



NEWS

Congratulations

Marlene Reichel (PhD Student, Millar Group) has been awarded an EMBO short-term fellowship and will join Matthias Hentze's group at EMBL Heidelberg from March until June 2015 for a collaborative project.

Zoe Reynolds (PhD Student, Cardillo Group, EEG) has been awarded a grant of \$1.57K from Birds SA to support her work on the fire ecology of Mallee birds.

Lasantha Weerasinghe (former PhD Student, Atkin Group, PS) has had his paper in *Tree Physiology* (2014, Vol 34: 564-584) selected as the Best Graduate Student Paper for 2014).

Will Feeney (former PhD Student, Langmore Group, EEG) is a recipient of a 2015 Fullbright Scholarship.

IN THE MEDIA

The research of **Rod Peakall** and **Ryan Phillips** (EEG) on sexually deceptive orchids has been featured by BBC Earth in an article entitled 'Three tricks orchids use to lure pollinating insects'.

Michael Braby (Visiting Fellow, EEG) was featured in an article entitled 'The butterfly man' in *R.M. William Outback* magazine. "There's never a dull moment," he says. "Northern Australia is the last frontier for new discoveries".

PHDs SUBMITTED

Liam Cassidy (Solomon Group, PS) 'Proteome mapping of the model fungal plant pathogen *Stagonospora nodorum* using LC-LC-MS/MS'.

Chooi Hua Goh (Mathesius Group, PS) 'Phenotypic responses to nitrate in *Medicago truncatula* under a range of nodulation conditions'.

Samira Hassan (Mathesius Group, PS) 'The role of flavonoids in plant microbe interactions'.

Dan Hoops (Keogh Group, EEG) 'Evolution of brain structure in lizards'.

Hannah Windley, (Foley Group, EEG), 'Nutritional ecology of common brushtail possums in New Zealand'.



The sexually deceptive orchid *Chiloglottis valida*. Image credit: Rod Peakall (see IN THE MEDIA.)

PHDs AWARDED

Damien Esquerré Gheur (Keogh Group, EEG) 'Parallel selective pressures drive convergent phenotypic diversification in the morphologically and ecologically diverse pythons and boas'.

Lasantha Weerasinghe (Atkin Group, PS) 'Assessing the impact of abiotic stress (drought, temperature and nutrient gradients) on leaf respiration of tropical and temperate rainforest species'.

WELCOME



Maja Adamska has taken up the position of Senior Lecturer in the Research School of Biology. She will be based in BSB and will be the new convenor for BIOL2174 Cell Physiology in Health and Disease.

Maja studied biology, with special interest in embryology and evolutionary biology, at the Jagiellonian University in Krakow, Poland, and has been a group leader from 2007 at the Sars International Centre for Marine Molecular Biology in Bergen, Norway. Her group is using calcareous sponges to gain insight into the evolutionary origin of a variety of key developmental processes, including segregation of germ layers and axial patterning of embryos and adults. Maja and her family will move to Australia in July.

Lauren Booth (PhB Student) has joined the Dewar Group (PS) to work on applications of maximum entropy to Rubisco optimisation.

Sanduni Hapuarachchi has joined the Kirk Group (BSB) as a Research Assistant, working

on membrane transport proteins in the malaria parasite.

Adil Khan has joined the Jones Group (PS) as a PhD Student. Adil completed a Master of Biotechnology at the ANU and was awarded an ANU PhD Scholarship. He will be studying *Fusarium* wilt disease of tomato, looking at fungal effector expression and function during infection.

Eric Warrant, a professor from Lund University, Sweden, has joined the Ecological Neuroscience Group (Zeil Group, EEG) for his sabbatical until the end of May. Eric is a specialist on visual adaptations to low-light environments and carries out research on Bogong Moth migration.

APPOINTMENTS

Kathryn Dickson (BSB) is taking a shared technical officer position between the Tscharke and Leyton Groups. Kathryn has been in doing casual work in EEG after completing Honours in the Arkell Group last year.

Karen Scholte has completed her temporary transfer to RSPE and will return to the BTLC HDR Student Administration Team on 2 March. **Genevieve Carey** who filled this role is thanked for her contribution to the team. Gen finishes on 27 February and will take a casual position at the College Office.

FAREWELL

Jason Bertram (Dewar Group, PS) has left to take up a postdoc position at the University of Arizona, Tucson, having completed his PhD.

Group Leader profile: Guillaume Tcherkez (PS)

Group research focus

Our research is focused on understanding plant metabolism, mostly using stable isotopes



(¹³C, ¹⁵N, ³³S) and metabolomics. We use both natural isotope abundance and isotopic labelling to shed light on metabolic fluxes and interactions between metabolic pathways. Plant leaves have competing metabolisms occurring at the same time (photosynthesis, photorespiration, mitochondrial respiration, nitrogen and sulphur assimilation) but the means by which they are reconciled and orchestrated within plant cells is hardly documented.

Teaching and research achievements

My major research achievement was being awarded the Bronze Medal for Life Sciences by the French National Centre for Scientific Research (CNRS) in 2009 and in 2010, being a laureate of the French University Institute (UF) as a junior member. It is now 14 years since I started to teach, mostly in botany, anatomy and biogeography. But the most exciting achievement was setting up the exhibition (for undergraduate students) on Australian Flowers in 2013 in Paris, which gave me the opportunity to meet the Australian Ambassador and gather the president of the University of Paris-Sud and Professor Graham Farquhar as the ANU representative.

What do you enjoy most about teaching?

With no doubt, teaching is a pleasure when I see students marvel at biological mechanisms and adaptations, particularly in the field: you can sometimes see in their eyes that they are almost moved to tears when looking closely at complex and nice flowers!

What do you enjoy most about research?

It is now ages since the basics of primary metabolism are known, but pathways are commonly considered separately. The challenge is thus to provide a clear picture of metabolic fluxes and describe interactions. In 2010, we were the first to demonstrate that nitrogen assimilation into amino acids and photosynthesis are mostly disconnected in terms metabolic dynamics. But so much remains to do for other metabolisms. Also, the use of post-genomic methods such as proteomics and metabolomics is now generalized, but efforts are still required to develop 'omics' methods for isotopes (which I have named "isotopomics") including in medicine, so as to define new biomarkers.

PAPERS ACCEPTED

Amarasinghe, R, Poldy, J, Matsuba, Y, Barrow, RA, Hemmi, JM, Pichersky, E, & Peakall, R, UV-B light contributes directly to the synthesis of chiloglottone floral volatiles, *Annals of Botany*

Bertram, J, & Dewar, RC, Combining mechanism and drift in community ecology: a novel statistical mechanics approach, *Theoretical Ecology*

Bradbury, JH, Cliff, J, & Banea, JP, Making cassava flour safe using the wetting method, *South Sudan Medical Journal*

Campbell-Tennant, DJE, Gardner, JL, Kearney, MR, *et al.*, Climate-related variation, and evidence for increases in bill size over the past century in Australian parrot species, *Journal of Biogeography*

Cardillo, M, Bromham, L, & Greenhill, SJ, Links between language diversity and species richness can be confounded by spatial autocorrelation, *Proceedings of the Royal Society of London B*

Head, ML, Jacomb, F, Vega-Trejo, R, & Jennions, MD, Male mate choice and mating success under simultaneous versus sequential choice conditions, *Animal Behaviour*

Kahn AT, Jennions MD, & Kokko H, Sex allocation, juvenile mortality, and the costs imposed by offspring on parents and siblings, *Journal of Evolutionary Biology*

Hilder, TA, Global health and environmental implications of mimicking biological ion channels, in *Nanotechnology for a secure and sustainable future*, ed TA Faunce, Pan Stanford Publishing

Kainer, D, & Lanfear, R, The effects of partitioning on phylogenetic inference, *Journal of Molecular Biology and Evolution*

Li, M, Jazayeri, D, Corry, B, *et al.*, A functional correlate of severity in alternating hemiplegia of childhood, *Neurobiology of Disease*

Lin, Y-P, Cook, DH, Gullan, P & Cook, LG, Does host-plant diversity explain species richness in insects? A test using Coccidae (Hemiptera), *Ecological Entomology*

Marchetti, RV, Lehane, AM, Shafik, SH, Winterberg, M, Martin, RE, & Kirk, K. A lactate and formate transporter in the intraerythrocytic malaria parasite, *Plasmodium falciparum*, *Nature Communications*

McDonald, M, McDonald, B, & Solomon, P, Recent advances in the *Zymoseptoria tritici*-wheat interaction; Insights from pathogenomics, *Frontiers in Plant Science*

Meir, P, Mencuccini, M, & Dewar, RC, Drought-related tree mortality: addressing the gaps in understanding and prediction, *New Phytologist*

Menz, MHM, Phillips, RD, Anthony, JM, Bohman, B, Dixon, KW, & Peakall, R, Ecological and genetic evidence for cryptic ecotypes in a rare sexually deceptive orchid, *Drakaea elastica*, *Botanical Journal of the Linnean Society*

Phillips, RD, Bohman, B, Anthony, JM, Krauss, SL, Dixon, KW, & Peakall, R, Mismatch in the distribution of floral ecotypes and pollinators: insights into the evolution of sexually deceptive orchids. *Journal of Evolutionary Biology*

Reichel, M, Li, Y, Li, J, and Millar, AA, Inhibiting plant microRNA activity: molecular SPONGEs, target MIMICs and STTMs all display variable efficacies against target microRNAs, *Plant Biotechnology Journal*

Schmidt, L, Hummel, GM, Thiele, B, Schurr, U & Thorpe, MR, Leaf wounding or simulated herbivory in young *N. attenuata* plants reduces carbon delivery to roots and root tips, *Planta*

Schmitt, NT, Double, MC, Peakall, R, *et al.*, Mixed-stock analysis of humpback whales (*Megaptera novaeangliae*) on Antarctic feeding grounds, *Journal of Cetacean Research and Management*

Schortemeyer, M, Evans, JR, Bruhn, DM, Bergstrom, DM, & Ball, MC, Temperature responses of photosynthesis and respiration by a subantarctic megaherb from Heard Island, *Functional Plant Biology*

Thomas, M, Corry, B, Chung, S-H, & Hilder, T, Modeling Selective Transport and Desalination in Nanotubes, in *Nanotubes and nanosheets: functionalization and applications of boron nitride and other nanomaterials*, ed YI Chen

Tseng, Y-Y, Lin, F-Y, Cheng, S-F, Tschärke, D, *et al.*, Functional analysis of the short isoform of orf virus protein OV20.0, *Journal of Virology*

Vega-Trejo, R, Head, ML, & Jennions, MD, Evidence for inbreeding depression in a species with limited opportunity for maternal effects, *Ecology and Evolution*

Willing, E-M, Rawat, V, Mandáková, T, Warthmann, N, *et al.*, Genome expansion of *Arabidopsis alpina* linked with retrotransposition and reduced symmetric DNA methylation, *Nature Plants*.