Australian National University

Research School of Biology Newsletter

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Congratulations

RSB researchers lead new large ARC Linkage grants – the only ones in biology in the LP21 round!

Colin Jackson, Joseph Brock and collaborators landed an exciting SynBio project with Nourish (ARC funding of $423K), and Adrienne Nicotra, Matthew Brookhouse and Owen Atkin and collaborators in the Fenner School and Conservation Agencies have received $1.2M from ARC towards understanding causes of snowgum dieback and informing management to address this serious issue.

Maria Ermakova (Furbank and von Caemmerer Groups, PS) is this year's winner of the Peter Goldacre Award from the Australian Society of Plant Scientists for her C4 photosynthesis work. This is a great achievement as Maria joins many top plant scientists from RSB including Robert Furbank, Graham Farquhar, Murray Badger, John Evans, Spencer Whitney and Caitlin Byrt. Congratulations Maria, you are in great company!

Benjamin Schwessinger (PS) has been recognised as the ACT "Emerging Scientist of the Year". See here for more details. This honour is well deserved. Benjamin follows other stellar RSB Faculty in receiving this award, Kai Chan in 2017 and Colin Jackson in 2015.

Merryn Fraser (Maier Group, BSB) was awarded second place in the Falling Walls Lab Sydney final for her presentation *Breaking the Wall of Drug Resistant Malaria*. Merryn will compete at the Australian Finale on September 26, organised by the Australian Academy of Science and the German Academic Exchange Service.

Congratulations to **Tanya Skinner** (Whitney Group, PS) who won a poster prize at the 18th International Congress on Photosynthesis in Dunedin, NZ in early August. An enjoyable time was had by all, without an outbreak of conference-Covid!

The 3MT (three minute thesis) competition moved to a higher level this month with RSB taking out both honour spots at the College of Science competition.

A big congratulations to the following: The Winner: **Ivan Vinogradov** (Jennions Group, E&E) *Are you smarter than a fish?* The runner up and people's choice: **Hannah Carle** (Nicotra Group, E&E) *If trees were people...*

News

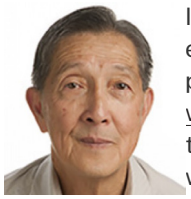
Last Friday marked the first ever Rainbows in Science event hosted right here at RSB, with the support of the ARC Training Centre for Future Crops Development and staff from the Science Teaching and Learning Centre. Members from all over ANU Science were represented, from Physics, Chemistry, Earth Science, Health and Medicine and more. It was an action-packed event, with 85 registered participants, 28 demonstrators and no lack of enthusiasm through the entire event. Following the fun and colourful demonstrations, Bry the Fly Guy led the keynote address during the networking part of the event. A special thanks to RSB demonstrators: Benjamin Schwessinger, Joseph Brock, Andres Garcia, Jenny Evans, Audrey Prasetya, Derek Collinge, Lauren DuFall and Alisha Duncan.

Persistance pays off...

I became an RSBS (Biological Sciences) PhD student in 1966. I was in the Environmental Biology Department of whom the sole Professor was Ralph Slatyer. I remember the day in the new RSBS building, after we had moved from the Research School of Chemistry where we were housed, when he announced that we should call him 'Ralph'. His Secretary, the Departmental secretary, Dorothy Lee, could not bring herself to say it. She had managed the transition from Dr Slatyer at CSIRO Land Research, to Professor Slatyer at the ANU, but that was it. She was a whiz at cutting and pasting, which involved retyping the offending section and cutting it to the desired size, and then using fancy, non-shiny tape to stick it over the original, and then photocopying the result.

Ralph was well-known internationally for his work on plant water relations. While we were at RSC Paul Jarvis, a visitor, and Ralph worked on the hotly debated issue of whether the air inside a leaf was saturated with water vapour. The

general assumption was that it was, and this had quantitative implications for estimating stomatal conductance, and the intercellular CO2 concentration of leaves. Jarvis & Slatyer thought that in dry conditions this didn't hold and published the result. As a postdoc in MSU I published that it did, but that there was some strange behaviour.



In 2008 Chin Wong started doing experiments that attacked from the photosynthesis angle. In 2022 (see this week's publication in Nature Plants) we think we have made real progress. Ralph was largely correct, but their explanation was not complete (what science is ever complete). Chin and the rest of us typed with no matt tape or scissors, which is lucky as we had over 40 versions. Graham Farquhar

PhDs commenced

Reshma Roy (Millar Group, PS)

PhDs awarded

Tobias Hayashi (Peakall Group, PS) Pollination and chemical ecology of Pterostylis (*Orchidaceae*).

Tomas Fuenzalida (Ball Group, PS) *Plant hydration dynmaics: measurement and uptake pathways.*

Grants awarded

Suyan Yee (Chan Group, PS) won a travel grant from the Australian Society for Plant Scientists (ASPS) to attend the ComBio22 Conference, to be held in Melbourne this September.

Yun Hsiao (Rowell Group, E&E) has been granted a 2022 SASB student travel grant by Society of Australian Systematic Biologists and Australian Biological Resources Study.

Welcome

Welcome to **Danielle Way** (PS) who started her Group Leader position in RSB last month. She is a highly cited Plant Physiologist with a broad interest in photosynthesis and plant responses to climate change. Dani moved to Canberra from Western University in Canada, where she held a position as the Director of the Biotron Centre for Experimental Climate Change Research, as well as adjunct positions at Brookhaven National Laboratory and Duke University. Her work is currently funded by a prestigious NSERC Arthur B. McDonald Fellowship on 'climate-smart wheat'. Many of us know Dani from her two sabbaticals to RSB in 2014 and 2019, and we are very happy to welcome her back for good!

Farewell

This month we say farewell to **Maria Ermakova**. In 2016 Maria (Masha) joined the Centre of Excellence for Translational Photosynthesis, in the groups of Susanne von Caemmerer and Bob Furbank to study and manipulate C4 photosynthesis then took up a key Research Fellow role in the Bill and Melinda Gates Foundation funded C4 Rice Project here at ANU.

Masha will be leaving to take up a Faculty position lecturing at Monash University but will also remain affiliated with ANU as a much valued collaborator on multiple projects.

Pictured are Masha with her EMCR collaborator and friend **Duncan Fitzpatrick** and student **Russell Woodford** at her farewell and the Finnish savoury delicacy "Sandwich cake" she made for the occasion!

Farewell to **Ian Brennan** (Keogh Group, E&E) who is off to a two year Marie Currie Postdoctoral Fellowship at the Natural History Museum in London. Ian has been an integral part of our group and E&E for a long time. He finished his PhD in 2019 and has been a postdoc in the group since then. Ian has helped enormously with the Bioplatforms-funded AusARG phylogenomics initiative and several ARC funded projects. We are very sad to see him off but excited for all the new things he will be doing in London.

In the media

Suan Chin Wong, Martin J. Canny, Meisha Holloway-Phillips, Hilary Stuart-Williams, Lucas A. Cernusak, Diego A. Márquez, Graham D. Farquhar paper Humidity gradients in the air spaces of leaves was published in the latest edition of Nature Plants but made it also to 42 other media including the Canberra Times and The Conversation.

Tomas Fuenzalida (Ball Group, E&E) In the past month there has been media coverage about *Monitoring plant water status via static uniaxial compression of the leaf lamina* including an article in The Conversation. Next week Tomas will be speaking on East Side FM on the show Monday Drive, which will be podcasted.

Papers

Buyan A, Allender DW, Corry B *et al.* Lipid redistribution in the highly curved footprint of Piezo1. *Biophysical Journal*. https://doi.org/10.1016/j.bpj.2022.07.022.

Chen C-C, Liao C-C. & Walther BA Interspecific competition and facilitation coexist in mixed-species bird flocks of montane coniferous forests in Taiwan. *Journal of Avian Biology.* https://doi.org/10.1111/jav.02947

Chimento M, Barrett B, Kandler A, & Aplin LM. Cultural diffusion dynamics depend on behavioural production rules. *Proceedings of the Royal Society B*. https://doi.org/10.1098/rspb.2022.1001

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Manzoni S, Fatichi S, Feng X *et al.* (In press) Consistent responses of vegetation gas exchange to elevated atmospheric CO2 emerge from heuristic and optimization models. *Biogeosciences.* https://doi.org/10.5194/bg-2022-36

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Sanhueza C, Cortes, D, Way D *et al*. Respiratory and photosynthetic responses of Antarctic vascular plants are differentially affected by CO2 enrichment and nocturnal warming. *Plants.* https://doi.org/10.3390/plants11111520

Wong SC, Canny MJ, The late, Holloway-Phillips M *et al.* Humidity Gradients in the Air Spaces of Leaves. *Nature Plants*. https://doi.org/10.1038/s41477-022-01202-1