



NEWS

Future science leaders, passionate and optimistic: EMCR Future Conference 2017

Another exciting day at RSB! On 14th February 2017, around 200 RSB members came together for a day of networking opportunities, talks and posters by EMCRs, showcasing their fantastic contributions to the research undertaken at RSB. In addition, EMCRs had the chance to discuss challenges they faced and the way forward, with the Deputy VC (Research) Margaret Harding, RSB Director Allen Rodrigo and Associate Professor Nerilie Abram from RSES.

Before wrapping up the day, we had another lively panel discussion on career opportunities outside academia with Deputy Secretary of the Dept. of Environment Dean Knudson, Eric Huttner from ACIAR, Ian McDonald from Invasive Animals CRC and COO Megan Hemming from the ARC CoE Translational Photosynthesis. A summary of the issues discussed during both panel sessions will be made available. Those who stayed until the end were rewarded with delicious Mexican food and great music by Tom Rowell (Magrath group, E&E) and his band Scroggin.

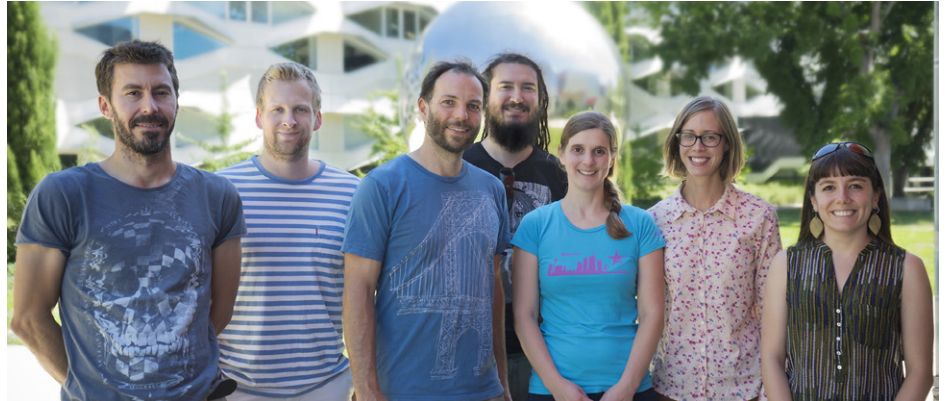
Talk prizes were awarded to Lyanne Sherratt (Cockburn group, E&E), Emma Sherratt (Keogh group, E&E) and Paul Oliver (Keogh group, E&E) and poster prizes went to Marta Vidal Garcia (Keogh group, E&E), Esther Rajendran (van Dooren group, BSB) and Iliana Medina (Langmore group, E&E). The conference was sponsored by RSB, ARC CoE Plant Energy Biology and Translational Photosynthesis, NECTAR, Merck, Thermo Fisher, John Morris, eLIFE, Frontiers in Plant Science and Axios Review. A big thanks also goes to the organising committee (see main photo) and those who helped make the day run smoothly including Tom Davis and Sharyn Wragg (both RSB IT).

Click here to access the photo gallery. - Hannah Birke (von Caemmerer group, PS).

John Rivers (Pogson group, PS) travelled to Paris with three other members of the winning team from the Australian-French Entrepreneurship Challenge last September. More information on the Australian Academy of Science website.

Outreach News

RSB people were busy with outreach activities



EMCR Future conference organising committee: Hugo Alonso (von Caemmerer group, PS), Matthew Johnson (Leyton group, BSB), Florian Busch (Farquhar group, PS), Trevor Murray (Zeil group, E&E), Hannah Birke (von Caemmerer group, PS), Meisha-Marika Holloway-Phillips (Farquhar group, PS), Marta Vidal Garcia (Keogh group, E&E). Image Sharyn Wragg. (See: News Item)

this January. Paul Cooper (E&E), Alex Maier (BSB) and Melanie Rug (CAM) ran workshops for the ANU Kioloa campus open days in early January. Ben Long (Badger and Price groups, PS), John Evans (PS), Carly Conlan (Whitney group, PS), Alisha Duncan (Furbank group, PS) and Allen Rodrigo (CBBU) presented workshops for high school science teachers at Stem X.



Allen Rodrigo (CBBU) ran a computational biology workshop at Stem X. (Image: Alisha Duncan)

Juliey Beckman (BTLC) led the two-week long residential Biology Olympiad summer school, where 21 high school students attended lectures, practicals and a weekend field trip to Kioloa. Special thanks to Chris Fulton (E&E), Peta Moisis, Melanie Trinick, Tammy Gomersall, Yiming Li and Fiona Roxburgh (BTLC).

Around 400 students attended the National Youth Science Forum, and RSB hosted several groups, with practical sessions and lab visits organised by Andras Keszei (BTLC), Giel van Dooren (BSB), Liam Bailey (Kruuk, Gardner groups, E&E) and Alisha Duncan (Furbank group, PS). Tom Rowell (Magrath group, E&E), Trevor Murray (Zeil group, E&E), Jessie Au (Foley group, E&E), Maja Adamska (BSB), Damien Esquerre (Keogh group, E&E), Jack Simpson (Zeil group, E&E), Tim Brown (Borevitz group, PS) and Nina McLean (van de Pol group, E&E) gave talks and Emma

Sherratt (Keogh group, E&E) was on the Fuzzy Logic radio show to celebrate International Darwin Day on 12 February at Questacon.

Congratulations

Leyton group Masters student Jing Zhang won a poster prize at the 42nd Lorne Conference on Protein Structure and Function, held in February 2017.

Awards

Kai Xun Chan (Pogson group, PS) has been awarded a Marie Curie postdoctoral fellowship by the European Commission. His fellowship project on 'Integration of Plant Organellar Communication under Environmental Stress' will be jointly undertaken at VIB Ghent (Belgium) and University of Turku (Finland), commencing early 2018.

Grants

Stefan Bröer (BSB) and Angelika Bröer (Bröer group, BSB) received a \$10,000 grant from the Tour de Cure L'Étape Australia cycling event.

IN THE MEDIA

A Science at ANU Facebook post about Christmas beetles, featuring Andras Keszei (BTLC), was seen by 13,000 people, and received 212 comments, likes and shares.

NEW APPOINTMENTS

Liam Bailey begins a postdoc appointment this month, working with Janet Gardner and Loeske Kruuk (E&E).

Brani Igic joins the Magrath group (E&E) as a postdoc on our ARC project on alarm calls and interspecific eavesdropping. Brani did his PhD on avian vocal mimicry in EEG, and had

Group leader profile: Patrick Meir (PS)



Research

My research is focused on forests, particularly the functioning of tropical forest ecosystems and how this varies in relation to climate, soils

and species. Tropical rain forests are frequently under threat, but still cover substantial areas of the globe. They represent a hugely important resource for humanity that we are only beginning to understand. I have been lucky enough to study them in several settings. Whilst I have a principal long-term interest in drought and the carbon cycle, I also study the effects on forests of warming, CO₂, nutrients and land use change. It has been fun recently to begin to be able to address how biodiversity intersects with function in trees and soils, and also to consider how remote sensing methods can advance our understanding of tree architecture and physiology. The biggest challenge of my career has been imposing an experimental drought on a hectare of remote Amazonian rainforest; this research is now entering its 17th year.

Teaching/mentoring

I enjoy teaching face to face in class, but especially in the field. It's a two-way creative process, as you encounter different perceptions and knowledge bases. I have been privileged to be awarded the odd teaching prize from the undergraduate student body. I also get a lot out of fostering a collaborative and collegial research environment: team-work is an important but also very enjoyable aspect of science. I've worked with some really excellent research students and post docs and seeing them find success in their careers is one of the best parts of the job.

What's good about research and do you have a science hero?

As my daughter would say when she was little, 'I like doing finding-out stuff'. New discoveries are exciting. Working on forest ecosystems, especially in the tropics, is also important for me: tropical forests are beautiful, diverse, understudied, threatened and they influence many lives, both close by and globally. As to a 'hero', I am not entirely comfortable with the phrase, but the German polymath Alexander von Humboldt (1769-1859) did some very cool stuff exploring the New World tropics. What he saw led him to lay down the first integrated ideas connecting variation in biota, soil and climate, the beginnings of the subject of biogeography. Early in his career, he started an idea that a hundred years later would lead to the concept of an 'ecosystem' – and his writings also directly influenced Darwin along the way.

subsequent postdocs in the USA and Belgium before returning to the ANU. He has special interests in avian egg colour and structure, vocal mimicry, and bioacoustics generally.

Two new postdocs, **Tory Clarke** (left)



and **Hammad Khan** (below left) (both Evans group, PS), have arrived to work on an International Wheat Yield partnership grant for



John Evans (PS) and **Bob Furbank** (PS). The project is funded by the Grains Research and Development Corporation and involves

measuring the reflectance of wheat leaves in the field in Mexico in collaboration with CIMMYT to seek genetic association with photosynthetic attributes. The project builds on the PhD research of **Viri Silva Perez** (Evans group, PS).

Pawel Rek returns to the Magrath group (E&E) to continue his work on vocal duetting and multimodal display in magpie-larks. Pawel is a lecturer at Adam Mickiewicz University in Poland, and has a Fellowship to visit the ANU for 2-3 months each year for the next few years. Pawel is interested in bioacoustics, the evolution of signal design, and the use of robotics in biology.

The Bröer group (BSB) welcomes



Aditya Yadav as a new PhD student. Aditya has a Masters of Technology from the Indian Institute of Technology in Varanasi and

will investigate tissue-specific effects of amino acid transporter knock-outs.



PhD student **Weliton Menário Costa** joins the Kruuk group (E&E) this month.

FAREWELL

After being at RSB for over 19 years, **Nijat Imin** (Djordjevic group, PS) has left ANU for a senior lecturer position at the University of Auckland, New Zealand. He came as a visiting scientist to Professor Barry Rolfe's group in August 1997, completed his PhD in 2002 and was a postdoc/research fellow in the Plant Microbe Interactions group until 2010. He has been working in Professor **Michael Djordjevic's** (PS) lab since.

Corey Worcester (Pogson group,

PS), formerly operations co-ordinator at the Centre of Excellence for Plant Energy Biology, has left RSB for a new position as Manager for the ANU Centre for Social Research and Methods.

Peter Crisp leaves the Pogson group (PS) this month. Peter started working in **Barry Pogson's** lab in 2005 undertaking a 3rd year research project supervised by **Pip Wilson**. He later completed a second undergraduate research project followed by honours, then a PhD which he completed in 2015 titled 'Balancing the Messages: RNA Metabolism mediates stress-signaling and recovery in plants'. He will depart in late February, with his wife and two daughters, for a postdoc at the University of Minnesota. Peter's long-standing presence in the Pogson group as well as on the soccer pitch (as a key striker for the Life science soccer team) will be greatly missed, we wish him and his family all the best.

Dominique Potvin has left her position as an ARC postdoctoral associate in the Magrath group (E&E) to take up a position as lecturer in animal ecology at the University of the Sunshine Coast. Everyone is jealous, and will become more so as the winter descends on Canberra! She plans to continue work on avian ecology and communication, including on the University's field station on Fraser Island.

Elena Martin Avila (Whitney group, PS) is leaving RSB temporarily to work as a Tissue Culture Officer for the Samoan Ministry of Agriculture and Fisheries, in the Crops Research Division. She'll be there for 7 months from late February 2017, as part of the Australian Volunteers for International Development (AVID) program, which is funded by DFAT. The role involves working with staff, stakeholders and farmers to improve the quality of research proposals and to help the community access the Tissue Culture lab and services, including cultured plant material.

PHDS SUBMITTED

Duncan Fitzpatrick (Price Group, PS) 'Energetic responses to transient high temperature stress in cyanobacteria: A dynamic system examined in vivo.'

Jaime Simbaqueba (Jones Group, PS) 'Analysis of *Fusarium oxysporum* effectors shared between strains that infect cape gooseberry and tomato.'

Robert Summers (Martin Group, BSB) 'The malaria parasite's chloroquine resistance transporter: An exploration of its interactions with drugs and its evolution as a drug transporter.'

This newsletter is archived at biology.anu.edu.au/news-events/newsletter.
Layout: Mel Norris
Editing: Stefan Bröer & Mel Norris

Stephen Fairweather (Bröer Group, BSB)
'Protein interactions of epithelial neutral amino acid transporters.'

PHDS AWARDED

Yi-Leen Lim (Whitney Group, PS)
'Overcoming limitations in bioengineering Rubisco in higher plant chloroplasts.'

Carlos Bustos-Segura (Foley Group E&E)
'Intraspecific variation in plant chemistry and implications for ecological interactions.'

Buddhima Kariyawasam

Batuwaththagamage (Atkin Group, PS)
'Physiological mechanisms underlying growth and nitrogen productivity in rice.'

Wenjie Wu (Hardham Group, PS) 'Studies of flax rust effector gene expression, and effector protein localisation and interactions.'

Tepsuda Rungrat (Pogson Group, PS)
'Genetic basis of natural variation in photoprotection in *Arabidopsis*.'

MPHIL AWARDED

Gabrielle Openshaw (Keogh group, E&E)
'Geometric morphometric analyses and cranial shape evolution in monitor lizards.'

PAPERS ACCEPTED

Abernathy VA, Langmore NE, The first stages of coevolution between a brood parasite and its new host: are naïve hosts defenceless? *Emu*.

Cheng Q, Shah N, Bröer A, Fairweather S, Jiang Y, Schmoll D, Corry B, Bröer S, Identification of novel inhibitors of the amino acid transporter B(0) AT1 (SLC6A19), a potential target to induce protein restriction and to treat type 2 diabetes. *British Journal of Pharmacology*.

Chitty JL, Tatzenko TL, Williams SJ, *et al.*, GMP synthase is required for virulence factor production and infection by *Cryptococcus neoformans*, *The Journal of Biological Chemistry*.

Clark IA, Editorial: An unsound AAN Practice Advisory on poststroke etanercept. *Expert Review of Neurotherapeutics*.

Clayton H, Saladié M, Rolland V, Sharwood RE, *et al.*, C4 photosynthesis evolution in the transitional grass *Neurachne*: loss of a carbonic anhydrase chloroplast transit peptide, *Plant Physiology*.

Farquhar GD, Busch FA, Changes in the chloroplastic CO₂ concentration explain much of the observed Kok effect: a model, *New Phytologist*.

Gardner JL, Rowley E, de Rebeira P, de Rebeira A, Brouwer L, Effects of extreme

weather on two sympatric Australian passerine bird species, *Philosophical Transactions of the Royal Society B*.

Gowik U, Schulze S, Rolland V, *et al.*, A MEM1-like motif directs mesophyll cell-specific expression of the gene encoding the C4 carbonic anhydrase in *Flaveria*, *Journal of Experimental Botany*.

Hua X, Bromham L, Darwinism for the genomic age: connecting mutation to diversification, *Frontiers in Genetics*.

Krosch MN, Cranston PS, Bryant LM, *et al.*, Towards a dated molecular phylogeny of the Tanypodinae (Chironomidae, Diptera), *Invertebrate Systematics*.

van Lier JR, Harasti D, Laird R, Noble MM, Fulton CJ, Importance of soft canopy structure for labrid fish communities in estuarine mesohabitats, *Marine Biology*.

Lin MF, Moya A, Ying H, Ball EE, Forêt S, *et al.*, Analyses of corallimorpharian transcriptomes provide new perspectives on the evolution of calcification in the Scleractinia (corals), *Genome Biology and Evolution*.

Little R, Gardner JL, Amano T, *et al.*, Are long-term widespread avian body size changes related to food availability? A test using contemporaneous changes in carotenoid-based colour, *Ecology and Evolution*.

McDonald MC, Ahren D, Simpfendorfer S, Milgate A & Solomon PS, The discovery of the virulence gene ToxA in the wheat and barley pathogen *Bipolaris sorokiniana*, *Molecular Plant Pathology*.

Medina I, Delhey K, Peters A, Cain KE, Hall ML, Mulder RA, Langmore NE, Habitat structure is linked to the evolution of plumage colour in female, but not male, fairy-wrens, *BMC Evolutionary Biology*.

Morgan JW, Venn SE, Dispersal opportunities for alpine plants in the face of rapidly changing climates, *Plant Ecology*.

Narendra A, Ramirez-Esquivel F, Subtle changes in the landmark panorama disrupt visual navigation in a nocturnal bull ant, *Philosophical Transactions of the Royal Society*.

Nimma S, Ve T, Williams SJ, Kobe B, Towards the structure of the TIR-domain signalosome, *Current Opinion in Structural Biology*.

Ogawa Y, Ribí W, Zeil J, Hemmi JM,

Regional differences in the preferred e-vector orientation of honeybee ocellar photoreceptors, *Journal of Experimental Biology*.

Olah G, Smith AL, Asner GP, Brightsmith DJ, Heinsohn RG, Peakall R, Exploring dispersal barriers using landscape genetic resistance modelling in scarlet macaws of the Peruvian Amazon, *Landscape Ecology*.

Rajendran E, Hapuarachchi SV, Miller CM, Fairweather SJ, Cai Y, Smith NC, Cockburn IA, Bröer S, Kirk K, van Dooren GG, Cationic amino acid transporters play key roles in the survival and transmission of apicomplexan parasites, *Nature Communications*.

Skeels A, Cardillo M, Environmental niche conservatism explains the accumulation of species richness in Mediterranean-hotspot plant genera. *Evolution*.

Solomon PS, Have we finally opened the door to understanding *Septoria tritici* blotch disease in wheat? *New Phytologist*.

Zhang X, Bernoux M, Bentham AR, Williams SJ, *et al.*, Multiple functional self-association interfaces in plant TIR domains, *Proceedings of the National Academy of Sciences of the United States of America*.

Zhang X, Vandepoele K, Radomiljac JD, Chan KX, Pogson BJ, *et al.*, The transcription factor MYB29 is a regulator of ALTERNATIVE OXIDASE 1. *Plant Physiology*.

NOTICES

Counselling and advisory services at the ANU

Are you struggling with stress and/or work-life balance issues? If so, and you feel you need to talk to someone who is qualified, experienced and independent, then one option is contact a counselor via one of the ANU Employee Assistance Program (EAP) providers The program can help you work through a broad range of personal and work-related issues. The service is free and confidential. For staff and family members, you can choose from Assure at 1800 808 374 or Relationships Australia at 02 6122 7100. Up to four appointments per year are provided. For staff only, the ANU Adviser to Staff (02 612 53616) provides free, confidential and professional counseling and advice to staff on-campus in dealing with work-related or personal issues that may be affecting their work. - **Owen Atkin**.