

# Research School of Biology Newsletter

Issue 122 | August 2020

## ANU COLLEGE OF SCIENCE

## CONGRATULATIONS

Australian National

Universitv

Award for Excellence in Education Ben Corry (BSB) has been awarded



a Vice Chancellor's Award for Excellence in Education, Citation for Outstanding Contribution to Student Learning. Ben has developed a range

of teaching strategies that deeply engage students in a large class setting. These include novel tutorials that demonstrate the process, creativity and application of the scientific method; and approaches that allow students to apply and contextualise their understanding with real world examples. <u>Read more here.</u>

Parasitravaganza 2020 Awards Sanduni Hapuarachchi (van Dooren, Lehane & Kirk groups) and Merryn Fraser (Maier group) won speaker and cash prizes in the Australian Society for Parasitology online conference. Sanduni won the People's Choice prize for describing the role of a transporter protein in the "host heist" of cells by *Toxoplasma* parasites, while Merryn won the runner's up People's Choice prize for a Steinbeck-themed talk "Of monocytes and malaria".

## Parasitology outreach grant

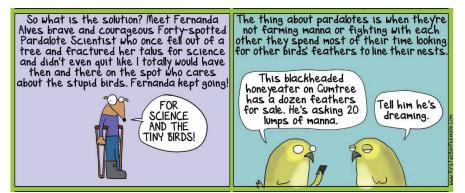
Jenni Hayward (van Dooren group) and Ayman Hemasa (Saliba group), BSB, were awarded a \$3000 Student Extracurricular Enrichment Fund (SEEF) grant from PARSA to support Parasitology outreach.

## IN THE MEDIA

Pardalote study in the news

Fernanda Alves (Langmore group, E&E) was featured in <u>The Conversation</u>, an <u>ANU</u> <u>media video</u>, <u>IFL Science</u>, and in a cartoon by <u>First Dog on the Moon</u>.

Fernanda and researchers devised an ingenious solution to save chicks of the endangered forty-spotted pardalote from a blood-sucking maggot. They hung the forest with dispensers of sterilised chicken feathers treated with a bird-safe insecticide, which the birds used to collect feathers to line their nests. Chicks in the nests containing treated feathers had a



Fernanda Alves (E&E) was featured by cartoonist First Dog on the Moon. View the whole cartoon



95% survival rate, compared with only 8% of birds that used feathers without insecticide. The <u>study</u> was published in <u>Animal Conservation</u>.

### Mantis study in the media

Marta Vidal-Garcia (Keogh group, E&E) is first author on a paper on the evolution of praying mantis startle displays. Read more in <u>Scimex news.</u>

# OUTREACH

Parasitology website for Science Week RSB Parasitologists have created <u>a website</u> for Science Week and outreach, featuring blogs, games, news, and resources for studying parasitology. The site received over 900 unique visitors during Science Week. View a list of contributors here.

Barry Pogson, Ulrike Mathesius (both PS) and Jennie Mallela (E&E) were interviewed by a Senate Inquiry into farm practices that impact water quality outcomes in the Great Barrier Reef. Apparently, it was a lively discussion.



Left to right: Jennie, Barry and Ulrike at the Senate Inquiry.

Jennie Mallela (E&E) was a panelist for the Science Week event Requiem for a Reef.

## WELCOME

Marina Louter has joined the Gardner



group (E&E) as a Research Officer. Marina has spent the past few years working as an ecologist and environmental

consultant in the private sector, and has joined our team at Calperum Station in South Australia, investigating avian responses to climate change.

## FAREWELL

Kevin Murray, Borevitz group (PS, E&E). Kevin Murray started in RSB and the CoE Plant Energy Biology in 2010 as an Advanced Topics student in Bioinformatics. He did his Honours with the Borevitz group on Arabidopsis genetic variation in light stress response, then spent a year developing new methods in plant phenomics before beginning his PhD. Kevin was a pioneer of bioinformatic teaching at RSB and bioinformatics development, some of this outlined in his thesis paper, *kWIP as an unbiased way* to measure genetic divergence between samples from sequence kmers. Kevin continued in the group as a postdoc, studying the adaptive radiation among woodland Eucalyptus. This resulted in seminal publications, including work with APPF@ANU rebuilding image analysis

pipelines. Next year Kevin will take up a postdoc at the Max Planck Institute in Germany with Detlef Weigel. We wish him all the best.

#### Megan MacDonald joined the Solomon



on a one year Swiss National Science Foundation Fellowship to initiate a genomics program to study wheat pathogens in

group (PS) in 2013

the Solomon group. From there, Megan worked on a long-term GRDC project collaborating with NSW DPI to study the wheat pathogen Zymoseptoria tritici which has been very successful and resulted in many significant publications. Throughout her time in the lab, Megan has played a key mentoring role to many of the younger students coming through the Solomon group, and has been able to impart a bioinformatics angle on multiple projects that we wouldn't have been able to do without her. She has also been very proactive in school activities and taken on opportunities such as being part of Grand Challenge applications. Needless to say, she will be greatly missed by not only our lab but all of RSB and we wish her all the best for the next stage of her career at the University of Birmingham.

#### Peta Moisis (BTLC). The Teaching Lab



is very sad to farewell Peta Moisis who retired 4<sup>th</sup> September. Peta started working in BaMBi in 1992 as a casual Lab Fairy in the Teaching

Lab. She held lab assistant positions before returning to the Teaching Lab as a permanent Technical Officer in 2003. Peta assisted many staff and students over the years, whether it be advice, a friendly ear, finding equipment, or a home baked cake. Her corporate knowledge, strong work ethic, vibrant and cheeky personality are going to be sorely missed. We wish Peta all the best in her retirement, the place will not be the same without her.

## Alan Muir (RSB-RSC Workshop)



Alan started at the ANU Zoology Department on his 24<sup>th</sup> birthday in 1987. He has seen the merging of Zoology with Botany to become BoZo, then the RSB merger, and lastly the merging of the RSB and RSC workshops. Although an indentured Fitter & Turner, Alan started as a Workshop Assistant, then became a Technical Officer, before enrolling in night school to become a Refrigeration Technician. Alan preferred hands-on work to supervisory roles, widening his technical skills in his 33 years at ANU. His capability, generous character, and quiet, unpretentious ways will be missed at RSB.

# Ursula Hurley (Divisional Technical Officer, PS)



After a long career with RSBS and now RSB, it is time to say goodbye Ursula. It has been a great pleasure and an honour to work with Ursula, and we thank her for her

enthusiasm, commitment and dedication to her work, she will be greatly missed. We wish her all the best for her future ventures.

# Uschi Wiedemann (Divisional Technical Officer, BSB)



Ushi decided to leave RSB at the end of August. Uschi first joined the Rob Saint's group in the former RSBS in 2004. Following the formation of RSB, Uschi joined the BSB Division

as a technical officer and was a stalwart in that position. Besides her Divisional duties, Uschi recently served on the School's WHS Committee and as a Health and Safety Representative. Over many years, Uschi used her fantastic technical/research skills to carry out experiments and assist students and postdocs with their experiments in some BSB labs. Uschi has always been up for a chat, particularly on birds, herbs, healthy eating/cooking, or environment ... her helpful and friendly demeanour will be missed.

#### Steve Dempsey (Plant Services)



Steve started work in Plant and Animal Culture in 1993 close to 30 years ago. He became the Plant Services Team Leader in 2006 and raised service standards, authoring most of the procedures we rely

on today. His detailed records have been used by many – from creating charts for User pays and Tobacco register, to editing and improving PC2 procedures, RAs, and lastly working with others to making the Quarantine facility a working reality. His detailed records have gained the respect of IBC and Quarantine inspectors alike, and was awarded a Quarantine Certificate of Commendation for his efforts. His calm manner, attention to detail and persistence in all aspects of plant culture operations came to the fore when dealing this years' challenges of smoke, hail, and Covid. His knowledge and guidance as a team leader, and his friendship will be greatly missed by the Plant Services team, we wish him all the best for the future.

#### Gavin Pritchard (Plant Services)



Gavin started work in Plant Services in 2006. He has been a crucial link to the smooth running of Plant Services, and a great support to researchers. Whether preparing soil

mixes or helping with specialized projects, Gavin would go out of his way to advise or help. A quiet achiever; his knowledge and dedication to pest and disease control in the greenhouses and cabinets saved many projects. His gentle personality, friendship and quirky jokes will be greatly missed by the Plant Services team, we wish him all the best for his future.

'Barney' the orphaned wombat (image left)



has been flourishing in the care of Corin Pennock (TST), so much so that it is time for him to farewell

RSB and move to greener pastures with another carer. Corin is now caring for '**Ursula**' (image right).

# Ø

## NOTICES

# From the RSB Equity and Diversity Committee

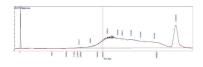
This year has been hard on all of us. The impact of COVID-19 and all its flow on effects will be felt harder by some than others as research suggests here, here, and here. It is apparent that carers of young children are most heavily impacted by lockdowns and school closures. This means especially women are most disadvantaged as they still contribute most to raising kids. If you want to find out more how women and ECRs are impacted by COVID-19 in Australia read more in the EMCR forum report. We hope that future hiring at RSB will consider the impact this year had on people's productivity to not to unravel the slow progress we are making towards equity in the workplace.

#### **COVID** course certifications

The School has reached a milestone - 500 COVID course certifications!

# Need to QC your High Molecular Weight DNA?

Did you know that the EBL now has a <u>Femtopulse</u>? It carries out pulsed field capillary electrophoresis for the separation and visualisation of your High Molecular Weight DNA. Great for DNA extraction protocol optimisation and QC'ing DNA prior to long read sequencing such as PacBio or Nanopore. It's not wasteful only picogram quantities required. RSB's own DNA Whisperer's data in example below. Get in touch with Niccy if you're interested. Niccy.Aitken@anu.edu.au



## PAPERS

Alton LA, Kutz T, Bywater CL, Arnold PA, *et. al.* Developmental nutrition modulates thermal responses to projected climate change. *Functional Ecology.* <u>https://doi.org/10.1111/1365-2435.13663</u>.

Alves F, Langmore N, Heinsohn R, & Stojanovic D. 'Self-fumigation' of nests by an endangered avian host using insecticide-treated feathers increases reproductive success more than tenfold. *Animal Conservation*. <u>https://doi. org/10.1111/acv.12627</u>. See under 'In the Media'.

Burrowes, PA, Navas, CA, Jiménez-Robles, O, Delgado, P, & De la Riva, I. Climatic heterogeneity in the Bolivian Andes: are frogs trapped? *South American Journal of Herpetology*, <u>https://</u> doi.org/10.2994/SAJH-D-18-00047.1

Cunningham, SJ, Gardner, JL, & Martin, RO. Missed-opportunity costs and the response of birds and mammals to climate warming. *Frontiers in Ecology and the Environment*.

Duchene, S, Lemey, P, Stadler, T, Duchene, DA, et.al. Bayesian evaluation of temporal signal in measurably evolving populations, *Molecular Biology and* 

This newsletter is archived at biology.anu.edu.au/news-events/newsletters Layout: Sharyn Wragg Editing: Scott Keogh & Sharyn Wragg

#### Evolution. https://doi.org/10.1093/ molbev/msaa163.

Kachuei, V, Talebi Bezmin Abadi, A, Rahimi, F, & Forootan, M, Colonization by *Pseudomonas aeruginosa* and *Staphylococcus aureus* of antral biopsy specimens from gastritis patients uninfected with *Helicobacter pylori*. *Infection and Drug Resistance*. doi: 10.2147/IDR.S254967

Kirkland, LS, Maino, J, Stuart, O, & Umina, PA. Ontogeny in the European earwig (*Forficula auricularia*) and grain crops interact to exacerbate feeding damage risk. *Journal of Applied Entomology.* <u>https://doi.org/10.1111/jen.12767</u>

Megía-Palma, R, Jiménez-Robles, O, Hernández-Agüero, JA, & De la Riva, I. Plasticity of haemoglobin concentration and thermoregulation in a mountain lizard. *Journal of Thermal Biology*. <u>DOI:</u> 10.1016/j.jtherbio.2020.102656

Mohamed, A, Andrade, N, Moya, A, Chan, CX, Ying, H, Ball, E, & Miller, D, et.al. Dual RNA-seq analyses of a coral and its native symbiont during the establishment of symbiosis. *Molecular Ecology.* https://doi.org/10.1111/ mec.15612.

Parajuli, P, Minh, B, & Verma, N. Newly emerged serotype 1c of *Shigella flexneri*: multiple origins and changing drugresistance landscape. *Genes*. https://doi.org/10.3390/genes11091042

Pereira, MC & Cooper, PD. A novel head capsule labial gland lobe in the black field cricket (Orthoptera: Gryllidae), *Journal of Insect Science*. <u>https://doi.</u> org/10.1093/jisesa/ieaa068

Pinzari, CA, Kang, L, Michalak, P, Jermiin, LS, Price, DK, & Bonaccorso FJ. One-way ticket to paradise: analysis of genotype sequence data reveals the origin and evolutionary separation of Hawaiian hoary bat populations. *Genome Biology and Evolution.* 

Rahimi, F, & Talebi Bezmin Abadi, A, Criticality of physical/social distancing, handwashing, respiratory hygiene, and face-masking during the COVID-19 pandemic and beyond. *International Journal of Clinical Practice*. https://doi.org/10.1111/ijcp.13656 Rahimi, F, & Talebi Bezmin Abadi, A, Inhibitors of angiotensin-converting enzyme or blockers of Angiotensin-2 Receptor in COVID-19 patients with comorbid cardiovascular or pulmonary diseases. *Research in Molecular Medicine*. http://rmm.mazums.ac.ir/article-1-369-en. html

Ręk P, & Magrath, RD. Visual displays enhance vocal duet production and the perception of coordination despite spatial separation of partners. *Animal Behaviour*.

Schnider, CB, Yang, H, Starrs, L, Rahimi, F, et. al. Host porphobilinogen deaminase deficiency confers malaria resistance in *Plasmodium chabaudi* but not in *Plasmodium berghei* or *Plasmodium falciparum* during intraerythrocytic growth. *Frontiers in Cellular and Infection Microbiology.* <u>https://doi.org/10.3389/</u> <u>fcimb.2020.00464</u>

Vidal-García, M, O'Hanlon, JC, Svenson, GJ, & Umbers, KDL. The evolution of defensive displays in praying mantises. *Proceedings of the Royal Society B.* <u>https://doi.org/10.1098/rspb.2020.1016</u> See under 'In the Media'.