



Poplars showing some Autumn colours, Te Anau area  
(Photo: Kelly Frogley)

# Green News

The newsletter for undergrad botany students

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## Winter is on the way

Hi everyone, I hope your semester is going well and you are managing to keep on top of your assignments. If you are finding it hard to keep up, just remember that mid-semester break is coming up soon, a time for bit of a breather, and to catch up on work.

And if you go anywhere cool during the break and want to share don't forget to write me a short article!

Cheers, Rowan

## All about the Little Things

Aimee Prichard in her 3rd year of a Botany honours degree. She recently attended the 2010 24th John Child Bryophyte and Lichen workshop and won an award for her contribution.

In November of 2010 there was a workshop in Riverton for everyone interested in Bryophytes and/or Lichens. I had the privilege to go and present a talk on a project I did for the 2nd year botany paper BTNY 223. My talk resulted in my receiving the Tom Moss Award for Bryological Research by a student. This award was created by a prominent bryologist named, you guessed it, Mr Tom Moss. For those of you who don't know, bryophytes are from the division Bryophyta. They are non-vascular and very complex which makes them a lot of fun to identify! The three classes of bryophytes are mosses, liverworts and hornworts and they are believed to have evolved from green algae. The workshop consisted of many prestigious scientists as well as students from all over New Zealand and even a few from other places

in the world such as Tasmania, Australia, China, America, Germany and even a couple from Sweden. One such scientist was a wonderful lady called Alison Downing from Australia who has worked for a long time in China. After the workshop she was planning to do some work in Mongolia in a similar research I did for 223 but on a larger scale. The couple from Sweden gave everyone a surprise on the last night there which consisted of a very tasty, and very large batch of Swedish mulled wine! There was a field trip every day to an amazing place near Riverton, yes there really are interesting places down there. On one of these field trips there it was snowing which the Australians thought was very amusing as it was supposed to be summer! There were also some very interesting talks during the night from scientists who have worked all over the world. It was a

great opportunity to be able to go and it was a lot of fun. This workshop runs every year and I highly recommend going if you have any kind of interest in bryophytes, having fun or even visiting beautiful places in New Zealand. Next year it is set to be held in the North Island.



Aimee Prichard receiving the Tom Moss award for Student Bryological research, from Professor Jim Simpson  
(Photo: Donna Parker)

# Plant of the month

## *Drosera arcturi*

Droseraceae

Alpine Sundew

Native, alpine

*Drosera arcturi* is a well-known species to the observant trumper. If you haven't been into the mountain you probably won't have seen this sticky little plant. Its genus name *Drosera* is from the Greek word 'drosos' meaning dew/dewdrop, and *arcturi* is latin for 'of Arthur' (the type locality of the species is Mt Arthur in Tasmania). It grows throughout New Zealand and also in southern Australia and Tasmania.

*D. arcturi* is a small plant with rosettes of brownish-red, elongated, undivided leaves covered with red sticky glandular hairs, and has small white flowers borne on long stems that extend well above the leaves. It grows in alpine bogs and seepages and can tolerate very wet conditions. Like all the other species in the genus *D. arcturi* uses its sticky hairs to catch small insects that fly or crawl onto the leaves. Once the insects have been caught they are digested by enzymes in the sticky leaf fluid and the resulting nutrient slurry is taken up by the plant. Some *Drosera* species are so reliant on nutrients from caught animals that they have lost the ability to extract nutrients from the soil.

To survive the harsh winters of New Zealand alpine areas this species partly dies down in Autumn to form a hibernaculum, a small horn-shaped structure consisting of a tight cluster of reduced and elongated leaves, usually located at or below the soil surface. This allows the plant to be buried in snow for some months without it being greatly affected. This species is one of at least 194 species of *Drosera* worldwide, and is one of seven native species to New Zealand. It is easily distinguished from the other New Zealand species in that it is one of only two species with elongated leaf blades, the other being *D. binata* which, unlike *D. arcturi* has divided blades.

Because this is an alpine species you are unlikely to see any close to Dunedin, but it may be growing in places like the Rock and Pillar range near Middlemarch. Another species *Drosera spathulata* can be found growing in poor soils near Dunedin in the Silverpeaks. Others can be found growing in the cactus end of the tropical house at the botanic gardens.

Happy plant hunting,  
Rowan



*Drosera arcturi*, Lead Hills,  
Kahurangi National Park



*D. arcturi* plant growing next to  
mountain seepage, Lead Hills



*Drosera spathulata* in flower, Mt  
Haidinger, Kahurangi National  
Park

# A summer of winter!

Rachel Borren is a 3rd year Botany and Ecology student. She has written an article on her Summer work studying mosses in Amsterdam



While most of the summer work you will read about in Green News is set (smartly I can confirm) in summer, my summer work was quite different, set in a cold European winter. Having planned a trip over to visit family in Holland I took my chances and sent a few emails inquiring into any research opportunities that might be available. Being a generally lucky person, I once again landed on my feet and some three weeks after the first email I found myself [www.waaaaaaayyyyyyyyyyy](http://www.evidencebased-management.com/blog/2016/08/13/free-post-graduate-course-evidence-based-management/) out of my depth in the middle of freezing Amsterdam, trying to make a good impression on some of the most

## Vrije Universiteit, Amsterdam

prestigious professors in the ecological and botanical realm. I won't bore you with the ins and outs of the research (although feel free to hit me up about it at any stage, this is after all supposed to be an enjoyable read). I was trying to find a technique for measuring specific leaf area (SLA) of common Dutch mosses that most highly correlates with their relative growth rate (RGR). Reich, P.B., Walters, M.B. and Ellsworth, D.S. (1997) *From tropics to tundra: Global convergence in plant functioning*. Proc. Nat. Acad. Sci. 94, 13730-13734. found that the SLA and RGR of vascular plants are very highly correlated (among other cool relationships). Given that mosses are very different from vascular plants, it will be interesting to discover whether the same relationship exists within mosses (results hopefully finalised in the next few months).



A bagpiping botanist (Elaine Westcott) taking a break from study in Botany111, the Summer School botany paper (Photo: Frances Jacombe)

My time over there was great fun – I made amazing friends and worked with incredible scientists. I learnt so much – and most surprising to me was that I enjoyed this form of learning. My study of Botany here at Otago opened the door to the possibility of work overseas and techniques I had learnt in my past two years of study helped me hugely. I'm not convinced that university is really for me. I enjoy the lifestyle and resent the workload. However, my experience, the freedom and trust of creating my own experiment at the Vrije Universiteit has shown me that botany IS what I enjoy and that despite not enjoying rainy fieldtrips (or snow covered ones as I learnt), Friday afternoon labs, lengthy and often regurgitated assignments, my degree in botany will open up so many possibilities for me which has increased my enjoyment of the course. I hope you all experience this excitement and truly appreciate your botany degree.

# I see red, I see red, I see red ..... Seaweed

Kelly Frogley is in her third year of an Ecology major, with a minor in TESOL (Teaching English to Speakers of Other Languages). She recently took part in the Ecology 313 Field Course.

For the week preceding O Week, third year ecology students headed for the Catlins where we spent the 7 days designing and running our own research projects. The lack of snow immediately changed the whole mood of things compared to the weekend long camp in second year. Those with enough smarts worked down at the beach or had experiments with long "observation" periods. Others decided to spend the majority of their days (and some nights) in the lab. I was one of these unfortunate souls who underestimated the time necessary to do our analysis and spent countless hours with my partners in crime, Rachel and PAM, measuring the photosynthetic efficiency of red seaweeds after desiccation. At least we didn't have a flock of sheep trample through our sample site!

After three days of experimenting, we all gave impromptu presentations on how things were going and what we planned to do from here. An informal and supportive environment took the pressure off and allowed us to practice speaking in front of a large group. Most people took the task in their stride, an encouraging sign for the formal presentation to come. Others gave an excellent example of what not to do, but hey, we all need a good giggle every now and then, right?

Saturday night eventually rolled around and what better way to spend the evening than giving graded presentations to each other! It was a good opportunity to hear from New Zealand's future ecologists, some of whom had really interesting and exciting results to share!

All in all the camp was a great success and was topped off by the fabulous cooks who were much too good to us. Thankfully the caretakers' daughter didn't give us any trouble this time by sending our buses home, leaving us stranded out in the bush...



Measuring Photosynthetic efficiency of seaweed using



The Rachel and Kelly at their study site at Tahakopa Bay  
(Photos: Kelly Frogley)

# 20 reasons why **Botany** is better than Zoology



- For a start, who would want to spend three years studying zoo's!
- Plants are the basic ingredients of wine and beer. You don't see any beer being produced from possum parts on the supermarket shelf do you!
- Plants don't eat people (except when they are buried under a tree), unlike some animals.
- Plants can't run away when you try and study them.
- Most plants can't grow a beard like John Steels! Just as well, otherwise the world would be a very hairy place!
- You can make better houses out of plants than animals (unless you are a muppet like Bear Grylls).

- I think plants (and cyanobacteria) are the only living things that have a negative footprint (a negative carbon footprint).
- Biology 113 would be a pretty crap paper without plants.
- Most plants burn better than animals.
- Plants don't poo on your head when you walk underneath them.
- Plants fix carbon. Without them animals wouldn't exist.
- When you study plants you **are** allowed to get your departmental vehicles dirty.
- Plants feed vegetarians. Where would we be without the bloody vegetarians!

- Plants are main provider of New Zealand's wealth.
- Plants can live far longer than any animal.
- Some plants can live off the residue of an oily rag.
- The Botany department manages to fully function on the smell of an oily rag, unlike money-bags zoology.
- Oh, and plants are responsible for most of the oil reserves on earth!
- There are no animal products in the Paper, Scissors, Rock game.
- ZZZZZzzzzzzzoology. Enough said.

Anon



Ed: If you would like to comment on this, or have a strong view either for or against, feel free to email me. If I get enough letters I could set up a 'letters to the editor' column in the next issue.

# UPCOMING EVENTS

## April

13th Department of Botany Lecture  
**Oxidative damage and antioxidant defences of the macroalgae *Ulva pertusa* and an associated grazing mollusk in response to fluoranthene contamination.**  
Nikita Engels, (MSc final), Department of Botany, University of Otago.  
12 noon, Botany Union Street Lecture Theatre.

13th Department of Botany Lecture  
**Plant strategies along small-scale snowmelt gradients in New Zealand.**  
Annika Korsten, (MSc final) Department of Botany, University of Otago.  
12.30pm, Botany Union Street Lecture Theatre.

14th BSO Photo Competition Deadline-extended.  
**Entry forms available at Botany Dept Office.**

16th BSO Field Trip– Akatore  
**Look for threatened plant species in this coastal shrubland remnant, 45 minutes south of Dunedin.**  
9.00 am, Botany Carpark. Contact Robyn Bridges (03) 479 8372.

27th BSO AGM and Photographic Competition  
5:30 pm, Benham Seminar Room, Rm. 215, Zoology Department.

## May

7th-8th BSO Weekend Field Trip–Te Anau  
**Fungal Foray to the Kepler Track.**  
Contact: David Orlovich, by Friday 29th April. Phone (03) 479 9060, email: david.orlovich@otago.ac.nz.

## Contact us

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# PHOTOS



*Chionochloa* sp. and cushion plant, Hawkdun Range, North Otago (Photo: Rowan Hindmarsh-Walls)



Red Admiral Butterfly feeding on *Parsonsia heterophylla*, Nugget Point, Catlins

(Photo: Rowan Hindmarsh-Walls)



Shaggy Ink Cap Mushroom (*Coprinus* sp.), Arrowtown (Photo: Kelly Frogley)