



NEWS



RN Robertson Building refurbishment gets green light

After several months of financial and operational refinement, the University has approved the Robertson refurbishment project. The estimated cost of the refurbishment has been creeping down, as the design team worked with group leaders, professional staff and heads of divisions to develop a plan for layout and requirements that will serve the needs of the researchers, staff and students who will be located in the new building. Over the next few weeks, current occupants of the Robertson Building will relocate to temporary offices and labs. Refurbishment work is expected to commence in the next couple of months. The IT and School/College administrative teams will be located in the D A Brown Building next to the Gould Building. That will also be the location of the 'Acting' Slatyer Seminar Room. Labs currently located in the Robertson Building will be relocated to the compound behind the building, to the Linnaeus Building, to the Banks Building, or the D A Brown Building. - Allen Rodrigo.

Faculty Flash

Thirty RSB faculty members presented their research in a day-long symposium of short 8-minute flash talks this month (see main photo).

EMCR moderators Carsten Kulheim (Foley, Crisp groups, EEG), Claire Anderson (Masle group, PS), Florian Busch (Farquhar group, PS), and Ben Kaehler (Huttley group, EEG, CBBU) managed the sessions, which were held in the Robertson Lecture Theatre. Speakers came from all areas of RSB, presenting their research to an audience of researchers, professional staff,



Speakers and moderators at the Faculty Flash, from left: Front row: Alex Maier (BSB), 'Josephine' (see Faculty Flash news item), Paul Cooper (EEG), Kevin Saliba (BSB). Second row: Claire Anderson (Masle group, PS), Maia Adamska (BSB), Chris Fulton (EEG), Allen Rodrigo (CBBU), Justin Borevitz (EEG, PS). Third row: Adrienne Hardham (PS), Suzanne von Caemmerer (PS), Rob Magrath (EEG), John Evans (PS), Carsten Kulheim (Foley, Crisp groups, EEG), Spencer Whitney (PS), John Rathjen (PS), Florian Busch (Farquhar group, PS). Fourth row: Gavin Huttley (EEG, CBBU), Owen Atkin (PS), Ben Kaehler (Huttley group, EEG, CBBU), Eric Stone (CGMB), Marcel Cardillo (EEG), Peter Solomon (PS), Uli Mathesius (PS). Back row: Mike Jennions (EEG), Giel van Dooren (BSB), Aude Fahrer (BSB), Tony Millar (PS). (Image: Sharyn Wragg) (See: News).

students and visitors. During a morning session, Alex Maier (BSB) used props to demonstrate the mechanics of malaria infection, spraying Tropical Breeze air freshener and playing beach music to get us in the mood, and then introducing Ann the female mosquito who 'bit' and 'infected' a life-sized dummy called Josephine (see main photo). Josephine became a kind of mascot for the symposium, with later speakers referring to her, and even making 'Josephine jokes'.

CBA Ignition Grant Symposium

The RSB-based Centre for Biodiversity Analysis has funded 26 small collaborative ANU-CSIRO research projects over the past four years. In recognition of this, grant recipients were invited on 2 June to share the progress and results of their 'Ignition projects' in an informal symposium.

Presenting short 'lightning talks', scientists and students from ANU and CSIRO filled the afternoon with original and diverse science. The symposium demonstrated the success of the Ignition grant scheme, which aims to 'kick-start' innovative biodiversity research that subsequently enables more substantial ANU-CSIRO collaborations and proposals.

A new round of Ignition grants is now open. - Claire Stephens.

Megan Head (Jennions group, EEG) is an invited speaker at the 2016 Summer School for Evolution and Ecology being held at Sun Yat-Sen University, Guangzhou, China.

Computational Biology Workshops



PhD students Jack Simpson (Foret group, EEG) (left) and Adam Taranto (Solomon group, PS) (right) teaching Python during the 'Introduction to programming in Python and Unix Shell and Git' workshop. Jack and Adam are members of COMBINE and Software Carpentry instructors. (Image: Marcin Adamski) (see news item).

The Computational Biology and Bioinformatics Unit together with ANU-COMBINE (COMBINE is the student subcommittee of The Australian Bioinformatics and Computational Biology Society) and the Statistical Consulting Unit finished their April-June series of Workshops in Bioinformatics and Statistics with two workshops: 'Introduction to Programming in Python and Unix Shell and Git' (May 30 - June 1) and 'Experimental Design and Statistical Analysis' (May 17-June 3). Around

Group leader profile: Janet Gardner (EEG)



Group research focus

We are interested in understanding species' responses to environmental change. We make novel use of

time-series available through museum collections and citizen science, with a particular focus on the effects of climate change on avian morphology. We work at a range of scales, from local, within-population dynamics up to continental-wide comparisons of different species in different climatic regions and regimes. We seek to understand the consequences of environmental change for the viability of populations: how climate drives changes in body size and shape, associated fitness costs for individuals and demographic consequences for populations. These factors ultimately determine the abundance and distribution of species so our work has a bearing on environmental management.

What do you enjoy most about research?

The excitement of first insights.

Finding patterns in data and relating them back to the natural world. Approaching the same problem from different perspectives.

Contributing to conservation planning.

Knowing that answering one question always leads to another.

What else do you have underway?

One current focus is setting up targeted field projects to test mechanisms of change in different climatic regions, work that will complement our continent-wide comparisons of species in different climatic regions and regimes.

Who is your science hero?

It would have to be Dame Miriam Rothschild, once described as 'Beatrix Potter on amphetamines'. She was a brilliant amateur naturalist and conservationist who had the freedom to follow her wide-ranging interests with zest and passion. Despite having no formal qualifications, she published more than 300 scientific papers, and took time out during WWII to help the Allied war effort by decoding encrypted Enigma messages at Bletchley Park. Independent, inspirational and unconventional, she made an enormous contribution to science and society during her lifetime.

20 participants participated in each of them, mainly early career researchers, postdocs and PhD students. The next series of 'Workshops in Bioinformatics and Statistics' has been planned for next year (at around the same time). - Marcin Adamski.

Outreach news



Carly Conlan (Whitney group, PS) demonstrates gel electrophoresis for the Melrose High students. (Image Alisha Duncan) (see news item).

A group of 24 year 10 students from the ACE Science program at Melrose High School visited the RSB this month. The students spent the morning with members of the Centres of Excellence for Translational Photosynthesis and Plant Energy Biology, touring labs and facilities, learning to do gel electrophoresis, and experiencing a virtual reality tour of the National Arboretum. In the afternoon they worked on **Dave Rowell's** (EEG, BTLC) *Aspects of Human Inheritance* practical class. Many thanks to all who helped, especially outreach co-ordinators **Alisha Duncan** (Badger group, PS, CoETP) and **Clarissa Alves Negrini** (Atkin group, PS, CoEPEB), and the Biology teaching lab staff.

Grants

Uli Mathesius and **Giel van Noorden** (Mathesius group, PS) have won a project grant from the Hermon Slade Foundation. The grant, worth \$60,000 over 3 years, is entitled 'Exploiting flavonoid diversity in legumes to improve nitrogen-fixing symbiosis.' Eight new grants were funded by the foundation this year, selected from 106 applications.

Kai Xun Chan (Pogson group, PS) and **Barry Pogson** (PS) have been awarded \$50,000 from the ANU Connect Ventures Discovery Translational Fund. The project is entitled 'Development of novel 'yield rescue herbicides' for drought proofing crops'. Grants from the Discovery Translational Fund are intended to assist with the commercialisation of new technologies and innovations.

Alyssa Weinstein from the Peak group (EEG) has received \$7,500 from the

Holsworth Wildlife Research Endowment for the project 'Resolving cryptic floral ecotypes in *Drakaea livida*.'

IN THE MEDIA



Damien Esquerre and friend. (Image Stuart Hay) (see news item).

Damien Esquerré's (Keogh group, EEG) work on the convergent evolution of pythons and boas has been reported in *IFL Science* and *Cosmos* magazine. Damien showed that the two snake families evolved the same morphologies several times independently as they adapted to similar habitats. "The two families have been separate lineages for over 70 million years which makes this convergence unique and unlikely," Damien said.

PHDS SUBMITTED

Mariano Jordi Muria Gonzalez (Solomon group, PS), 'Dissecting secondary metabolism in the wheat pathogen *Parastagonospora nodorum*.'

Carlos Bustos-Segura (Foley group, EEG) 'Intraspecific variation in plant chemistry and implications for ecological interactions.'

MPHIL AWARDED

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

PHDS AWARDED

Marta Vidal Garcia (Keogh group, EEG) 'Morphological evolution in Australian frogs.'

NEW APPOINTMENTS

Alyssa Weirman has taken up the position of Operations Coordinator in



the RSB Plant Sciences NCRIS facility under the guidance of ANU NCRIS Director **Justin Borevitz**. The facility continues to compete

for additional funding from the Australian Government's commitment to the National Innovation and Science Agenda which has

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pledged \$1.5 billion to ensure that NCRIS continue to drive collaboration between researchers, government and industry.



Pip Wilson (Borevitz group, PS) (pictured left) and **Andrew Bowerman** (formerly CSIRO) (below left) have recently accepted post-doctoral positions working on the International Wheat Yield Partnership project. Led by **Barry Pogson** (PS), the project looks at energy use efficiency in wheat.



PAPERS ACCEPTED

Adamska, M, Sponges as models to study emergence of complex animals, *Current Opinion in Genetics & Development*.

Betti, M, Bauwe, H, Busch, FA, *et al.*, Manipulating photorespiration to increase plant productivity: recent advances and perspectives for crop improvement, *Journal of Experimental Botany*.

Borisenko, I, Adamski, M, Ereskovsky, A, Adamska, M, Surprisingly rich repertoire of Wnt genes in the demosponge *Halisarca dujardini*, *BMC Evolutionary Biology*.

Breen, SA, Williams, SJ, Winterberg, B, Kobe, B, Solomon, PS, Wheat PR-1 proteins are targeted by necrotrophic pathogen effector proteins, *The Plant Journal*.

Iglesias-Carrasco M, Head ML, Jennions MD, Cabcido C, Condition-dependent trade-offs between sexual traits, body condition and immunity: the effect of novel habitats, *BMC Evolutionary Biology*.

Chan, J-A, Howell, KB, Langer, C, Maier, AG, *et al.*, A single point in protein trafficking by *Plasmodium falciparum* determines the expression of major antigens on the surface of infected erythrocytes, *Cellular and Molecular Life Sciences*.

Chan, KX, Mabbitt, P, Phua, SY, Nisar, N, Estavillo, G, Pogson, B, *et al.*, Sensing and signaling of oxidative stress in chloroplasts by inactivation of the SAL1 phosphoadenosine phosphatase, *Proceedings of the National Academy of Sciences USA*.

Crisp, P, Ganguly, D, Pogson, B, Uncoupling high light responses from singlet oxygen retrograde signaling and spatial-temporal systemic acquired acclimation in *Arabidopsis*, *Plant Physiology*.

Danila, FR, Quick, WP, White, RG, Furbank, RT, von Caemmerer, S, The metabolite pathway between bundle sheath and mesophyll: quantification of plasmodesmata in leaves of C₃ and C₄ monocots, *The Plant Cell*.

Esquerré, D, Keogh, JS, Parallel selective pressures drive convergent diversification of phenotypes in pythons and boas, *Ecology Letters*.

Hou, X, Rivers, J, Leon, P, McQuinn, R, Pogson, B, Synthesis and function of apocarotenoid signals in plants, *Trends in Plant Science*.

Keighley, MV, Langmore, NE, Zdenek, CN, Heinsohn, R, Geographic variation in vocalisations of Australian palm cockatoos (*Probosciger aterrimus*), *Bioacoustics*.

Khoshravesh, R, Stinson, CR, Stata, M, Busch FA, *et al.*, C₃-C₄ intermediacy in grasses: organelle enrichment and distribution, glycine decarboxylase expression, and the rise of C₂ photosynthesis, *Journal of Experimental Botany*.

Li, H, Rahimi, F, Bitan, G, Modulation of amyloid β -protein (A β) assembly by homologous C-terminal fragments as a strategy for inhibiting A β toxicity, *ACS Chemical Neuroscience*.

Li, YS, Liu, XB, Wang, GH, Yu, ZH, Mathesius, U, Liu, JD, Herbert, SJ, Jin, J, The shift of plant N origins alters C and N assimilation during reproductive stages of soybean grown in a Mollisol, *Crop and Pasture Science*.

Medina, I, Langmore NE, The evolution of host specialization in avian brood parasites, *Ecology Letters*.

Narendra, A, Greiner, B, Ribí, AW, Zeil, J, Light and dark adaptation mechanisms in the compound eyes of *Myrmecia* ants that occupy discrete temporal niches, *Journal of Experimental Biology*.

Rahimi, F, Li, H, Sinha, S, Bitan, G, Modulators of amyloid β -protein (A β) self-assembly, in MS Wolfe (ed), *Developing Therapeutics for Alzheimer's Disease*, Academic Press, Boston.

Thynne, E, Saur, IML, Simaqueba, J, Ogilvie, HA, Gonzalez-Cendales, Y, Mead, O, Taranto, A, Catanzariti, A-M, McDonald, M, Schwessinger, B, Jones, DA, Rathjen, JP, Solomon, PS, Fungal phytopathogens encode functional homologues of plant rapid alkalisation factor (RALF) peptides, *Molecular Plant Pathology*.

Van Noorden, GE, Verbeek, R, Dinh, QD, Jin, J, Green, A, Ng, JLP, Mathesius, U, Molecular signals controlling the inhibition of nodulation by nitrate in *Medicago truncatula*, *International Journal of Molecular Sciences*.

Yamori, W, Irving, LJ, Adachi, S, Busch, FA, Strategies for optimizing photosynthesis with biotechnology to improve crop yield, in M Pessaraki (ed), *Handbook of Photosynthesis*, CRC Press, Boca Raton.

NOTICES

A couple of recent safety incidents revealed that some RSB members are still unsure about how to report an incident. To assist, we have moved a link to [online incident reporting](#) into the 'Quick Links' section of the menu bar on the left hand edge of intranet pages, and included some guidance on some of the more confusing steps.

The Biosecurity Act 2015 replaced the Quarantine Act 1908 on June 16th 2016 and now our quarantine approved premises (QAPs) and compliance agreements (CAs) are called approved arrangements (AAs).- Jeremy Weinman.

RSB Mid-Winter Lunch



Catcheside Court hummed with the sound of happy diners as members of RSB enjoyed a delicious mid-winter lunch on June 24, 2016. (Image Sharyn Wragg).