Australian National University

Research School of Biology Newsletter

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ANU COLLEGE OF SCIENCE

NEWS

2018 RSB Faculty Flash

Host-Microbe Interactions was the theme for the third RSB faculty flash, held this month in the RN Robertson Lecture Theatre. Presenters from all over the School had eight minutes to speak about their research, with four minutes for questions. Topics included microbiome modelling, sponge microbiomes, plant-pathogen interactions, and soil nourishment. (see main photo).

Presenters at the 2018 Faculty Flash, Front row, from left: Giel van Dooren (BSB), Sasha Mikheyev (E&E), Uli Mathesius (PS), Maja Adamska (BSB), Justin Borevitz (E&E, PS). Second row: Kevin Saliba (BSB), Rohan Williams (Singapore Centre for Environmental Life Sciences Engineering), Adele Lehane (BSB), Peter Solomon (PS), John Rathjen (PS), Allen Rodrigo (CBBU). Back row: Celeste Linde (E&E), Bill Foley (E&E), David Jones (PS). Image Sharyn Wragg.

Staff comings and goings

First, I want to acknowledge the contributions of those who will be formally leaving the employ of the ANU at the end of June: from our academic staff, **Paul Cooper** (E&E), **Bill Foley** (E&E), **Ryszard Maleszka** (BSB), **Dave Rowell** (E&E, BTLC) and **Jochen Zeil** (E&E), and from our professional staff, **Peter Groeneveld** (Farquhar group, PS) and **Leon Smith** (Linde group, E&E). As I said at the School morning tea this month, it is literally true that their contributions have shaped the School – its research, its teaching, and its infrastructure. If the quality of a career is measured by impact, then these staff have exceeded our expectations. For that, and for their years of service, I would like to thank them all.

At the end of this month, and at the end of his three-year term, **Stefan Bröer** (BSB) will step down as the Deputy Director of RSB. When I arrived, I was new to the ANU and new to Australia. Stefan has provided three years of valuable insight and institutional knowledge, and I would like to thank him for all of this. Stefan has also served in the best possible way that a Deputy Director can – by telling me that he disagreed with me when he felt I was wrong. So who will tell me this from now on? Well, I expect that you will all continue to do so, as you have done in the past, but I have also asked each of the Heads to taken on an informal "deputy director" role for six months each. Scott has kindly agreed to do this for the rest of 2018.

So those were the goings. Now, for the "comings"…

As you know, we have been going through a recruitment process over the last six months. I am now able to officially confirm the first four new RSB recruits – people who have formally accepted positions at RSB. They are:

Caitlin Byrt, to be appointed as Senior Lecturer, beginning 2 Jan 2019 (left), **Sasha Mikheyev**, to be appointed as Senior Lecturer, beginning 2 July 2018 (centre), **Simon Williams**, to be appointed as Lecturer, beginning 2 July 2018 (right), and **Dan Noble**, to be appointed as Lecturer, beginning 1 Feb 2019. On behalf of the School, I congratulate them, and welcome them to their new roles at RSB.- **Allen Rodrigo** (RSB Director).

RSB 3D printer now ready for use

Stefan Bröer (BSB) and Tom Davis (RSBIT) with the new 3D printer. Image Mel Norris.

If you have any project where you may want to do 3D printing you don't have to walk far. The school's Ultimaker 3 is now available in room E112 (next to IT in the Robertson building).
Instructions how to use the Ultimaker can be found here.
You need to prepare the 3D printing file using CURA (free), and you need to bring your own material (example here).

Before using the equipment for the first time please contact RSB IT for an induction. - **Stefan Bröer** (BSB).

Gummy bear, now with teeth

The E&E bear is getting a facelift! Keogh group (E&E) Visiting Fellow **Ashley Latimer** (see image above) is an expert in this sort of thing. So far she has 3D printed new bear teeth, custom made fresh gums and a tongue and she is now revamping the fake rock. - **Scott Keogh** (E&E).

DECRA profile: Kara Youngentob (Foley group, E&E)

Research background
I completed a PhD in Environment from the Australian National University in 2010 and a MSc in Wildlife Ecology and Conservation from the University of Florida in 2004. My past research has encompassed a wide range of projects, which include investigating plant-animal interactions across wide areas using imaging spectroscopy, exploring the effects of habitat fragmentation and landscape change on wildlife populations, contributing to the development of the Centre for Land and Water Research at the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS), and conducting surveys to study interactions among people, nature, and urban design.

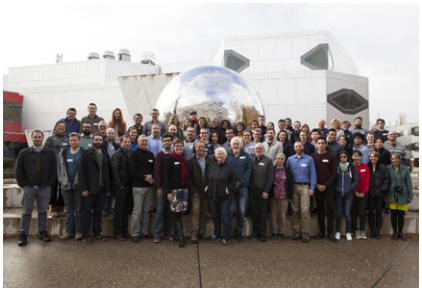
Current research interests
My main interests are in applied ecological research to inform and improve wildlife management and conservation decisions. My DECRA research will help address key gaps in our knowledge about the extent to which modern remote sensing tools are capable of measuring landscape change and habitat quality. This collaborative project examines these issues by combining state-of-the-art remote sensing with data from two intensively studied landscape-scale experiments. At Mulligan's Flat-Goorooyarroo Woodland Experiment, we are using remote sensing to help us understand ecosystem and wildlife population responses to landscape management activities. At the Eucalyptus Free Air Carbon Enrichment Experiment (EucFACE), we are investigating the biochemical response of eucalypt woodlands to elevated atmospheric carbon dioxide with imaging spectroscopy. Although a lot of my research involves remote sensing, I also contribute to projects that involve more traditional data collection and most of this work is focused on understanding how forage quality impacts landscape use by leaf eating animals.

What else do you have underway?
One of the biggest challenges I've faced is learning how to be a scientist and a mother at the same time. This is a work in progress, and I'm only a few years into this entirely non-objective case study. Check back with me later and I'll let you know how it's going.

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

Translational Photosynthesis conference

From 29th – 31st May, the ARC Centre of Excellence for Translational Photosynthesis convened on the ANU campus for the 2018 Centre Scientific Conference (see photo below). This year's conference focussed on bringing people together to maximise connections and collaboration. The line-up included keynote lectures from Lisa Ainsworth and Mark Cooper, featured EMCR heavily and included talks from the CoE for Plant Energy Biology. A separate day of workshops and scientific discussion was held following the conference.- **Alisha Duncan** (Furbank group, PS).



RN Robertson building wins Architecture Awards

The refurbished RN Robertson building, designed by CCJ Architects, won the Sustainable Architecture Award, and received a commendation in the Education category, at the 2018 ACT Architecture Awards, presented this month.

RSB Portraits in National Portrait Gallery

Marilyn Ball and Jack Egerton are portrayed as an albatross (back centre) and a leopard seal (front left) respectively, by artist Linde Ivemey. Image supplied.

Unusual portraits of RSB members **Marilyn Ball** (PS) and **Jack Egerton** (Field Co-ordinator and DSTO, E&E) are part of an exhibition at the National Portrait Gallery, called 'So Fine: Contemporary women artists make Australian history.' Botanists Marilyn and Jack met Sydney sculptor Linde Ivemey while returning from the 2011-2012 field season in Antarctica, but the sculptures and inclusion in the exhibition came as a complete surprise. 'So Fine' is open to the public at the National Portrait Gallery from 29 June 2018.

Outreach News

Jennie Mallela (Jennions group, E&E) did some schools outreach on Friday June 8th for World Oceans day. The theme was "Keeping our oceans clean and healthy for life" (see image above). We all had a great time and the teachers requested a copy of my powerpoint so they could do it with other classes. I'd also like to thank all the RSB folks who leant me masks, fins and snorkels for the day so all the kids could try them out! - **Jennie Mallela**.

Chris Fulton (E&E) has been discussing the threats posed by marine climate change with the NSW south coast community via briefings to the Shoalhaven Council and the Shoalhaven Zero Carbon public forum (see image above).

Congratulations

The American Society of Plant Biologists has elected **Barry Pogson** (PS) as a corresponding member.
This honour provides life membership and Society publications to distinguished plant biologists from outside the United States. Two other corresponding members were also elected, Hiroo Fukuda and fellow Canberran and CSIRO colleague TJ Higgins. Previous RSB members who have received this award include **Bob Robertson**, **Ralph Slatyer**, **Graham Farquhar**, **Murray Badger**, **Susanne von Caemmerer** and **John Evans**. - **John Evans** (PS)

Grants

Ben Corry (BSB) and **Amanda Buyan** (Corry group, BSB) have been awarded a grant worth $30,000 from the Medical Advances Without Animals Trust (MAWA).

Their project is entitled 'Developing sodium channel inhibitors for the treatment of chronic pain, replacing the need for in-vivo and animal testing'.

Munazza Rajput (Verma group, BSB) was awarded a Vice Chancellor's travel grant of $1500 to travel to the USA, for the American Society for Microbiology conference (ASM Microbe 2018) this month. She presented a Rapid Fire talk and a poster, entitled 'Functional analysis of O-antigen modifying enzyme, *O*-acetyltransferase B, of *Shigella flexneri*'.

Awards

Alan Vincent, honours student in the Head group (E&E) received a travel award from the Australasian Society for the study of Animal Behaviour this month.

IN THE MEDIA

A recent study by **Hee-Jin Noh** (Langmore group, E&E) and **Naomi Langmore** (E&E) looking at how large-billed gerygones are able to recognise the presence of little bronze cuckoo chicks in their nest, was featured in The Australian, and on ABC Radio Canberra.

WELCOME

Pieter Arnold is doing a postdoc in the Kruuk and Nicotra groups (E&E), working on multivariate phenotypic plasticity in response to temperature. Piet obtained his PhD from the University of Queensland in 2017, and then held a postdoc position at Monash University before moving to ANU.

A warm welcome to Visiting Fellow **Keach Murakami** from Yamaguchi University, Japan. He will spend 12 months in Fred Chow's lab, Building 46, studying the longevity of the cytochrome *bf* complex in pea leaves.

Rocco Notarnicola is doing a PhD supervised by Adrienne Nicotra and Loeske Kruuk (E&E), working on the epigenomic mechanisms underlying plant plasticity in an Alpine herb, *Wahlenbergia ceracea*. He joins us from the University of Parma, Italy.

Alex Silalahi joins the Corry Lab for six months on an Endeavour Research Fellowship. Alex is currently at the

Universitas Matana in Indonesia and during his stay will be developing a new computational model of the conduction of electrical impulses in axons.

Darcy Stanford joined the RSB IT client services team this month. Originally from

Darwin, Darcy has spent the last three years working for Fujitsu, contracted to the Department of Defence. He is very much looking forward to working in the university environment. "So far it has been exciting and diverse", he says, "and I look forward to that continuing."

NEW APPOINTMENTS

Ben Parker-Brown from the Research School of Physics and Engineering joined the RSB Stores Team this month, on a temporary basis for six months.

PHDS AWARDED

Kristen Barratt (Arkell group, E&E) 'New aspects of Zic2-associated Holoprosencephaly.'

Michaela Purcell (Rowell group, E&E). 'Phylogeny and host relationships of the Australian gall-inducing fly *Fergusonina* Malloch (Diptera: Fergusoninidae).'

Fiorella Ramirez Esquivel (Zeil group, E&E) 'Miniaturisation of sensory systems in ants'**.**

Belinda Vangchhia (Gordon group, E&E) 'Genetic structure and antimicrobial resistance of foodborne *Escherichia coli* in Australia.'

PAPERS ACCEPTED

Bellwood DR, Tebbett S, Bellwood O, ... Fulton CJ, *et al*, The role of the reef flat in coral reef trophodynamics: past, present and future, *Ecology & Evolution*.

Cranston PS, Tong H, *Skusella* Freeman (Diptera: Chironomidae): new species, immature stages from Africa, Asia and Australia, and expanded distributions, *ZooTaxa*.

Eldridge MDB, Potter S, Helgen KM, *et al*, Phylogenetic analysis of the tree-kangaroos (*Dendrolagus*) reveals multiple divergent lineages within New Guinea, *Molecular Phylogenetics and Evolution.*

Gargett T, Abbas MN, Rolan P, ...Altin JG, *et al*, Phase I trial of Lipovaxin-MM, a novel dendritic cell-targeted liposomal vaccine for malignant melanoma, *Cancer Immunology, Immunotherapy*.

Kwan E, Digest: Parental love? The evolution of sexual imprinting as an assortative mating mechanism developed through reinforcement, *Evolution*.

MacLeod KJ, Brouwer L, Social context-dependent provisioning rules in red-winged fairy-wrens do not vary with signals of increased chick need, *Animal Behaviour.*

Matis PA, Donelson JM, Bush S, Fox RJ, Booth DJ, Temperature influences habitat preference of coral reef fishes: will generalists become more specialised in a warming ocean? *Global Change Biology*.

Potvin DA, Ratnayake CP, Radford AN, Magrath RD, Birds learn socially to recognize heterospecific alarm calls by acoustic association, *Current Biology*.

Smith SM, Fox RJ, Booth DJ, Donelson JM, Stick with your own kind, or hang with the locals? Implications of shoaling strategy for tropical reef fish on a range-expansion frontline, *Global Change Biology*.

Taylor T, McMahon S, Smith M, Boyle B, Violle C, van Haren J, Simova I, Meir P *et al*., Isoprene emission structures tropical tree biogeography and community assembly responses to climate, *New Phytologist.*

Wenger LN, van Lier JR, Fulton CJ, Microhabitat selectivity shapes the seascape ecology of a carnivorous macroalgae-associated tropical fish, *Marine Ecology Progress Series*.

Wilson SK, Depczynski M, Fisher R, ..., Noble MM, ... Fulton CJ, *et al*, Climatic forcing and larval dispersal capabilities shape the replenishment of fishes and their habitat-forming biota on a tropical coral reef, *Ecology & Evolution*.

Wu D, Ciais P, Viovy N *et al*. incl. Meir P, Asymmetric Responses of Primary Productivity to Altered Precipitation Simulatd by Ecosystem Models across three Longterm Grassland sites, *Biogeosciences*.

Zhang M-M, Fan D-Y, Sun G-Y and Chow W S, Optimizing the linear electron transport rate measured by chlorophyll *a* fluorescence to empirically match the gross rate of oxygen evolution in white light: Towards improved estimation of the cyclic electron flux around Photosystem I in leaves, *Functional Plant Biology.*