



NEWS

Science paper

William Feeney, Iliana Medina, Naomi Langmore (EEG) and colleagues have had a paper accepted for publication in *Science*, entitled 'Brood parasitism and the evolution of avian cooperative breeding'.

Paper recognised

A paper by **Christina Delay, Nijat Imin** and **Michael Djordjevic** (PS), entitled 'CEP genes regulate root and shoot development in response to environmental cues and are specific to seed plants', and [published](#) in the *Journal of Experimental Botany*, was [selected](#) for the [F1000Prime](#) - a directory of top articles in biology and medicine - for being of special significance in its field.

Plenary lecture

Jochen Zeil (EEG) has been invited to give a [Plenary Lecture](#) on Visual Homing in Insects at the 2014 International Congress of Neuroethology in Sapporo, Japan. His lecture to the Bavarian Academy of Sciences and Humanities, Munich on Homing insects in July (delivered in German) has been [published online](#).

Conference awards

Jason Ng (Mathesius Lab, PS) attended the 18th International Congress on Nitrogen Fixation in Miyazaki, Japan, and was awarded a Young Scientist Award.

At the same conference, **Nadiatul Radzman** (Djordjevic Lab, PS) (right) won a 'best talk' prize.



Kieran Kirk appointed Dean of CMBE



Kieran Kirk has been appointed as the next Dean of the ANU College of Medicine, Biology and Environment, and will take up the role in April

next year. Kieran will vacate the position of Director of the Research School of Biology, a position he has held for four and a half years, and replace Andrew Cockburn who is retiring on completion of his term as Dean of the College and who will continue his research at the University as an Emeritus Professor. For more detail, see the [ANU media article](#).



A pair of cooperatively-breeding white-plumed honeyeaters feeding a pallid cuckoo fledgling (see item under NEWS). Image: Julian Robinson.

PROMOTIONS

David Gordon (EEG) has been promoted to level E (Professor). **Paul Cooper** (EEG), **Ulrike Mathesius** (PS) and **Kevin Saliba** (BSB) have been promoted to level D (Associate Professor). **Yit Heng Chooi** (Solomon Lab, PS) and **Luke Holman** (Kokko Lab, EEG) have been promoted to level B (Lecturer).

ARC OUTCOMES

In this year's ARC grants and fellowship round, the following awards were made to RSB staff:

Future Fellowship

Ben Corry (BSB), 'Understanding the mechanisms of ion conduction and drug action in voltage gated sodium channels' (\$693K).

Discovery Grants

Bill Foley (EEG) and colleagues, 'Re-evaluating the nature, origins and roles of terpenes in *Eucalyptus*' (\$450K).

Bill Foley (EEG) and colleagues, 'Temperature-dependent toxicity of plant secondary compounds to mammalian herbivores' (\$460K).

Adrienne Hardham (PS), 'Transcriptome analysis of *Phytophthora*-plant interactions: characterisation of plant inhibitor proteins targeting *Phytophthora* extracellular effectors' (\$408K).

Susanne von Caemmerer (PS) & colleague, 'Enhancing and manipulating C4 photosynthesis' (\$568K).

John Evans & Susanne von Caemmerer (PS), 'Temperature response and thermal acclimation of mesophyll conductance' (\$407K).

LIEF Grant

Graham Farquhar (PS), **Bill Foley** (EEG) & colleagues, 'A shared mass spectrometer with compound-specific capabilities to support innovative research in biology, the environment and geology' (\$191K).

DECRA

Luke Holman (Kokko Lab, EEG), **Paul Oliver** (Keogh Lab, EEG), **Susanna Venn** (Nicotra Lab, EEG), **Dan Warren** (Cardillo Lab, EEG), **Rob Allen** (Millar Lab, PS), and **Zhong-Hua Chen** (Pogson Lab, PS).

PHDs SUBMITTED

Lauren Du Fall (Solomon Lab, PS) 'Elucidating the mechanisms of necrotrophic effectors in the *Stagonospora nodorum*-wheat interaction'.

Gabriel James (Djordjevic Lab, PS) 'Algae and Cyanobacteria: Platforms for Engineering Biofuel Production'.

Lab Leader profile: Ryszard Maleszka (EEG)



Lab researching:

We are investigating diverse epigenetic mechanisms in the context of behaviour and developmental

plasticity, mainly using the honey bee model, but we also have close interactions with labs working on other interesting systems.

Greatest achievement:

Much of my lab's international recognition comes from recent high profile papers on insect epigenetics and genomics, but I believe that my lifetime personal contributions to knowledge will only ever be recognized in retrospect.

Next big thing:

In science, we don't know if something "big" will be discovered until it actually had been discovered, so we shall see. There is no shortage of ideas, but given available resources not everything is realistically achievable.

What do you see as future challenges for your field of research?

Technical innovation is no longer a limiting factor in biomedical research, indeed, it is a major driver. So the challenge is no longer in generating massive amounts of raw data, but in employing our creative skills to translate them into knowledge. In our case, the genome-based discoveries are being used to develop more nuanced understandings of biological complexity by exploring the multiple pathways that lead to phenotypic expression.

PHDs AWARDED

Roberta Hitchcock (Crisp Lab, EEG), 'Revision of the genus *Epiphyas* (Lepidoptera, Tortricidae, Tortricinae, Archipini s. str.)'.

Bryan Lessard (Cooper Lab, EEG), 'The taxonomy, systematics and biogeography of the Austral Horse fly Tribe Scionini (Diptera: Tabanidae)'.

Amanda Padovan (Foley Lab, EEG), 'Mosaic eucalypts: Chemical variation

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and differential gene expression within a *Eucalyptus melliodora* and a *Eucalyptus sideroxylon* tree'.

Melanie Carmody (Pogson Lab, PS), Rapid leaf-to-leaf communication of high light stress in *Arabidopsis*'.

Victoria Ludowici (Hardham Lab, BSB), 'The *Phytophthora nicotianae* zoospore secretome'.

WELCOME

Qi Cheng has joined the Bröer Lab (BSB) Qi Cheng is from Shanghai and worked at Leicester University towards a Masters degree investigating the role of amino acids in insulin release. In her PhD, she will develop high-throughput screening assays for drug binding studies to improve type 2 diabetes.

Honglin Li has joined the Nicotra Lab (EEG), for 18 months as a visiting PhD student and is supported on a CSC PhD student scholarship. During his stay, he'll contribute to projects in the lab as well as writing his thesis and papers on alpine plant ecology.

Wenquan Yang has joined the Chow Lab (PS) for one year as a Visiting Fellow. Dr. Yang is from Northwest A & F University (Yangling, China) and will work on the photoinhibition of photosynthesis.

PATENTS

International (PCT) Patent (2013) Application No. PCT/AU2013/000022 'Method for modulating plant root architecture' (Djordjevic Lab, PS).

New Australian Provisional Patent Application (No. 2013903988, November 2013) 'Method for modulating plant growth' (Djordjevic Lab, PS).

PAPERS ACCEPTED

Bobay, BJ, DiGennaro, P, Scholl, E, Nijat Imin, N, Djordjevic, MA, et al, Solution NMR studies of the plant peptide hormone CEP inform function, *FEBS Letters*.

Chooi, YH, Hong, YJ, Cacho, RA, et al, A cytochrome p450 serves as an unexpected terpene cyclase during fungal meroterpenoid biosynthesis, *Journal of the American Chemical Society*.

Delay, C, Imin, N & Djordjevic, MA, CEP genes regulate root and shoot development in response to environmental cues and are specific to seed plants, *Journal of Experimental Botany*. (See under NEWS).

Feeney, WE, Medina, I, Somveille, M, Langmore, NE, et al, Brood parasitism and the evolution of avian cooperative breeding, *Science*. (See under NEWS).

Holman, L, Kahn, AT & Backwell, PRY, Fiddlers on the roof: elevation muddles mate choice in fiddler crabs, *Behavioral Ecology*.

Imin, N, Mohd-Radzman, NA, Huw, A, Ogilvie, HA & Djordjevic, MA, The peptide-encoding CEP1 gene modulates lateral root and nodule numbers in *Medicago truncatula*, *Journal of Experimental Botany*.

Jordan, LA, Kokko, H & Kasumovic, M, Reproductive foragers: spider males choose mates by selecting among available competitive environments, *American Naturalist*.

Lehtonen, J & Whitehead, MR, Sexual deception: Coevolution or inescapable exploitation? *Current Zoology*.

Okubo, N, Mezaki, T, Nozawa, Y, Hayward, DC & Ball, EE, et al, Comparative embryology of eleven species of stony corals (Scleractinia), *PLoS One*.

Pryke, SR, Rollins, L-A, Griffith, SC & Buttemer, WA, Experimental evidence that maternal corticosterone controls adaptive offspring sex ratios, *Functional Ecology*. (See image and caption below).



A female Gouldian finch (below) examining two male finches (black and red). When Gouldians mate with partners of a different head colour, most of their daughters will die. While females strongly prefer mates of the same head colour, when they are constrained to breeding with incompatible males they exhibit very high stress responses compared to when they breed with males of the same head colour. Although perhaps counterintuitive, these high stress levels are adaptive in this case, because high stress (corticosterone) levels provide the mechanism for producing more sons (and few or no daughters), and therefore females can produce more surviving offspring (see item under 'PAPERS ACCEPTED'). Image: Sarah Pryke.