



NEWS

Open Day



Adrienne Nicotra (EE), Juliey Beckman (BTLC), Marilyn Ball (PS) and Susan Howitt (BSB) were part of the team who manned the Biology stand in the sports hall at Open Day.(Image: Mel Norris)

An estimated 9,500 people visited ANU for the annual Open Day event. RSB had a booth in the sports hall for course advice and displays in the Linnaeus drop-in centre. Many thanks to all the volunteers that made the day a success, including: **Owen Atkin** (PS), **Marilyn Ball** (PS), **Natalia Bateman Vargas** (Furbank group, PS), **Juliey Beckman** (BTLC), **Stefan Bröer** (BSB), **Tim Brown** (Borevitz group, PS, EE), **Sabrina Chin** (Mathesius group, PS), **Derek Collinge** (Pogson group, PS), **Tom Davis** (RSB IT), **Alisha Duncan** (Furbank group, PS), **John Evans** (PS), **Greg Gauthier-Coles** (Bröer group, BSB), **Susan Howitt** (BSB), **Ryan McQuinn** (Pogson group, PS), **Hoang Nguyen** (Ball group, PS), **Adrienne Nicotra** (EE), **Mel Norris** (RSB Coms), **Rod Peakall** (EE), **Michaela Purcell** (Rowell group, EE), **Veronica Reyna** (Rathjen group, PS), **John Rivers** (Pogson group, PS), **Allen Rodrigo** (CBBU), **Dave Rowell** (EE), **AnnaMaria de Rosa** (Evans group, PS), **Nishank Shah** (Bröer group, BSB), **Jack Simpson** (Foret group, EE), **Estee Tee** (Pogson group, PS), **Panit Thamsongsana** (BTLC), **Jacinta Watkins** (Pogson group, PS), **Laura Wey** (Price group, PS), **Corey Worcester** (Pogson group, PS), **Arun Yadav** (Pogson group, PS), **Meng Zhang** (Maier group, BSB), and **Lingling Zhu** (Atkin group, PS).

Ecogenomics and Bioinformatics lab now open for business

Good news – the EBL (EcoGenomics and Bioinformatics Lab) is now fully operational and ready for your next sequencing project. The sparkling new lab is well set up for both high throughput and small scale NGS library prep, with 12 independent work benches. Bring your DNA samples to the lab and carry out all genomic prep from there. If you'd like to visit the EBL to check it out, just drop me a



Plant-Microbe interaction researchers at the retreat at Kioloa. From left, Front row: Megan McDonald, Xiaoxiao Zhang, Haseena Khan, Susan Breen, Veronica Roman Reyna, Diana Ramirez-Garcés. Middle Row: Ramawatar Nagar, Benjamin Schwessinger, Raghendra Sharma, Jianping Zhang, Oliver Mead, Simon Williams, Megan Outram, Adam Taranto, Sabrina Chin, Peter Solomon, Jason Ng, Erin Hill, Chen Wang. Back Row: Yiheng Hu, Tim Hewitt, Jiapeng Chen, John Rathjen, Naveenkumar Athiyannan, Alexander Sloan, Sambasivam Periyannan, Giel van Noorden, Philipp Doerner, Elisha Thynne, Ricky Milne. (See: News Item)

line.

During the Robertson refurbishment, access to the EBL will be from around the back, through the plant culture compound. Click here to see the equipment list, and to book lab benches. Access to lab facilities will be via a per 96-well plate fee of \$120 to cover routine consumables. Some additional consumables, or aliquots thereof, will be available for purchase. In the adjacent office area, there are several "hot desks" available for use while your DNA is turning itself in to a library, so bring your laptop.

Also, I have committed to baking a cake for the first person to produce a library in the EBL. So far, there's been much interest and promise but the cake remains unclaimed...

- **Niccy Aitken**, EBL Manager



EBL Manager Niccy Aitken and the NGS robot. (Image: Sharyn Wragg)

Plant-Microbe Interaction retreat

Plant-microbe interaction researchers from Plant Sciences recently held a retreat at the ANU Kioloa campus (see main photo). ANU researchers were joined by colleagues from CSIRO Agriculture to discuss research topics, techniques and recent advances in the field of plant-microbial interactions.

Attended by around 30 researchers of levels from undergraduate, PhD, Postdoc and lab CIs, sessions also focussed on grant writing to different funding bodies and paper writing skills. Beach time, back-yard cricket and stories by the camp fire were enjoyed by all making this a very successful and interactive exercise. We would like to thank **Megan McDonald** (Solomon group, PS) and **Susan Breen** (Solomon group, PS) for convening the retreat and we hope to make it an annual event. - **Peter Solomon** (PS).

Gender equity for fish biologists

Chris Fulton (EE) facilitated a gender equity forum at the Australian Society for Fish Biology conference in Hobart, which showcased some of the outstanding women who are role models for the next generation of fish and fisheries scientists. A discussion forum with all 260 delegates explored the concepts of gender equity versus equality, systematic barriers, and unconscious bias. Key outcomes, which included a list of "good habits for gender equity" were shared widely via conventional and social media (gender equity in fish/fisheries was 6th most tweeted topic in Australia & New Zealand during the week of the conference).



CBA workshop: The interface of evolutionary biology and policy impact

The Centre for Biodiversity Analysis hosted an engagement and dialogue workshop for

Group leader profile: Eric Stone (CBBU, GCMB)



Group research focus

Does a lack of focus count? I came to biology by way of statistics, and I came to statistics by way of math. The footprints of that trajectory are visible throughout my research program and suggest the types of problems that my group likes to take on. Biology motivates all of what we study, but not all of the research projects wind up biological: sometimes we chase the abstract quantitative questions toward a deeper understanding. I'm primarily a geneticist who wonders how things are (i.e. genome to phenome) and how things came to be (i.e. evolution). But I'm easily distracted! I've supervised biologists, mathematicians, statisticians and computer scientists...and sometimes we all go down the rabbit hole together.

Teaching and research achievements

I'm happiest when helping others to achieve their goals, and my most noteworthy achievements are probably in that space. I take great joy, and maybe a little pride, in the successes of my former students and postdocs.

What do you enjoy most about teaching?

Because of my interdisciplinary focus, I tend to cover material that most of the class finds uncomfortable most of the time. At my previous institution, I taught a course in bioinformatics that drew graduate students from fifteen different programs, and each fall I would delight as they began to speak a common language. At the extreme, I once had the privilege of teaching first-year statistics to 65 students who were certain that they hated statistics. That really is a privilege: there is nothing so rewarding as showing students the beauty and applicability of a subject that they might otherwise revile. Twenty-odd years ago, that changed my life, because the subject I presumed to revile was biology!

What else do you have underway?

Having moved from the US less than three months ago, some settling in still remains. As in, a lot of settling in still remains! At home, that means helping my daughters with the transition to Australia and unpacking the 300+ boxes that just arrived by sea. At work, it means rebuilding my research group and establishing the new ANU-CSIRO Centre for Genomics, Metabolomics and Bioinformatics. I could use some help settling in, so if you're reading this and want to assist in any capacity, please email me. (That absolutely includes unpacking the boxes...)

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

research providers (scientists) and research users (policy makers and managers) this month, on 'The interface of evolutionary biology and policy impact'.

The two-day workshop aimed to address the gap between academic research, where the majority of new biodiversity data is generated, analysed and interpreted, and the current and future needs of practical policy development and real-world management. The workshop also considered the 'push and pull' dilemma of information agenda setting that often shapes the relationship between researchers and policy makers.

Workshop facilitator Wendy Russell (Double Arrow Consulting) guided a diverse group of researchers (universities, CSIRO, museums) and conservation policy makers and practitioners (State, Federal, Territory, NGOs) to share their knowledge and perspectives of, and challenges with, the science-policy-management interface.

The positive impact of incorporating evolutionary biology concepts and tools into environmental policy development and decision-making was universally accepted and a range of future engagement strategies were jointly developed. These will be advanced further over the coming months and made available, along with the workshop report, on the CBA website. -

Claire Stephens, CBA Co-ordinator.



Craig Moritz at the CBA workshop.

Outreach News

Primary and high school science extension students visit RSB

In early September, RSB hosted 50 school students from Theodore Primary, Calwell Primary, Richardson Primary and Calwell High for their Annual ANU Science Extension visit. The years 5, 6 and 10 students were taken on tours of the Plant Culture Facility, the Ecogenomics and Bioinformatics lab, the Australian National Insect Collection, attended lectures on invertebrates and reptiles, and had lab sessions on plant biology and plant pigments. There is evidence that experiences in early school years have a major impact on student career choice, and as half of the group did not have siblings or parents who had attended uni, it was a valuable opportunity for them to be made aware of their future options. Many RSB staff were involved in this activity



A Theodore primary student gets to know a blue-tongued lizard at the outreach event (image supplied).

including **Peta Moisis** (BTLC), **Melanie Trinick** (BTLC), **Yiming Li** (BTLC), **Tammy Gomersall** (BTLC), **Sue Lyons** (Plant Services), **Chris Larsen** (Plant Services), **Steve Dempsey** (Plant Services), **Jenny Rath** (Plant Services), **Gavin Pritchard** (Plant Services), **Mitzy Pepper** (Keogh group, EE), **Nicky Aitken** (Moritz group, EE), **Natalia Bateman** (Furbank group, PS), **Darren Marsh** (Plant Services), **Alisha Duncan** (Furbank group, PS), **Ross Dennis** (Furbank group, PS) and **Eddie Wang** (Farquhar group, PS). If you wish to be involved next year, contact Mel Norris who can add you to the RSB outreach page. - **Dave Rowell** (EE, BTLC).

Rob Sharwood (Badger group, PS) went to East Timor this month to deliver a three-day workshop to 40 local teachers, exploring new ways of thinking about science.



Alex Maier with Josephine the mannequin, and students from the ConocoPhillips Science Experience (see story below).

RSB researchers participated in the ConocoPhillips Science Experience at ANU this month. **Meenu Pratap** and **Melanie Ridgway** (both Maier group, BSB) gave their 3MT presentations, and **Alex Maier** (BSB) and Josephine presented a workshop on 'Parasites - what's eating you?'. **Melanie Trinick** (BTLC) ran a workshop on 'DNA profiling: How DNA fingerprinting might be used to solve a crime'.

Congratulations

Megan Head (Jennions group, EE), **Xia Hua** (Bromham group, EE), **Benjamin Schwessinger** (Rathjen group, PS), and **Simon Williams** (Solomon group, PS) have all been promoted to Level B.

Lindell Bromham's (EE) recently published textbook 'An introduction to molecular evolution and phylogenetics' has been shortlisted for the Royal Society of Biology's Undergraduate Textbook of the Year prize.

Lucy Wenger (Fulton group, EE) won the

2016 Gilbert Whitley Award at the Australian Society for Fish Biology conference in Hobart for an outstanding talk on her Honours research on the consequences of seaweed habitat specialisation in reef fishes.

Marcel Cardillo (EE) has become a fellow of the Higher Education Academy.

Benjamin Schwessinger (Rathjen group, PS) published a single author Tansley review in the *New Phytologist*, as part of his entry for this year's Tansley medal.

Awards

Simon Williams (Solomon group, PS) received a CASS Travel Award of \$3250 to attend The 29th Fungal Genetics Conference in March 2017, at Asilomar Conference Center, California, USA.

IN THE MEDIA

A paper published in *Global Change Biology* by **Owen Atkin** (PS) and colleagues, that showed how heat waves threaten Australian plant life, was reported in the *Herald Sun*, *ABC Rural*, *Xinhua*, and other Australian and international media.

Howard Bradbury (EE) was interviewed by Caroline Salisbury (the fit dietician) on 666ABC Canberra, about Konzo and the ANU Day of Giving.

David Kainer (Foley group, EE) was interviewed on 666ABC Canberra, 3AW, 774ABC and ABC News Radio about producing jet fuel from Eucalyptus oil. The research was featured in 75 news items that reached almost 400,000 people.

WELCOME



Reshi Shanmuganathan has joined the Solomon group (PS) from the University of Manchester on to work on pathogen protein interactions.



Erin Hill has joined the Solomon group (PS) as a part-time technical officer, working on bioherbicides.

NEW APPOINTMENTS

Liam Bailey (Langmore and van de Pol groups, EE), who submitted his PhD thesis this month, will continue to work in EE as a postdoc, after a well-deserved holiday. He will be working on the climate change ecology of birds, initially in the van de Pol group.



PHDS SUBMITTED

Nur Abdul Bahar (Atkin group, PS) 'Photosynthetic characterisation of tropical and temperate rainforest species.'

Liam Bailey (Langmore group, EE) 'Between the devil and the deep blue sea: Consequences of extreme climatic events in the Eurasian oystercatcher (*Haematopus ostralegus*).'

Mozes Blom (Moritz group, EE) 'Phylogenomic analysis of biogeography and speciation in a widespread genus of skinks.'

Christina Carroll (Fahrer group, BSB) 'The treatment of solid tumours with Complete Freund's Adjuvant.'

Huon Clark (Backwell group, EE) 'Reproductive success in a fiddler crab, *Uca mjoebergi*.'

Chun Wai (Ronald) Yu (Pogson group, PS) 'Studies on multi-layer aleurone mutants in cereals and their nutritional significance.'

PHD AWARDED

Alonzo Zavaleta Fernandez de Cordova (Chow group, PS) 'Spectroscopic studies of photodamage and photoprotection of Photosystem II.'

PAPERS ACCEPTED

Bapst, DW, Wright, AM, Matzke, NJ, Lloyd, GT, Topology, divergence dates, and macroevolutionary inferences vary between different tip-dating approaches applied to fossil theropods (Dinosauria), *Biology Letters*.

Clark, IA, Vissel, B, Excess cerebral TNF causing glutamate excitotoxicity rationalizes treatment of neurodegenerative diseases and neurogenic pain by anti-TNF agents, *Journal of Neuroinflammation*.

Dupin, J, Matzke, NJ, Sarkinen, T, et al., Bayesian estimation of the global biogeographic history of the Solanaceae, *Journal of Biogeography*.

Fortunato, S, Vervoort, M, Adamski, M, Adamska, M, Conservation and divergence of bHLH genes in the calcisponge *Sycon ciliatum*, *EvoDevo*.

Groszmann, M, Osborn, HL, Evans, JR, Carbon dioxide and water transport through plant aquaporins, *Plant Cell and Environment*. Invited review for special issue on water transport.

Howieson, VM, Tran, E, Hoegl, A, Fam, HL, Fu, J, Sivonen, K, Li, XX, Auclair, K, Saliba, KJ, Triazole substitution of a labile amide bond stabilizes pantothenamides and improves their antiplasmodial potency, *Antimicrobial Agents and Chemotherapy*.

Kruijt, B, Meir, P, Johnson, M, Rammig, A, et al., Modelling Amazonian carbon budgets

and vegetation dynamics in a changing climate, in: Nagy L. et al. (eds), *Interactions Between Biosphere, Atmosphere and Human Land Use in the Amazon Basin*, Springer-Verlag, Heidelberg.

Matzke, NJ, Wright, A, Inferring node dates from tip dates in fossil Canidae: the importance of tree priors, *Biology Letters*.

Osborn, HL, Alonso-Cantabrana, H, Sharwood, RE, Covshoff, S, Evans, JR, Furbank, RT, von Caemmerer, S, Effects of reduced carbonic anhydrase activity on CO₂ assimilation rates in *Setaria viridis*: a transgenic analysis. *Journal of Experimental Botany*.

O'Sullivan, OS, Heskell, MA, Reich, PB, Tjoelker, MG, Weerasinghe, KWLK, Penillard, A, Zhu, L, Egerton, JJG, Bloomfield, KJ, Creek, D, Abdul Bahar, N, Griffin, KL, Hurry, V, Meir, P, Turnbull, MH, Atkin, OK, Thermal limits of leaf metabolism across biomes, *Global Change Biology*.

Potvin, D, Parris, K, Smith Date, K, Keely, C, Bray, R, Hale, J, Hunjan, S, Austin, J, Melville, J, Genetic erosion and escalating extinction risk in frogs with increasing wildfire frequency, *Journal of Applied Ecology*.

Schwessinger, B, Fundamental wheat stripe rust research in the 21st century, *New Phytologist*.

Tea, I, Martineau, E, Antheaume, I, ... Blackburn, AC, Tcherkez, G, 13C and 15N natural isotope abundance reflects breast cancer cell metabolism. *Scientific Reports*.

Tran, PN, Tate, CJ, Ridgway, MC, Saliba, KJ, Kirk, K, Maier, AG, Human dihydrofolate reductase influences the sensitivity of the malaria parasite *Plasmodium falciparum* to ketotifen – A cautionary tale in screening transgenic parasites, *International Journal for Parasitology*.

van Dooren, GG, Yeoh, LM, Striepen, B, McFadden, GI, The import of proteins into the mitochondrion of *Toxoplasma gondii*, *Journal of Biological Chemistry*.

Zhang, T-J, Chow, WS, Liu, X-T, Zhang, P, Liu, N, Peng, C-L, A magic red coat on the surface of young leaves: anthocyanins distributed in trichome layer protect *Castanopsis fissa* leaves from photoinhibition, *Tree Physiology*.

Zhao, M, Tan, H-T, Scharwies, J, Levin, K, Evans, JR, Tyerman, SD, Association between water and carbon dioxide transport in leaf plasma membranes: assessing the role of aquaporins, *Plant Cell and Environment*.