



NEWS

Graham Farquhar awarded a Carnegie Centenary Professorship



Graham Farquhar (PS) has won a Carnegie Trust Centenary Professorship for 2014-2015. The Carnegie Trust was established to provide funding for scientific study and research in the Universities of Scotland, and the Trust's Visiting Professorship scheme awards a few nominees of the highest academic standing with Centenary Professorships each year (see Graham's Carnegie Trust Biography). As a Centenary Professor, Graham will be hosted at the University of Glasgow and visit other universities and institutes in Scotland. Graham's visit will span approximately four months and includes collaborative research, seminars, and public lectures.

Congratulations

Michaela Blyton (Visiting Fellow, EEG) has won the 2014 D. G. Catcheside Prize, awarded by the Genetics Society of Australasia. The prize recognises the achievements of the top Australasian doctoral student in the field of Genetics.

Yang Jiang and Nishank Shah (PhD Students, Bröer Group, BSB) were awarded Poster Prizes at the 2015 Gage conference on Ion Channels and Transporters. Yang's poster was entitled 'Mice lacking amino acid transporter BOAT1 (Slc6a19) have improved glycaemic control', and Nishank's poster was entitled 'Docking the BOAT, identification of novel amino acid transport inhibitors'.

Katarzyna Walczewska-Szewc (Corry Group, BSB) recently completed her joint PhD between the ANU and the University of Gdansk. After completing the ANU requirements for the degree, she did her oral defence in Poland in March and passed with honours.

Outreach

The recently compiled outreach register shows that nearly 40 members of RSB staff and postgraduate students contributed to outreach activities since January 2014. Contributions were many and varied including work with the National Youth Science Forum, mentoring and lecturing to schools, organising on-campus activities for school and college students and presenting public lectures. Most of these activities were initiated by staff rather than organised centrally.



Amanda Edworthy inspecting nesting sites of the forty-spotted pardalote. Photo: Angi Kim (see IN THE MEDIA.)

Most active in this area were Juliey Beckman, the teaching lab staff (Peta Moisis, Melanie Trinick, Tammy Gomersall, Fiona Roxburgh and Yiming Li), Dave Rowell, Andras Keszei, Chris Fulton, Trevor Murray and Owen Atkin.

If you are involved in any outreach activities, contact Panit Thamsongsana to have your contribution recorded. This register will be used to identify areas that are being neglected, and we may call for volunteers in the future.

IN THE MEDIA

United Nations urged to ensure open plant genomes

Norman Warthmann (Borevitz Group, PS & EEG), has lodged a submission with the U.N., which is considering issues to include in its 2015 Global Sustainable Development Report. Norman has called for the U.N. to guarantee free and open access to plant DNA sequences to enable scientists to continue work to sustainably intensify world food production. The science-policy brief 'Thinking a Global Open Genome Sequence Data Framework for Sustainable Development' may be read and commented on, and has been featured in ANU Media.



What's killing the endangered forty-spotted pardalote?

The research of Amanda Edworthy (Langmore Group, EEG) and colleagues has been featured in a Tasmanian

Geographic article entitled 'What's killing the endangered forty-spotted pardalote?' Amanda and colleagues identified a number of factors contributing to the rapid decline in the population of the pardalotes. (Photo: Angi Kim.)

PHDs SUBMITTED

Wei Yih (Wil) Hee (Hardham Group, PS), 'Characterisation of flagellar mastigoneme components of Phytophthora nicotianae'

Yanjiao (Renee) Li (Millar Group, PS), 'Functional analysis of the miR159-MYB33/65 pathway in Arabidopsis rosette'

Camile Moray (Bromham Group, EEG), 'Evolutionary patterns of salt tolerance in angiosperms'

Liang (Jason) Ng (Mathesius Group, PS), 'The role of auxin in nodulation'

Su-Yin Phua (Pogson Group, PS), 'Understanding the role of chloroplast signalling in plant development and drought tolerance'

Esther Rajendran (Kirk Group, BSB), Characterisation of an essential arginine transporter in the apicomplexan parasite Toxoplasma gondii

Claudia Rodriguez Delago (ex-Deakin Group, EEG), 'Evolution of dosage compensation and X inactivation in therian mammals'

Isabel Saur (Rathjen Group, PS), 'Identification and regulation of receptors involved in plant immunity.'

MASTERS SUBMITTED

Chloe Raderschall (Zeil Group, EEG), 'Vision and navigation in ants active in dim light'.

Group Leader profile: David Jones (PS)

Group research focus

Our research group is trying to elucidate molecular mechanisms underpinning interactions between plants and pathogenic fungi that lead either to resistance on the one hand or disease on the other. To do so, we are identifying disease resistance proteins and pathogen disease effector proteins, and investigating their function in three different model plant pathosystems; leaf mold (*Cladosporium fulvum*) of tomato, fusarium wilt (*Fusarium oxysporum*) of tomato, and rust (*Melampsora lini*) on flax.



Teaching and research achievements

My most satisfying teaching achievement has been the establishment of the third year Biosecurity course, which has drawn together expertise from both within the school and from the broader government- and industry-based biosecurity community, much of which is based here in Canberra. My most satisfying recent research achievement has been the identification of three different tomato genes for fusarium wilt resistance; the *I-3* gene encoding an S-receptor like kinase (better known for their role in pollen self incompatibility), the *I-7* gene encoding a leucine-rich repeat (LRR) receptor-like protein and the *I* gene. Together with the tomato *I-2* gene encoding a nucleotide-binding LRR protein, these genes highlight the diverse array of resistance mechanisms deployed by tomato against the fusarium wilt fungus.

What do you enjoy most about teaching?

Getting to know students and seeing them develop and mature, not only within bounds of the course I convene, but also subsequently as Honours and PhD students within the school.

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

There are two major challenges. One is understanding the mechanism by which fungal effector proteins are delivered inside host plant cells and the other is understanding what they do when they get there. The diversity of disease effectors both within and between fungal pathogens makes answering these questions all the more challenging.

WELCOME

Qian Li is a Postdoctoral Fellow from Ningxia University, China, and is visiting the Mathesius Group (PS) to work on the analysis of flavonoids in roots and root exudates until the end of the year.

Ross Deans has joined the Farquhar Group (PS) as a PhD Student. Ross will work on work on aspects of stomatal physiology, combining both modelling and experimental approaches.

Barbara Vanhoecke, an International Outgoing Marie Curie Fellow in Australia who has a PhD in Medical Sciences from Ghent University, Belgium, has joined the Behm and Verma Groups (BSB). Barbara's research interests are oral and gastrointestinal mucositis as side effects of chemo- and radiation therapy, with a focus on the role of microbiota during the process. We are collaborating on a *C. elegans* model of gastrointestinal toxicity following exposure to chemotoxic drugs. Barbara has worked in the Mucositis Research Group (University of Adelaide) and in the Laboratory of Microbial Ecology and Technology (Ghent University, Belgium).

FAREWELL

Pernelyn Torreña (Hardham Group, PS) has returned to the Philippines to complete the final stages of her PhD thesis writing.

PAPERS ACCEPTED

Banea, JP, Bradbury, JH, Mandombi, C, *et al.*, Konzo prevention in six villages in the DRC and the dependence of konzo prevalence on cyanide intake and malnutrition, *Toxicology Reports*

Bailey, LD & van de Pol, M, R package climwin: Climate Window Analysis. Statistical software

Berna, AZ, McCarthy, JS, Wang, XR, Saliba, KJ, Bravo FG, Cassells, J, Padovan, B, Trowell, SC, Biomarkers of infection with *Plasmodium falciparum* detected in human breath, *Journal of Infectious Diseases*

Busch, FA, Reducing the gaps in our understanding of the global terrestrial carbon cycle, *New Phytologist*

Cinner, JE, Pratchett, MS, Graham, NAJ, & Fulton CJ, *et al.*, A framework for understanding climate change impacts on coral reef social-ecological systems, *Regional Environmental Change*

Cranston, PS, & Krosch, MN, DNA sequences and austral taxa indicate generic synonymy of *Paratrichocladius* Santos-Abreu with *Cricotopus* Wulp (Diptera: Chironomidae), *Systematic Entomology*

Ebner, BC, Fulton, CJ, Donaldson, JA, & Schaffer, J, Distinct habitat selection by freshwater morays in tropical rainforest streams, *Ecology of Freshwater Fish*

Krosch, MN, Vink, S, Baker, AM, & Cranston, PS, Molecular data extend Australian *Cricotopus* midge (Chironomidae) species diversity, and provide a phylogenetic hypothesis for biogeography and freshwater monitoring, *Zoological Journal of the Linnean Society*

Lawson, C, Vindenes, Y, Bailey, L, & van de Pol, M, Environmental variation and population responses to global change. *Ecology Letters*

Lovelock, CE, Krauss, KW, Osland, MJ, Ball, MC, *et al.*, The physiology of mangrove trees with changing climate, In: *Tropical Tree Physiology: Adaptations and Responses in a Changing Environment* (G Goldstein & L Santiago, Eds), Springer-Verlag, Berlin

Macuamule, CJ, Tjhin, ET, Jana, CE, Saliba, KJ, *et al.*, A pantetheinase-resistant pantothenamide with potent, on-target and selective antiplasmodial activity, *Antimicrobial Agents and Chemotherapy*

Mark, AF, Korsten, AC, Guevara DU, Venn SE, *et al.*, Ecological responses after 52 years to an experimental snow fence in high-alpine cushionfield, Old Man Range, south-central New Zealand, *Arctic, Antarctic and Alpine Research*

Ogawa, Y, Falkowski, M, Narendra, A, Zeil, J, & Hemmi, JM, Three spectrally distinct photoreceptors in diurnal and nocturnal Australian ants, *Proceedings of the Royal Society B*

Pink, JR, & Fulton, CJ, Fin spotting: efficacy of manual and video-based visual assessments of reef fish swimming behaviour, *Journal of Experimental Marine Biology & Ecology*

Rowland, R, Harper, A, Christoffersen, BO, Meir, P, *et al.*, Modelling climate change responses in tropical forests: similar productivity estimates across five models, but different mechanisms and responses. *Geoscientific model development*

Spry, C, & Saliba, KJ, Coenzyme A biosynthesis, *Encyclopaedia of Malaria*

Starrs, D, Ebner, BC, & Fulton, CJ, Ceasefire: minimal aggression among Murray River crayfish feeding upon patches of allochthonous material. *Australian Journal of Zoology*

Stürzl, W, Mair, E, Grixia, I, Narendra, A, & Zeil, J, Three-dimensional models of natural environments and the mapping of navigational information, *Journal of Comparative Physiology A*

Thomas, M, Enciso, M, & Hilder, TA, Insertion mechanism and stability of boron nitride nanotubes in lipid bilayers, *Journal Physical Chemistry B*

Vanderwel, MC, Slot, M, Lichstein, JW, Atkin, OK, Bloomfield, KJ, *et al.*, Global convergence in projected leaf respiration from estimates of thermal acclimation across time and space, *New Phytologist*

Williams, RJ, Wahren, C-H, Stott, KAJ, Nash, M, Venn, SE, *et al.*, An IUCN Red List Ecosystems Risk Assessment for Alpine Snow Patch Herbfields, South-Eastern Australia, *Austral Ecology*.