



NEWS

Vale Warwick Hillier

Associate Professor Warwick Hillier:
18 October 1967 – 10 January 2014



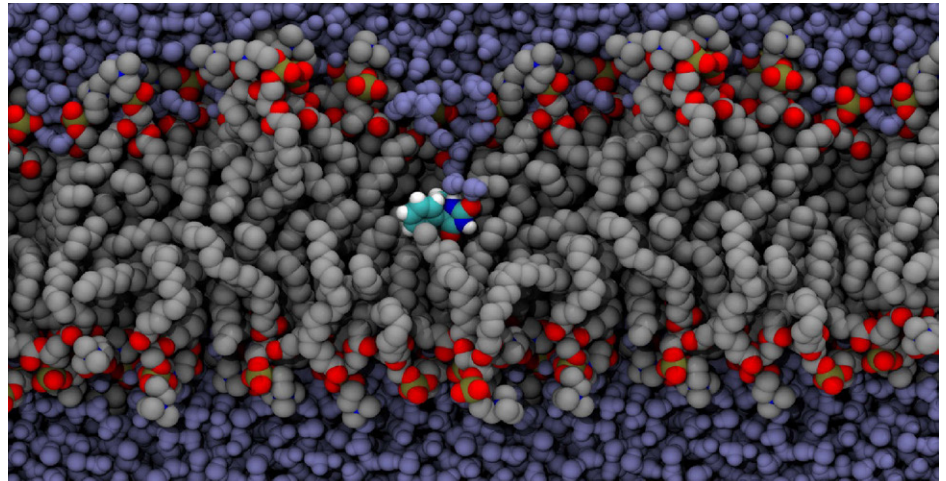
It is with great sadness that we acknowledge the premature death of our highly valued and talented research colleague and friend, Warwick Hillier. Warwick succumbed to a year-long fight with cancer and has left behind a

young and loving family including his wife Sari and children Henry and Stella. His colleagues at the Research School of Biology are deeply saddened by his death.

Warwick was an ANU graduate (BSc Hons 1991, MSc. 1994; PhD 1999) who was awarded the Australian Young Biophysicist award in 1998. He quickly built an international reputation in the late Jerry Babcock's Laboratory (1999-2003) as an NIH postdoctoral fellow on metallo proteins and radical mechanisms, and in the Photobioenergetics group RSBS as a postdoc funded from the Human Frontier Science Program. Warwick obtained a permanent position in RSBS in May 2007 and later that year he shared the Robin Hill Award at the 14th International Photosynthesis Congress, Glasgow, for his work on the mechanism of water oxidation. In 2009 he won an Australian Future Fellowship for research in this area and at the time of his death was a Laboratory Leader in the Division of Plant Sciences in RSB.

Warwick's scientific passion was to understand the mechanism of the light-driven water oxidation complex of photosystem II in photosynthesis that produced Earth's oxygen-rich atmosphere and now sustains all oxygen requiring life on Earth. It was the source of energy accumulated in fossil fuels in the distant past and continues to drive all food production today. A more fundamentally important scientific endeavour cannot be imagined. He communicated his passion for this subject in various publicly available web-based contributions such as biology.anu.edu.au/warwick_hillier.

Warwick was an excellent amateur astronomer and photographer and his remarkable [photo](#)



The anti-epileptic drug phenytoin enters a lipid bilayer pulling water behind it. Image: Ben Corry (BSB). (See item under 'PAPERS ACCEPTED'.)

[of the primitive photosynthetic systems in stromatolites](#) in Shark Bay has been sought after for textbooks and class material.

We know that his many colleagues and friends in Australia and around the world will join us in acknowledging Warwick as a talented high achiever in science, a good friend, a loving husband and a caring father. The School has lost one of its best and he will long be remembered by all those who knew him.

A memorial service for Warwick is scheduled for the afternoon of Tuesday March 11, to be held at the National Arboretum (further details to follow).

Paper recognised

A paper by Yan Li, **Riyan Cheng**, **Justin Borevitz** (PS & EEG) and colleagues was selected as a highlight for the February issue of *Genetics*. The study investigated the complex genetic basis of *Arabidopsis* flowering time under seasonal warming. It identified thermal sensitive alleles in genes of the heat shock and hormone response pathways, within genotypes that switch from over-wintering to rapid autumn flowering in warmer winter seasons. A genetic model accurately predicted flowering time of new genotypes in future conditions, illustrating an important method for breeding that may facilitate adaptation in other species.

New autoclaves for the Controlled Environment Facility

Two new Belimed autoclaves have been installed in the Controlled Environment Facility (CEF), replacing the single older autoclave.



Installation was a lengthy operation requiring the removal and replacement of part of the external wall of the CEF, constructing a containment barrier to preserve the OTGR and DAFF certification for the CEF, and routing new services (compressed air, electricity, steam, condensers and exhaust), and the requisite paperwork. The new models record real-time data for a faster and more efficient turnaround, and will be more reliable and safer to use.

THESIS SUBMITTED

PhD

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

Claire Farnsworth (Rowell Lab, EEG)
'Genomics of *Helicoverpa armigera* insecticide resistance'.

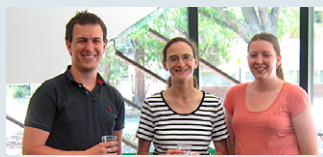
Masters by Research

Tegan Dolstra (Martin Lab, BSB) Structure-function studies of the malaria parasite's 'chloroquine resistance transporter'

WELCOME

Nina McLean (van de Pol lab, EEG; cosupervised by Rob Heinsohn, Fenner) has just started her PhD on 'Identifying general rules why bird species differ in their sensitivity to climate variability.'

Lab Leader profile: Aude Fahrre (BSB)



Lab research: Two main areas of research at the moment:

1. A very simple and inexpensive (and rather crazy!) cancer immunotherapy treatment I have come up with, involving a single injection of an immune stimulant into a tumour.
2. A bioinformatics study looking for novel proteins in different genomes. We have just published around 2000 novel proteins from humans and mice.

Greatest achievement:

I'm proud of the research done by my PhD students, Laurence and Tina who have worked on the topics above. Also of the work of my previous PhD students Katharine and Angelo who identified chromosome condensation as an important, and completely unexpected, requirement for T cell development. Each of these findings has involved a conceptual shift.

Perhaps my greatest achievement is retaining a small amount of sanity, and publishing novel work on a shoestring budget, while being heavily involved in teaching, and raising three kids...

Next big thing:

Our cancer therapy. We hope. It has worked in mice. We now have two pet dogs (out of 6) whose tumours have completely regressed. The next big thing will hopefully be to start a human trial....A one injection, 50 cent cancer treatment would be pretty awesome, but there are many major obstacles still to overcome...

Science Hero:

I don't have Heroes, although there are many scientists I admire. In cancer immunotherapy two of these would be William Coley (1862-1936; sometimes considered the father of cancer immunotherapy), and the little known Ariel Hollingshead, who carried out some fascinating, (but largely ignored) immunotherapy trials in cancer patients.

Thomas Merkling, a postdoc from France, has joined the Pryke Lab (EEG), and will work on maternal effects and the evolution of colour communication in frillneck lizards.

James Moore, a PhD student joining the Fulton Lab (EEG), will be examining how social conditions and livelihoods interact with the ecological condition of coral reefs within small-scale subsistence fisheries of Timor Leste. In the same lab, PhD student **Sharon Every** will be exploring the spatial and trophic ecology of euryhaline sharks in estuaries of tropical northern Australia.

Shao-Yu Lin, from Taiwan, has joined the Solomon Lab (PS), has and started her PhD on 'Effector promoter analysis in *Stagonospora nodorum*'.

APPOINTMENTS

Andrew Chew returns to the IT team as Client Services Team leader, and **Tom Davis** is on secondment to ITS until the end of February.

FAREWELL

Lewis Martin (Corry Lab, BSB) will start a PhD at the University of Sydney. Lewis completed his Honours and has worked as an RA in the Corry Lab, examining how local anesthetics act on sodium channels,

Sawang Petvises (O'Neill Lab, BSB) has just passed his PhD thesis examination with only a few minor revisions and has returned to Thailand, where he will continue his lectureship at Thammasat University in Bangkok.

PAPERS ACCEPTED

Attar, A, Rahimi, F, & Bitan, G, Modulators of amyloid protein aggregation and toxicity: EGCG and CLR 01. *Translational Neuroscience*.

Brouwer, L, van de Pol, M, & Cockburn, A, Habitat geometry does not affect levels of extrapair paternity in an extremely unfaithful fairy-wren, *Behavioural Ecology*.

Dahlsjö, CLSO, Parr, CL, Malhi, Y, Meir, P, et al. First comparison of quantitative estimates of termite biomass and abundance reveal strong intercontinental differences. *Journal of Tropical Ecology*.

Dewar, RC, et al. (eds.) Beyond the Second Law: Entropy production and non-equilibrium systems. Springer (Book Series: Understanding complex systems).

Dewar, RC, et al. Beyond the Second Law: An Overview. Chapter 1, loc. cit.

Dewar, RC, & Maritan, A, A Theoretical

Basis for Maximum Entropy Production. Chapter 3, loc. cit.

Fisher, JA, Patenaude, G, Meir, et al. 'Strengthening conceptual foundations: analysing frameworks for ecosystem services and poverty alleviation research'. *Global Environmental Change*.

He, Z, Corry, B, Lu, X, & Zhou, J, A mechanical nanogate based on a carbon nanotube for reversible control of ion conduction, *Nanoscale*.

Igic, B & Magrath, RD, A songbird mimics different heterospecific alarm calls in response to different types of threat. *Behavioral Ecology*.

Kopecki, Z, Yang, GN, Arkell, RM, et al. Flightless I overexpression impairs skin barrier development, function and recovery post skin blistering, *Journal of Pathology*.

Li, Y, Cheng, R, Spokas, KA, Borevitz, JO, et al. Genetic variation for life history sensitivity to seasonal warming in *Arabidopsis thaliana*, *Genetics*. (See under *NEWS*)

Martin, LJ, Chao, R, & Corry, B, Molecular dynamics simulation of the partitioning of benzocaine and phenytoin into a lipid bilayer, *Biophysical Chemistry*.

O'Brien, CL, Pavli, P, Gordon, DM, & Allison GE, Detection of bacterial DNA in lymph nodes of Crohn's disease patients using high throughput sequencing, *Gut*.

Livingston, J, Kahn, AT & Jennions. MD, Sex differences in compensatory and catch-up growth in the mosquitofish *Gambusia holbrooki*. *Evolutionary Ecology*.

Petvises, S & O'Neill, HC, Characterisation of dendritic cells arising from progenitors endogenous to murine spleen, *Plos One*.

Ruzehaji, NZ, Kopecki, Z, Melville, E, Arkell, RM, et al. Attenuation of flightless I improves wound healing and enhances angiogenesis in a murine model of type 1 diabetes, *Diabetologia*.

Shaw, AK, Jalasvuori, M, & Kokko, H, Population-level consequences of risky dispersal. *Oikos*.

Teh, YA, Diem T, Jones, S, Meir, P, et al. Methane and nitrous oxide fluxes from the Tropical Andes. *Biogeosciences Discussions*.

von Caemmerer, S, Tazoe, Y, Evans, JR, & Whitney, SM, Exploiting transplastomically modified Rubisco to rapidly measure natural diversity in its carbon isotope discrimination using tuneable diode laser spectroscopy, *Journal of Experimental Botany*.