



NEWS

Farewell message from Director Allen Rodrigo

In my opinion, The Research School of Biology is one of the best, if not the best, School in the ANU. This is all down to you. School Directors have very little power to make Schools good places, if there aren't already good people working there. Over the 4.5 years that I have been here, I have seen you push the boundaries of your science, try hard to work with people from other disciplines to address important questions, and support those who need it.

I want to thank you all for your dedication to your work, your commitment to your discipline, and your enthusiasm to make the School a better place. I am grateful to **Scott Keogh** for taking over as Interim Director, and I know that, like me, he will have your support.

I leave you with a Maori saying – He waka eke noa. We are all in this together. - **Allen Rodrigo**.

Farewell to RSB Director Allen Rodrigo

The RSB thanks **Allen Rodrigo** for all his hard work over the past four and a half years as our Director. Allen achieved a great deal during his time with us including establishing our emerging strength in quantitative biology, helping us make a number of outstanding academic appointments across all three Divisions, he oversaw the refurbishment of the Robertson Building, he established our Lab Leader retreats, he has always been a strong supporter of our professional staff and he was always a strong advocate for our school. Allen is leaving us in an excellent position going forward and no doubt he will continue this tradition in his new role as Head of the School of Biology at the University of Auckland. We wish Allen all the best in his new job. - **Scott Keogh**.

Interim RSB Director appointed

Scott Keogh has been appointed as the



Interim-Director of RSB, taking up the role on 2 January 2020. Scott has been Head of the Division of Ecology and Evolution since January 2012, and was

the Associate Director HDR for RSB from



Departing RSB Director Allen Rodrigo and his Executive Assistant Terri Richardson talk to Scott Keogh after the presentation of his going-away gift, a painting by Wiradjuri man Dale Huddleston (See news item) Image: Sharyn Wragg.

2009-2012. He has been a member of the RSB Executive Committee since just after the formation of the School in 2009.

Five new Professors at RSB!

Congratulations to our five new professors:



Clockwise from top left: Professor **Marcel Cardillo**, Professor **David Jones**, Professor **Alex Maier**, Professor **John Rathjen** and Professor **Spencer Whitney**.

RSB congratulates our newest PhDs

RSB congratulates our latest PhD graduates!

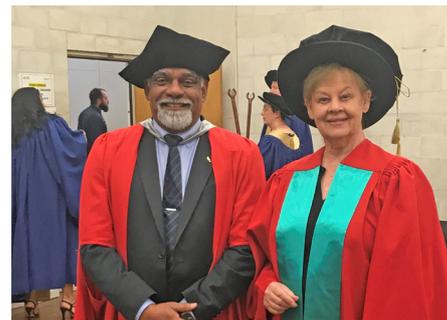
The new Doctors who crossed the stage this month are: **Ian Brennan** (Keogh group), **Ross Deans** (Farquhar group), **Ross Dennis** (Furbank group), **Damien Esquerré** (Keogh group), **Sonya Geange** (Nicotra group), **Xuankun Li** (Rowell group), **Oliver Mead** (Solomon group), **Buddhie Nanayakkara** (Gordon group), **Kathryn Parker** (van

Dooren group), **Zoe Reynolds** (Cardillo group), **Melanie Ridgway** (Maier group) and **Peng Zhang** (von Caemmerer group).

Jenny Graves received an honorary doctorate at the ceremony, for her contribution to genomic and epigenetic research, and for the advancement of women in science.



Sonya Geange (left) with her PhD supervisor Adrienne Nicotra, after the graduation ceremony where Sonya received her PhD.



RSB Director Allen Rodrigo, with Jenny Graves at the graduation ceremony.

Peter Goldacre award and lecture



Simon Williams was presented with the Peter Goldacre award from the Australian Society of Plant Scientists (ASPS), and delivered the Goldacre award lecture at the ASPS conference in Melbourne. The photo above shows Simon at the presentation, with ASPS President Kathleen Soole.

Four more years for the C4 Rice Project

Bob Furbank, Susanne von Caemmerer and the RSB C4 Rice Project team have received another four year funding extension of A\$4 million from the Bill and Melinda Gates Foundation. The project aims to 'turbocharge' the photosynthesis process in rice and involves researchers from seven institutions in five countries. [Read more here.](#)

NHMRC Ideas Grant

Giel van Dooren has been awarded an NHMRC Ideas grant, worth \$637,700, for a project entitled 'Targeting the mitochondrial electron transport chain of apicomplexan parasites'.

Discovery Projects funded

The following RSB researchers (as CI-As) have been funded by the ARC for their Discovery Project applications:

Marcel Cardillo and colleagues, \$390,000 for a project that will reconstruct the evolutionary history of the Proteaceae, which will be used to discover how past environmental changes have produced the biodiversity we see today, and forecast likely future changes to biodiversity under expected rapid environment change.

Michael Djordjevic, Rowena Martin and colleagues, \$465,000 for a project that aims to transform our understanding of how hormone systems boost and limit nitrogen fixation in root nodules, with the expectation that hormone outputs can be reconfigured to improve the efficacy of nitrogen fixation, reducing the reliance on costly nitrogen fertilizers.

Michael Djordjevic and colleagues, \$530,000 to transform our understanding of the relationship between root architecture and water and nitrogen

acquisition, factors critical to determining yield. The project expects to uncover new ways to improve water and nitrate acquisition and determine if these findings apply to crops.

David Jones and **Peter Dodds**, \$460,000 to discover how proteins secreted by rust fungi promote disease following their translocation into plant cells. This knowledge is expected to lead to the development of new strategies for rust disease management in food crops.

David Jones, Simon Williams and **Martijn Rep**, \$360,000 to close gaps in our understanding of Fusarium wilt disease in crop plants, and use the knowledge to develop new strategies for disease control by interfering with fungal pathogenicity and enhancing plant resistance.

Adrienne Nicotra, Susanna Venn, Saul Cunningham and **Justin Borevitz**, \$478,077 for a project to determine how communities of interacting alpine plants, soil vertebrates and microbes can cope with or evolve to novel climatic conditions. This understanding is necessary to predict the impact of climate change on the ability of the mountains to supply water to agriculture and power generation.

Allen Rodrigo, Rob Lanfear, Minh Bui, Lars Jeremiin and **Matthew Hahn**, \$422,697 to develop new methods and software to infer the evolutionary history of organisms using genomic data, merging mathematics and statistics with High Performance Computing to handle the huge quantities of genetic data and the complexity of evolution itself.

Giel van Dooren and **Kieran Kirk**, \$460,000 for a project that aims to investigate the mechanisms by which the model parasite *Toxoplasma* senses and responds to the nutrients in its environment, thereby shedding light on how they adapt to the different environments that they inhabit and, in the longer term, informing novel treatment strategies that aim to limit the parasites' nutrient supply.

Host Microbiome Symposium November 2019

In November, RSB hosted an international symposium on host-microbiome interactions, funded through the 2018 Innovations Fund. We enjoyed a wide range of talks on how microbiomes interact with human, animal and plant hosts, as well as forest and soil ecosystems, presented by speakers from the USA, Japan, Germany, Panama, as well as around Australia and from the

ANU. This is certainly a fast moving field that is well represented locally at the ANU and CSIRO and will impact fields across Plant Science, Biomedical Science as well as Ecology and Evolution. - **Uli Mathesius.**

Osmond Symposium, September 2019



Group photo of the participants of the Osmond Symposium. Photo by Sharyn Wragg.

In September, the Research School of Biology celebrated the life-long scientific contributions of **Barry Osmond** to Plant Sciences on the occasion of his 80th birthday. Barry has been a long-standing member and previous director of the Research School of Biological Sciences, where he worked on all aspects of photosynthesis from algae to higher plants, and from the test tube to the field. Barry's contributions paved the way for the ongoing strength in photosynthesis



Graham Farquhar as John Raven from the University of Dundee, with a tribute to Barry. Photo by Britta Förster.

research at RSB. Over two days, more than 30 former colleagues of Barry from around the world, as well as RSB researchers presented not only their current work on photosynthesis research, but also gave numerous memorable reflections on Barry's supportive role in their careers. Reflections on Barry's scientific contributions and on Barry as a friend and colleague of those

unable to participate in person were presented by school members (see image above). - **Uli Mathesius**

Book launch

Lindell Bromham and **Marcel Cardillo** celebrated the publication of their book 'The Origins of Biodiversity' with a party in the Robertson tea room and terrace this month. **Kim Sterelny** from the ANU Centre for Philosophy of the Sciences introduced the book, which took Lindell and Marcel 10 years to write. The authors launched the book on a purpose-built raft into a paddling pool on the terrace in lieu of Sullivans Creek, which was too dry.



Marcel Cardillo and Lindell Bromham launch their book on the Robertson Terrace. Photo by Scott Keogh.

Congratulations

Alex Skeels (Bromham group) won the poster prize at the Australasian Evolution Society conference in Sydney this month, for his 'Disco Koala' model of species range evolution. Check it out here.

Jing Cui (Leyton group) won the 'Best Poster Prize' at the INPEC-Australasian Protein Engineering meeting held this month in Canberra.

Awards

Simon Williams was awarded the Thomas Davies Research Grant for Marine, Soil and Plant Biology from the Australian Academy of Science this month. Simon received \$24,660 for the grant, entitled 'Establishing a synthetic biology platform for engineering plant innate immunity receptors.'

PhD student **Angus Rae** (Mathesius group) has been awarded the Tim Healey Memorial Scholarship, from the Primary Industries and Regions SA (PIRSA). The scholarship provides \$10,000 a year and is awarded to an HDR student studying in a field that benefits the future of Australian farming.

RSB End of year party

The annual RSB/Fenner end of year party was held this month, with live music, a barbeque, and a farewell for outgoing Director **Allen Rodrigo**. RSB Knitting club won the Christmas tree decoration competition, which was judged by CPAS Director **Joan Leach**, and **Jen Nott** from the College of Science.



RSB Knitting Club founder Alisha Duncan picked up the award for best Christmas tree ornament. Photo by Sharyn Wragg.



Susan Howitt, Owen Atkin and Scott Keogh farewelled Director Allen Rodrigo. Photo by Sharyn Wragg.

IN THE MEDIA

Hannah Carle (Meir group) joined the hosts of The Wholesome Show podcast again this month, telling stories of the early pioneers of space travel - animals. Listen to the episode here, and watch out for the next couple of shows too, where Hannah will be a guest.

FAREWELL

Mel Norris has served as the RSB Communication and Outreach Officer



for the past four and half years. Mel did an outstanding job in this multi-faceted role which required her to juggle a lot of things including producing this RSB Newsletter every month, keeping up our media presence and coordinating the never ending outreach activities that are so important to the school. We thank Mel for all her hard work and we wish her all the best back in New Zealand. - **Scott Keogh**.

PHDS SUBMITTED

Hee-Jin Noh (Langmore group) 'An imposter in the nest: Coevolution between the little bronze-cuckoo and its host, the large-billed gerygone.'

PHDS AWARDED

Jacinta Watkins (Pogson group) 'Understanding carotenoid esterification in cereals.'

PAPERS ACCEPTED

Alves Negrini AC, Evans JR, Kaiser BN, Millar AH, Kariyawasam BC, Atkin OK, Effect of N supply on the carbon economy of barley when accounting for plant size, *Functional Plant Biology*.

Fox D, Mathur A, Xue Y, Liu Y, Tan WH, Feng S, Pandey A, Ngo C, Hayward J, Atmosukarto I, Price J, Johnson M, Jessberger N, Robertson A, Burgio G, Tschärke D, Fox E, Leyton D, Kaakoush N, Märtilbauer E, Leppla S, Man SM, *Bacillus cereus* non-haemolytic enterotoxin

activates the NLRP3 inflammasome, *Nature Communications*.

Irinyi L, Hu Y, Hoang MTV, Pasic L, Halliday C, Jayawardena M, Basu I, McKinney W, Morris AJ, Rathjen J, Stone E, Chen S, Sorrell TC, Schwessinger B, Meyer W, Long-read sequencing based clinical metagenomics for the detection and confirmation of *Pneumocystis jirovecii* directly from clinical specimens: A paradigm shift in mycological diagnostics, *Medical Mycology*.

Joshi S, Jose B, Gullan P, Sajeev TV, Annap EV, A new species of mealybug (Hemiptera: Coccothraupidae: Pseudococcidae) from *Tectonia grandis* L.f. (Lamiaceae) in southern India, *Zootaxa*.

Kattge J, Bönnisch G, Díaz S, Lavorel S, Prentice IC, Leadley P, Tautenhahn S, Werner G, ... Atkin OK, ... Meir P, ... Wirth C, - note: 725 authors, TRY plant trait database - evolution towards enhanced coverage and open access, *Global Change Biology*.

Murray KD, Janes JK, Jones A, Bothwell HM, Andrew RL, Borevitz JO, Landscape drivers of genomic diversity and divergence in woodland Eucalyptus, *Molecular Ecology*.

Murray T, Kocsi Z, Dahmen HJ, Narendra A, Le Moeel F, Wystrach A, Zeil J, The role of attractive and repellent scene memories in ant homing (*Myrmecia croslandi*), *Journal of Experimental Biology*.

Salesse-Smith C, Sharwood RE, Busch FA, Stern DB, Increased Rubisco content in maize mitigates chilling stress and speeds recovery, *Plant Biotechnology Journal*.

Wang H, Atkin OK, Keenan T, Smith N, Wright I, Bloomfield KJ, Kattge J, Reich P, Prentice IC, Acclimation of leaf respiration consistent with optimal photosynthetic capacity, *Global Change Biology*.



A special guest showed up for the Professional Staff thank-you lunch. Photo by Sharyn Wragg.

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