpine species, for example, but at least where they can be grown in a garden they have a chance of thriving without being trampled and munched by ungulates. Seeing the fragility of some of these threatened plant populations reassured me of the value of botanic gardens' role in conservation.

I still love the natives the best. The filiramulate shrubs, the waxy mega-herbs, the vast tussock lands, the jewel-like berries favoured by birds, the small white flowers pollinated by insects – each tells a story that is part of our natural history and culture. Part of my job as a botanic gardener is to help develop and share these stories. This rather earnest intention is in the forefront of my mind as I get to know this plant collection, a

living treasure which has developed under the caring hands of botanically-minded gardeners for almost 100 years. As I acquaint myself with the inhabitants, microclimates and regular visitors to the Garden, I am grateful for the opportunities I've had to meet many of the species in the collection in their wild guises. And, to end on an extremely cheesy note, as I settle in for the long game of learning to care for the collection, I hope to grow along with the plants.

### **Opinion: Different opinions on climatic change**

*J. Bastow Wilson*

In February, BSO members heard the opinions of the UN IPCC<sup>1</sup> on present and future climatic change in a talk by an IPCC panel member, Prof. Ulf Molau (reported in the May BSO Newsletter).

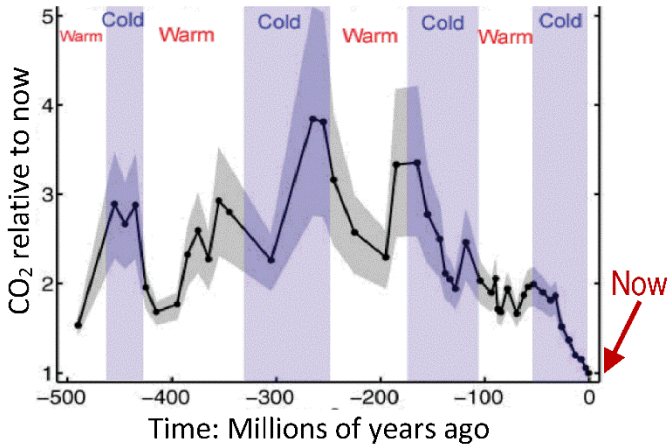
However, another group of scientists, the NIPCC (Non-governmental International Panel on Climate Change), beg to differ from the view that human CO<sub>2</sub> emissions are environmentally harmful, and I was asked to provide a balancing view. The IPCC has the status of being official, but the NIPCC believes its independence from government funding and from the editing of its reports by government officials make it more objective. You decide!

### **CO<sub>2</sub> (carbon dioxide) in the air**

Natural CO<sub>2</sub> in the atmosphere has varied during the Earth's history 180 – 7000 ppm (parts per million). No argument between IPCC and NIPCC there.

It has risen from c. 300 ppm before the Industrial Revolution (say 1860 AD) to c. 400 ppm now. On current trends it may rise to between 500 and 900 ppm by 2100 AD. No argument.

This will increase the growth of almost all plants<sup>2</sup>. A few crop varieties will play stupid, producing more leaf and less of the parts we want to eat (e.g. seeds). Farmers may need to change a bit. Experiments suggest that some



natural plant communities will hardly notice; in others some species will respond more than others and the species composition will change, which conservationists will not like.

**Effect of CO<sub>2</sub> on temperature**

The direct<sup>3</sup> greenhouse effect of increasing CO<sub>2</sub> to double its pre-industrial levels (i.e. to 600 ppm) will be to raise global temperatures by about 1 °C. No argument.

GCM<sup>4</sup> models of the atmosphere and ocean predict that because of dominantly positive feedbacks (notably via atmospheric water vapour) the increase will be not 1 °C but 3 °C (range 1.5 – 6). Here is the disagreement. The NIPCC are unconvinced that the IPCC’s GCM projections are accurate. Often the problem with models is the quality of the data fed in, but the problem for GCMs is that although the basic laws of physics are established, the balance of the many complex processes that affect global climate at all scales is not. The models the Met Service uses for weather forecasts are basically GCMs, but computer power limitations mean that the IPCC’s GCMs have to act on a coarse grid, while many climatic events are local and short-term (e.g. thunderstorms). Plus, they are expected to project 2000 times further into the future than weather forecasts.

**Observed and predicted temperature changes**

Temperature varies on all timescales, from millennia to decades (and in Dunedin from one ¼-hour to the next). Most fluctuations are

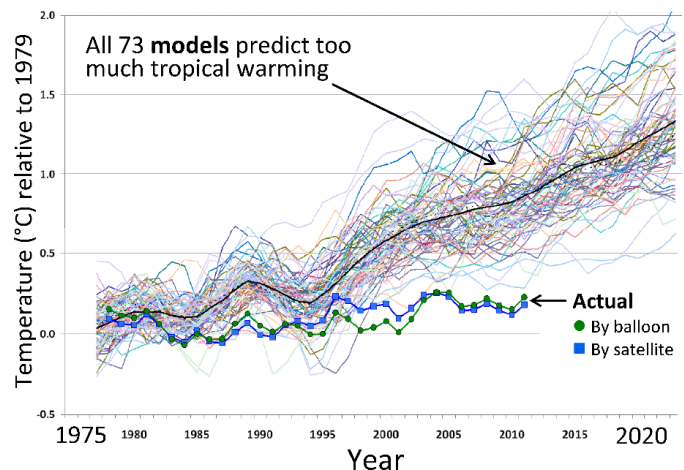
caused by the sun’s activity. Temperatures were higher than now in mediaeval times, even higher during the Roman Empire, even higher in the Bronze Age, and 8°C higher 200 million years ago. Today’s are notably low. From 1980 to 2000 AD temperatures increased, but no faster than they’ve done naturally in the past<sup>5</sup>. They’ve risen 0.4 °C in the past 50 years, but that is less than natural year-to-year variation. No argument.

The major GCMs agree fairly closely with each other. Unfortunately they don’t agree with reality (a Danish proverb says “It is difficult to make predictions, especially about the future”). The cynics say that the IPCC modellers have got round this by amending their models after the changes have happened. It was supposed to get warmer but we’re having big freezes? Predicting ‘extreme events’ explained that, and also explains why tropical cyclones have increased. Except they haven’t<sup>6</sup>. The models were flummoxed by the failure of temperatures to rise over the last 17 years, but now they’re being fixed.

Even the best IPCC models shew that temperature changes so far are within the range of natural variation, and that even if their projected warming eventuates it won’t go outside natural variability until about 2050 AD. We shan’t be sure of any effects of increased CO<sub>2</sub> until then<sup>7</sup>.

**Some mis-terminology**

‘Carbon pollution’: Carbon is black dust, which sounds nasty, but they mean carbon dioxide. Not the same thing, like hydrogen gas and water are not the same thing. Anyway, CO<sub>2</sub> is essential for plant growth and therefore essential for life on Earth. CO<sub>2</sub> is not a pollutant.





‘Climate change deniers’: Actually, NIPCC scientists emphasise climatic change, and that it has always occurred naturally on all timescales.

‘Ocean acidification’: This is a myth. Historically and geographically ocean pH has varied from c. 7.8 to 8.5. It can change daily or monthly by 0.3 pH units. The decrease in pH caused by 600 ppm CO<sub>2</sub> in the air is projected to be 0.25 pH units. No argument. Even this small change could have biological effects<sup>8</sup>, but no more than the responses already observed as marine organisms adjust to similar natural hourly, daily or seasonal changes in pH. In any case, ocean pH certainly won’t go below 7, so the ocean won’t become acid.

### Conclusion

Scientists advising both IPCC and NIPCC are providing a valuable public service with their analytical summaries of the latest research literature on climatic change. Any well-informed view, and especially any political actions that seek to fix the “global warming problem”, need to be based on thorough knowledge and understanding of all sides of this complex and challenging scientific dispute.

### Bastow’s opinion

Although this is marked ‘Opinion’, I’ve just been giving the NIPCC’s position. Who is right, IPCC or NIPCC? That’s difficult, because the IPCC are being dogmatic, whereas the NIPCC are generally saying “We don’t know; but the balance of the evidence provides no cause for alarm”. I do note that the NIPCC case is based on facts, but I also have the impression that both IPCC and NIPCC are selective in the facts they cite. There’s also a scientific opinion that we are heading into another Ice Age, and any human-induced warming would stave that off. Perhaps it is already doing that<sup>9</sup>.

feedbacks. **4** Global circulation models. **5** E.g. before and at the end of the Younger Dryas period. **6** Fitchett & Grab (2014) *Int J Climatol* DOI: 10.1002/joc.3932. **7** Santer et al. (2013, *PNAS* 110 17235-17240) claim they can distinguish human-induced warming. Mora et al. (2013, *Nature* 502 183-187) give the 2050 AD estimate, the exact year depending on where you are, what happens to CO<sub>2</sub> levels, and what model is used. Actually, by 2050 AD I shall have gone the way of *Raphus cucullatus*. **8** E.g. Bednaršek et al. (2014, *Proc R Soc B* 281 20140123). **9** Ruddiman (2003) *Climatic Change* 61 261-293.

### Saying it with flowers

Tegan Lamont and John Steel.

In the good old days before reading and writing were common-place - like now really, but without all the technical aids that have replaced them - it was common to add a plant, especially a flower, to a picture, often a religious picture. These plants were used to represent saints or rulers or important events, and their stories so that those viewing the image could understand the message.

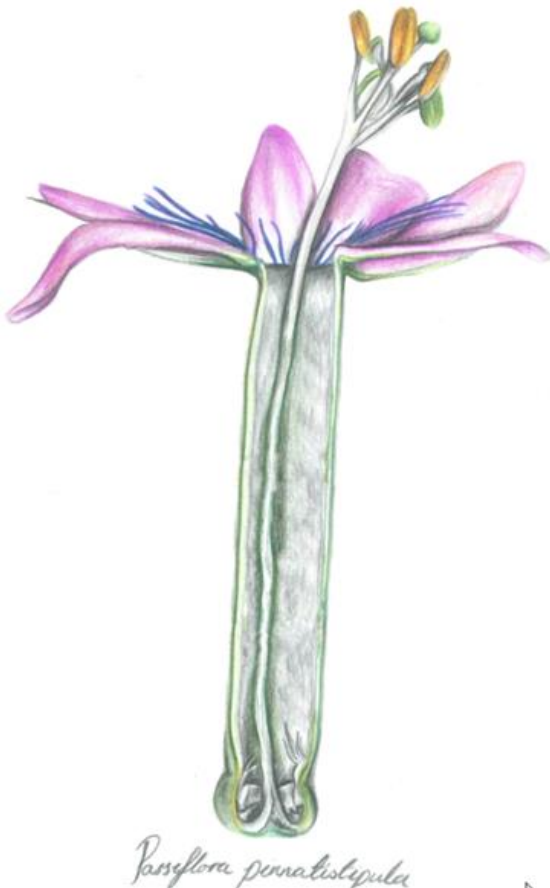
On the recent field trip to the Goodwood Reserve the group was confronted by one such plant, the invasive passion-fruit, *Passiflora pinnatistipula*, with its large, round, yellow berries unlike the elongated ones of the banana passion-fruits, *P. tripartita* vars. *azuayensis* and *mollissima*.

There are at least two, maybe three, species of passionflower making their presence felt about the town. They don’t endear themselves to everyone, but the flowers are undeniably beautiful and their fruit, a berry, provide ample opportunity for a free and nutritious feed for man and bird and other animals which return the favour by spreading their seeds. The leaves are, however, poisonous so don’t be tempted there.

The flower was used to remind believers of Jesus’ suffering at the crucifixion and its different parts could be used to remind them of what happened over those significant days. The pointed leaves refer to the tip of the Roman soldier, Longinus’, lance which he stuck into Jesus’ side. (Several of these lances are still to be found, none of which have done their owners any favours. Charlemagne was doing just fine until he dropped it and

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**1** Intergovernmental Panel on Climate Change. **2** Idso CD & Idso SB (2011) *The Many Benefits of Atmospheric CO<sub>2</sub> Enrichment*, Vales Lake Publ, ISBN-13: 978-0981969428. **3** I.e. without considering



subsequently (consequently?) died. Likewise Barbarossa and Hitler, the latter of whom reportedly died a couple of hours after the Americans retrieved the spear from his acquired booty. They off-loaded it back to Germany and they haven't won a war since – powerful stuff!!).

The tendrils, modified axillary-inflorescences, represent the scourges used to whip Jesus before he started on his fateful walk to Calvary. There are ten tepals (or five sepals that look like petals and five petals). Not an easy number for them to deal with so by dropping St. Peter for denying his Lord and the unfortunate villain, Judas, they were left with the ten faithful disciples. The five stamens represent the five wounds (for those who don't know the story, one each to the hands and feet and Longinus' contribution).

The numerous filaments that comprise the corona represent the Crown of Thorns. These are not present on all species, but I guess they just dealt with the species they had, possibly *P. caerulea*. The ovary, just visible here amidst the stamens, and the androgynophore (great word!), the long stalk that connects the

ovary with the receptacle, represent the hammer used to drive home the nails.

The hypanthium, the long tubular structure, represents the Holy Grail.

Not all species are pink like ours, but instead are a vivid blue with white which finishes off the story nicely with a pretty picture of Heaven (which is, apparently, blue) and white for purity. This species is possibly *Passiflora caerulea* (or something similar) which is also a more likely earlier candidate for the story – and now naturalised in the North Island.

It has been used as such throughout Europe with a variety of Christian epithets, one of the more dramatic of which would have to be an awe-inducing, Mother-of-God's Star. Examples of these stories abound. They are great for encouraging observation and if you don't know one and want to put the message across, try inventing your own.

### Latest news on *Kunzea*

John Steel

It's been a long time coming, but at the end of August a new treatment of *Kunzea* was released: Lange, P.J. de (2014) A revision of the New Zealand *Kunzea ericoides* (Myrtaceae) complex. *PhytoKeys*, 40:1-185.

The *Kunzea ericoides* aggregate has now been divided among ten species; mercifully only two of these are recorded from Otago. This is a hugely detailed work and I cannot think of any character that has been overlooked. I have listed a few of those that appear to be the most helpful although I am yet to try them out and would be interested to hear any response from those who do once flowering starts. The first division would seem to be the most worrying, but with access to the others it should be possible to work through them. The article is freely downloadable from:

[http://phytokeys.pensoft.net/articles.php?id=1924#articles.php?id=1924&\\_suid=14090843414910042818116868530265](http://phytokeys.pensoft.net/articles.php?id=1924#articles.php?id=1924&_suid=14090843414910042818116868530265)

This is a superb example of how revisions should be approached though at 185 pages you had better be prepared for a very early bedtime!

### Key to the *Kunzea* of Otago

1a. Branchlet hairs on new season's growth mostly divergent; divergent hairs up to 1 mm long  
..... *serotina*

1b. Branchlet hairs on new season's growth mostly antrorse-appressed; hairs up to 0.7 mm long  
..... *robusta*

**N.B.** These two species have been known to hybridise and then the characters tend to reflect those from both species with the mixture of branchlet hair types being possibly the most useful.

	<u><i>robusta</i></u>	<u><i>serotina</i></u>
<b>Habit</b>	broad, spreading canopy	columnar, pyramidal, but becoming flat-topped with age.
<b>Branchlet hairs</b>	antrorse-appressed 150-380µm (mostly) to 50-150 µm	divergent 50-80 µm apices weakly curled
<b>Leaves</b>	(5.8-)9.3(-12.3) x (1.2-)1.8(-2.2) mm adaxially light-green, abaxially paler  midribs basally clad with fine, deciduous, antrorsely-appressed hairs	(2.0-)3.7(-6.3) x (0.8-)1.1(-1.8)mm dark glossy-green or bronze-green, margins and bases often flushed red midribs glabrous, sometimes basally hairy
<b>Inflorescence</b>	(1-)12(-30)-flowered up to 60 mm long	(1-3-)8(-12)-flowered up to 20 mm long
<b>Hypanthium</b>	broadly obconic to turbinate, rarely cupular (2.1-)3.1(-4.1) x (3.0-)3.9(-5.2) mm fresh oil-glands colourless	urceolate to campanulate  (1.6-)2.0(-3.4) x (1.5-)1.9(-3.8) mm fresh oil-glands yellow
<b>Ovary</b>	5(-6)-locular	3-4(-5)-locular
<b>Stigma</b>	at least 1.5 x diameter of the style flat	scarcely wider than the style centrally depressed
<b>Style</b>	2.0-3.5 mm long at anthesis	0.6-1.2 mm long at anthesis
<b>Fruit</b>	obconic, broadly obconic to ± turbinate (2.2-)3.8(-4.6) x (3.2-)4.0(-5.3) mm	urceolate to shortly campanulate (1.2-)2.1(-3.0) x (1.2-)2.1(-3.4)
<b>Distribution</b>	mainly coastal as far as <i>Kunzea</i> 's southern limit, the Clutha River	the dry inter-montane basins of eastern Central Otago from Lake Wanaka to Roxburgh and also Nenthorn.

## Meeting and trip reports

### Lichen Report, Split Rock, 24<sup>th</sup> May 2014

Allison Knight

More than 33 lichens have been recorded from Split Rock. I'm sure it would have been many more if any of us had been concentrating on recording all the species present. My first priority is always photographing and collecting more detail for my next book. In this I was well rewarded. It is the first time that I have seen two common large foliose lichens, *Pseudocyphellaria crocata* and *P. episticta* fertile with apothecia, when usually they reproduce asexually by means of vegetative propagules. Brown *Pseudocyphellaria crocata*, which has a cyanobacterial partner, is always dusted with distinctive yellow granular soredia while bright green *P. episticta* has masses of flattened phyllidia that easily break off. *Punctelia subflava* also has masses of phyllidia and it, too, was adorned with large, uncommon apothecia. White crustose *Pertusaria platystoma* (was called *P. otagoana*) was common on the top of the largest basalt outcrop. A striking yellowish-green crust that I first thought was the unique colour of *Rinodina thiomella* turned out to be *Buellia dunedina*, which I hadn't identified before. Last year Lars Ludwig found *Parmotrema subinctorum* growing at Split Rock. This is the first record of it from the South Island, and it has been confirmed by Dan Blanchon.

Although they are relatively slow-growing, lichens can have a surprisingly rapid response to climate change and because they absorb everything they need through their 'skin' they are sensitive indicators of a wide range of urban and agricultural pollutants. So it is important to publish records showing which lichens are present at any particular time to help monitor such changes in our environment.

### Field trip to Tavora Reserve 7<sup>th</sup> June 2014

John Barkla

The mist hung low but a fine day looked tantalising close as we pulled into the Tavora Beach car park near Palmerston. We strolled towards the coast following along and through the riparian plantings put in over 15 years ago by the Yellow-eyed Penguin Trust. These trees are now coalescing to form a continuous forested ribbon until they give way to the sedgeland and salt meadows surrounding the brackish lagoon behind the dunes. Here the small herbaceous plants, without flowers or fruits, presented quite an identification challenge. Gabi meanwhile discovered the springy properties of a salt marsh ribbonwood shrub.

Down on the dune we admired the dominance of the planted pikao (*Ficinia spiralis*) on this formerly marram covered dune. Other planted associates have also done very well, especially the shore spurge (*Euphorbia glauca*). We also noted occasional sand tussock (*Poa billardierei*) and Cooks scurvy grass (*Lepidium juvencum*), though not as abundant as in earlier visits.

On a sand mound behind the dunes were several sprawling plants of sand coprosma (*Coprosma acerosa*) that were covered in abundant translucent blue fruit. The natural population here has been augmented with plantings which need protection from browsing rabbits.



Gabi gives advice on what to look for. (Photo: John Barkla)

We returned to the cars for lunch before driving the short distance to the access into Goodwood Scenic Reserve. This fine remnant of rare coastal forest is unfortunately carrying a heavy burden of the weedy banana passionfruit vine (*Passiflora pinnatistipula*). Both flowers and fruit were common. We admired a large example of fragrant tree daisy (*Olearia fragrantissima*) that had stretched into the canopy, and numerous saplings of fierce lancewood. The native daisy climber *Brachyglottis sciadophila* was seen near the forest margin along with fruiting *Lophomyrtus obcordata*. Ribbonwood, broadleaf, kowhai and totara seemed to be canopy dominants. John Steel pondered over a fern that looked remarkably similar to *Pellaea calidirupium* but which was in a very atypical habitat for that species.

On our way back to the vehicles we passed a group of *Coprosma virescens* that didn't seem to have been recorded before. Across the road from the cars in farmland were the mistletoes *Tupeia antarctica* and *Ileostylus micranthus* hemiparasitic on ribbonwood and kowhai respectively.

Many thanks to Bastow Wilson for leading the trip and attracting 17 followers and for his and John Steel's interpretation of the sites. Plant lists are available from John Steel.

## Fabulous Fungi from Golden Bay 11<sup>th</sup> June 2014

David Lyttle

At the June Meeting Dr David Orlovich, Botany Department University of Otago, gave a talk in which he described the events and discoveries made during the 2014 28th NZ Fungal Foray held in Pohara, Golden Bay. During the course of the week David and his team visited and collected fungi from several locations in the Golden Bay region. David is interested in ectomycorrhizal fungi associated with beech and *Kunzea* /*Leptospermum* forests particularly those belonging to the genus *Cortinarius*.

*Cortinarius* is a large and diverse genus and contains some spectacular, highly-coloured mushrooms. David illustrated his talk with the now infamous "dead rat" pictures, which are



*Coprosma acerosa* fruits (Photo: John Barkla)

to the uninitiated, pictures of a collection of mushrooms laid out neatly to illustrate the features of that particular species and photographed under artificial light after being identified and recorded before being dried for depositing in a herbarium (or fungarium) for further study.

Over the week collections were made from Cobb Valley, Kaihoka Lakes, Brown River at the beginning of the Heaphy Track and the track at Canaan Downs to Harwoods Hole. Each locality yielded some spectacular fungi; *Cortinarius rubrodactylis*, *Cortinarius cardinalis*, *Cortinarius porphyroideus*, from the Cobb Valley, *Descolea gunnii* and some curious truffle-like fungi from Kaihoka Lakes. A couple of specimens of the spectacular rare fungus *Austroboletus niveus* were picked up in a patch of beech forest by the roadside on the way to Kaihoka Lakes. Finds at Brown River included the beautiful *Austroboletus lacunosus*, more *Cortinarius porphyroideus* and *Cortinarius rotundisporus* which is associated with *Kunzea/Leptospermum* rather than beech. Harwoods Hole track produced a bonanza of fungi. However everything there was frozen even beneath a canopy of beech forest. Collections were made despite a certain amount of apprehension that specimens would turn to mush once they thawed. This proved not to be the case and a number of useful collections were made including *Cortinarius dulciolens* a species that is of particular interest to David as it is closely related to *Cortinarius beeverorum*, a red truffle like species that he recently described and named.

The Fungal Foray is not just mycological tourism. The collections are made with specific scientific objectives in mind. Specimens are subject to DNA analysis to assist in clarifying the taxonomy of the genus *Cortinarius* and used further in David research projects as reference samples to identify the ectomycorrhizal fungal species that are associated with tree roots in different ecological contexts.

#### References

Orlovich DA, Wang XY, Lebel T 2014. *Cortinarius beeverorum*, a new species of sequestrate *Cortinarius* from New Zealand. *Mycological Progress* 13: 915-921

### Larapinta Trail, Central Australia 9<sup>th</sup> July 2014

Marcia Dale

John Barkla gave us a fascinating account of his trip along the Larapinta Trail, Central Australia with his wife Marilyn. His talk was so popular that we ran right out of wine! First of all, John explained the logistics and preparations required to undertake a sixteen day, 240 kilometre tramp through the desert. Luckily they were able to drop off a cache of food halfway along the trail to save them lugging everything the entire way. John's photograph of their sixteen days' worth of food showed remarkable planning, but not nearly enough chocolate for my liking.

While John saw many different plant species, some of them being entirely unknown to him, the wildlife was surprisingly sparse. John spoke of the burning regime that the park managers undertake, which appears to be altering the ecology of the whole area – perhaps already leading to a decrease in animals and a change in vegetation? A plant which seems to be benefitting from the burning is the spinifex (*Triodia* spp.), a particularly nasty spiky thing which by all accounts is best avoided whenever possible.



Regrowth after fire (Photo: John Barkla)

Towards the end of the trip they found some fantastic cycads, *Macrozamia macdonnellii*, which looked even more stunning in their setting of red cliffs. John and Marilyn ended their tramp at Alice Springs, where for their sake I hope they found plenty of chocolate. Do check out the Botanical Society of Otago's facebook page for more photos of this trip.



*Macdonnell Ranges cycad Macrozamia macdonnellii* (Photo: John Barkla)

## BioBlitz Dunedin Botanic Gardens 12<sup>th</sup> July 2014

*Tina Summerfield*

As part of the New Zealand International Science Festival the Dunedin Botanic Garden, co-ordinated by Tom Myers, hosted a BioBlitz and a range of outreach activities. This involved contributions from many organisations including: the Botanical Society of Otago, University of Otago, DOC, Landcare, Orokonui Ecosanctuary, and the Ornithological Society of NZ Otago branch. The fabulous weather made it a wonderful day to be out cataloguing biological diversity in Gardens. Events started with a bird walk before taking a botanical turn with a fungal foray led by David Orlovich, a lichen walk by David Galloway and a plant identification walk by John Steel. Botanical highlights at the visitors centre included a beautiful lichen collection from Allison Knight, a moss and liverwort workshop by Kelly Frogley, as well as, the opportunity to test out the plant identification abilities of the Flora Finder

App. John Barkla and David Lyttle found time to give an impromptu beginner's guide to plant identification, thank you! Biodiversity observed on the day was documented on NatureWatch NZ and can be seen here: <http://naturewatch.org.nz/observations/project/dunedin-botanic-garden-biodiversity>.

## Nature's Garden 20<sup>th</sup> August 2014

*Marcia Dale*

With our scheduled speaker bowing out due to illness we were most grateful to David Lyttle for stepping in at short notice to fill the gap. David presented us with a talk he had originally given to the Nelson Alpine Garden Society, entitled Nature's Garden. He outlined the evolution of New Zealand's alpine plants and gave us a delightfully colourful slideshow of an array of alpine species and their lowland relatives. Not only was the talk enjoyable on a visual level, but David also drew our attention to some interesting facts. The Mount Cook buttercup, *Ranunculus lyallii*, was fifty years ago nearly eaten out across its range by feral deer. Seeing the photo of it flowering *en masse* makes me happy that the deer cullers got their job done before it was too late. *Ceratocephala pungens* has not been so fortunate, with a current conservation status of Nationally Critical. This species was once so abundant that it was a common food for moa. Another buttercup, *R. crithmifolius*, appears to be suffering from an identity crisis, pretending to be a rock so it can fit in amongst its rocky buddies hanging out on the scree slopes. Moving on to the Asteraceae, we were informed that the best way to perplex a dog is to send it up a mountain to muster some *Raoulia eximia*, otherwise known as vegetable sheep. From cushion plants that you would happily sit on we switched to cushion plants that were definitely not designed for resting upon, those in the *Aciphylla* genus of the Apiaceae. *Aciphylla crosby-smithii* was particularly spectacular in flower. We finished off with a stroll through the Boraginaceae, focussing on the *Myosotis* genus. David seems to be very good at coming across plenty of unnamed specimens

of *Myosotis*, but whether they are new species or variants is a job for another day. *M. pulvinaris* was stunning with a spread of white flowers. One particular specimen of *M. lyallii* brought out a bit of rivalry when it was mentioned that John Barkla's photo of the same plant made it into Alan Mark's book, whereas David's did not. Perhaps we need to see them side by side at the next photo competition.

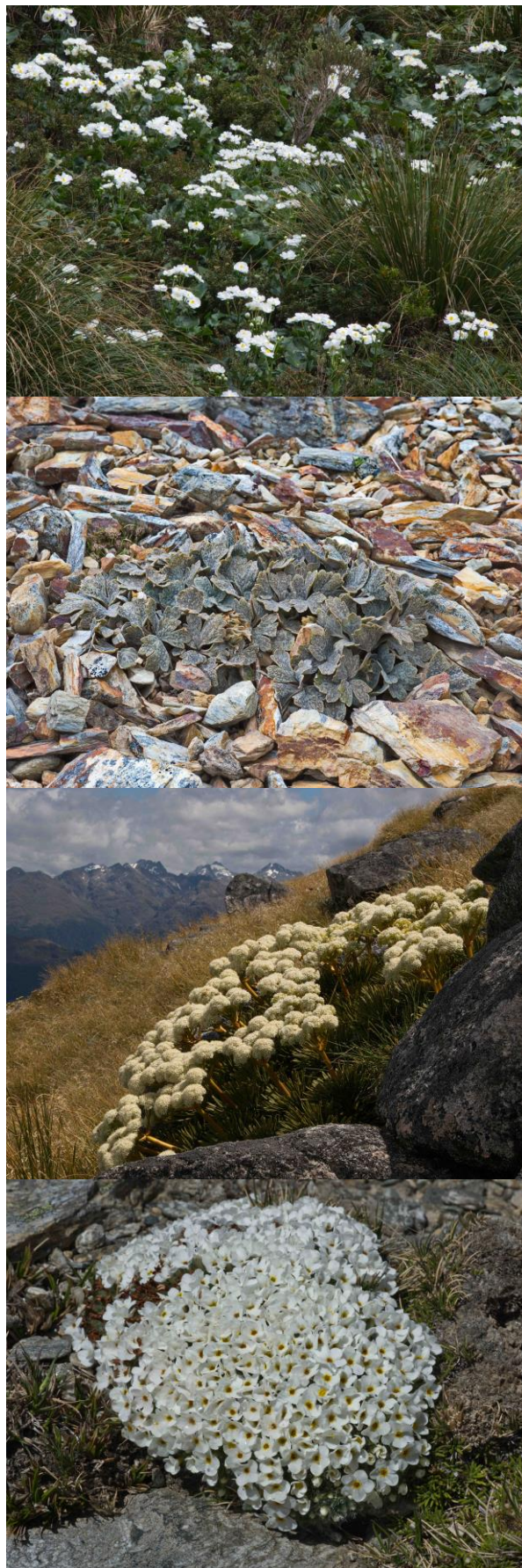
## Audrey Eagle Botanical Drawing Competition 2014

*Allison Knight*

This year the competition was held in conjunction with the Department of Botany's 90th Anniversary celebrations. The drawings were displayed on September 10th at the gathering before the combined BSO/Botany Department Geoff Baylis lecture, and the prizes were awarded then.

The presenter re-capped the history of the Award. In 2003 the Botanical Society of Otago set up the Audrey Eagle botanical drawing competition to honour our distinguished member and artist, Audrey Eagle, who was appointed a Companion of the New Zealand Order of Merit in 2001 for her services to botanical art. In 2006 Te Papa published Eagle's *Complete Trees and Shrubs of New Zealand*. This was the culmination of over 50 years spent painting every known native tree and shrub in New Zealand and in 2009 it won the Montana Medal for Non-fiction. Also in 2006 BSO published a Supplement to Audrey's book containing additional notes about the plants she had illustrated. In 2008 Audrey followed on from Professor Peter Bannister as patron of BSO.

Audrey has done us the honour of being chief judge for the drawing competition since its inception. Now, at the grand age of 89 she has handed over to someone younger. This year our chief judge was Marcia Dale. Last year Marcia won a Jubilee Award of several hundred dollars from the Wellington Botanical Society to paint an oil painting of an uncommon native plant, which they then auctioned to bring in several hundred dollars



*From top: Ranunculus lyalli, R. crithmifolius, Aciphylla crosby-smithii, Myosotis pulvinaris (Photos: David Lyttle)*



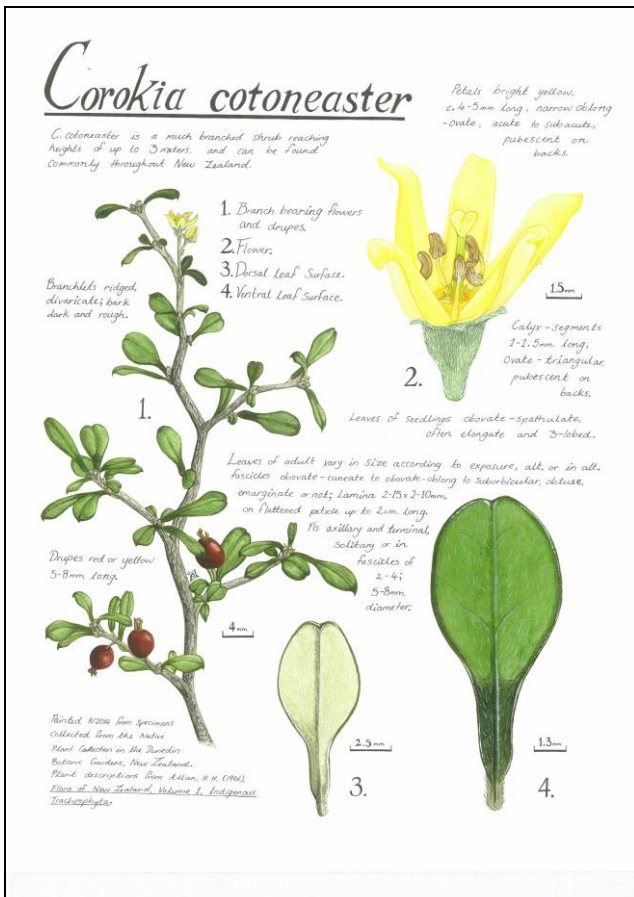
more! The paint is still drying on another stunning painting of Marcia's, which will be auctioned at the NZPCN conference in Dunedin next year. The second judge was Toni Atkinson, a Botany graduate and a previous winner of this competition.

Both judges commented on the high standard of entries this year.

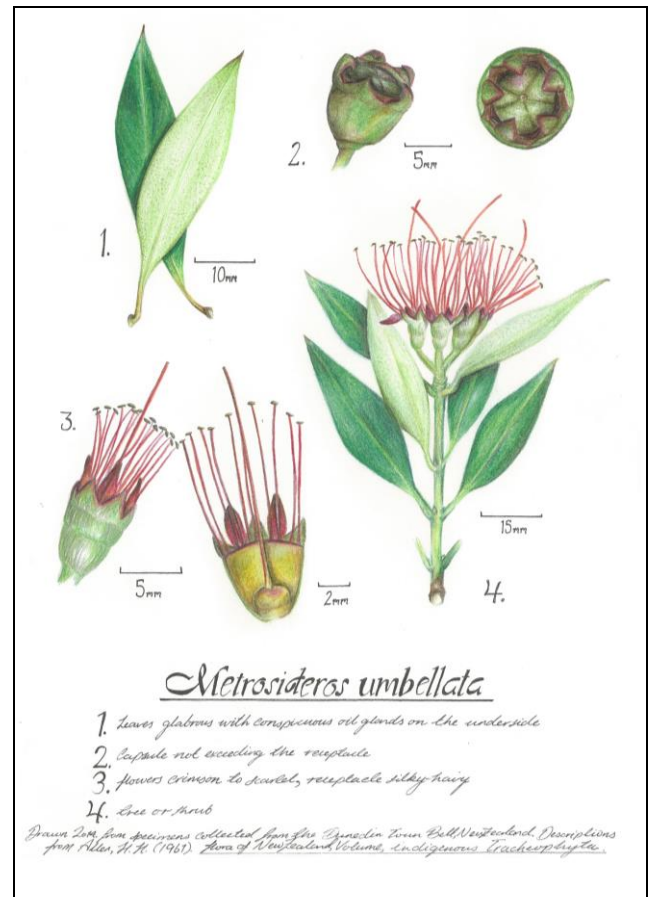
Aye-Nyint Paing's colourful painting of lungwort, *Pulmonaria officinalis*, was based on an 1885 botanical drawing in Flora von Deutschland. Dylan Norfield's nicely laid out line drawing of the umbrella fern, *Sticherus cunninghamii* was a good choice to meet Audrey's wish that entrants draw a native plant that is less often illustrated. Mary Anne Miller amply fulfilled this criterion too, with her delicate life-size drawings of 5 tiny plants from Great Barrier Island. Tegan Lamont

drew a very clear and striking southern rata, *Metrosideros umbellata*, beautifully annotated, which earned her second prize. It was of a very high standard and a more unusual plant might have tipped the balance. Sharon Jones entered two drawings of *Corokia cotoneaster*. Her black and white drawing was very precise and crisp and her beautifully detailed and 3-dimensional colour drawing won first prize.

Two days later Professor Kath Dickinson, Head of the Botany Department, presented Sharon's winning drawing to the Vice Chancellor, Professor Harlene Hayne to mark the Botany Department's 90th Anniversary.



*Corokia cotoneaster*, by Sharon Jones



*Metrosideros umbellata*, by Tegan Lamont

**Botanical Society of Otago**

Patron: Audrey Eagle

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