Australian National University

Research School of Biology Newsletter

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Congratulations

Shortlisted for a Eureka Prize
Lindell Bromham (E&E) and Dr Zia Hua (MSI) along with their colleagues at University of Queensland and in the Northern Territory are finalists for the 2021 Eureka Prize for Excellence in Interdisciplinary Scientific Research. Together they are working to develop new ways of understanding the way languages change, and the factors that endanger language diversity. Many Indigenous languages are undergoing rapid change as new generations reshape their languages and make them their own. Their work focuses on a new Indigenous language emerging from a mix of Gurindji, a traditional language of the Northern Terriory, and Kriol, and Eglish-based Creole language widely spoken in northern Australia. A short video can be watched here. The 2021 Eureka Prizes will be announced in October. Fingers crossed for Lindell!

Angus Rae (Mathesius Group, BSB) was the runner up for the ANU 3MT competition. His talk was 'Unraveling the threads of symbiotic infection'. You can watch his talk here.

Director's Seminar Series

This month Colin Jackson (RSC) will be talking about Protein Engineering and Synthetic Biology at ANU. Synthetic biology is a broad and rapidly growing field involving the application of engineering principles to biology. It has the potential to transform biological sciences in the same way that synthetic chemistry changed chemical sciences in the 20th century. Colin's work is focused on the evolution, engineering and application of proteins in synthetic biology, and has a particular interest in protein fitness landscapes and how these can be predicted for use in engineering. In this seminar, Colin will discuss some of the projects that his lab is working on, the ARC Centre of Excellence in Synthetic Biology and some ideas for building a strong synthetic biology community at the ANU. Seminar is on Monday 11 October at 12.30pm. Further details can be found here.

PhDs awarded

Francois Korbmacher (Maier Group, BSB) *Towards functional assignment of Plasmodium membrane transport proteins: an experimental genetics study on four diverse proteins.*
Fitria Oktalira (Linde Group, E&E) *Diversity of Serendipitaceae Mycorrhizal Associations of Australian Terrestrial Orchids.*
Yi-Chang Sung (Solomon Group, PS) *Dissection of the role of Tox3-PR1 interaction in the Parastagonospora nodorum-wheat interaction.*
Michael Taleski ((Djordjevic Group, PS) *Characterising CEP peptide hormone and CEPR1 receptor activity in the control of Arabidopsis thaliana root growth and seed yield.*
Kiran Javed (Broer Group, BSB) *Development of Biomarkers for Inhibition of SLC6A19 - A Potential Target to treat Metabolic Disorders.*
Thomas Rowell (Magrath Group, E&E) *Alarm Calling and Predator Awareness Training in the Critically Endangered Helmeted Honeyeater.*
Claire Taylor (Langmore Group, E&E) *Cracking egg investment: Maternal investment in cuckoos and their hosts.*

MPhil awarded

Zhuzhi Zhang (Head Group, E&E) *The effect of water on fitness and mating in seed beetles.*
Yurong Yang (Huttley Group, E&E) *Algorithms for estimating rates of nucleotide change.*

PhDs submitted

Sanduni Hapuarachchi (van Dooren Group, BSB) *Characterisation of candidate transporter proteins in apicomplexan parasites.*
Marc Freestone (Linde Group, E&E) *Conservation of Prasophyllum - understanding orchid mycorrhizal fungi to save threatened orchids from extinction.*
Yi Yang Alex Chen (Jennions Group, E&E) *Macroalgae, epifauna and invertivorous fishes.*

Grants awarded

The Holsworth WIldlife Research Endowment has approved funding for $6,225 for PhD student Madison Fink (Head Group, E&E) for their project 'Do herbivore-induced phytochemical traits underlie the susceptibility of *Eucalpytus blakelyi* to psyllid infestation'.

Megan Outram (Williams Group, PS) has been awarded an AINSE Early Career Research Grant, supported by her collaboratior Dr Daniel Eriksson, Australian Synchrotron, investigating the role of zinc-binding effector proteins in wheat stem rust virulence.

News

SARS-CoV2 genomic surveillance in the ACT: A collaboration between ACT Pathology, ACT Health and RSB
Genomic surveillance of SARS-CoV2 is a key tool to define genetic lineages within an outbreak situation which is useful to support epidemiolocal datasets and to define novel introductions into the territory. The Schwessinger lab is working with ACT Pathology and ACT Health to trace

SARS-CoV2 during the current outbreak in the ACT via whole genome sequencing. The team has been able to report high quality genome sequences for >85% of cases with turnaround time of 29-42 hrs. This work has facilitated the identification of multiple independent SARS-CoV2 introduction into the ACT. The team is support by Dr. Hall from CSIRO and PhD students from the Williams Group.

Improving yield resistance

This article highlights an ongoing project that seeks to improve heat tolerance in wheat by focussing on carbon allocation, as well as the development of new phenotyping tools for improving yield resilience. The project began in 2017, and is a collaboration between the ANU (led by Owen Atkin, and including Onoriode Coast and Brad Posch, both from Atkin Group, PS), the University of Sydney, the University of Newcastle, and the Birchip Cropping Group. In addition to experiments at field sites in North Western Victoria and Narrabri, NSW, the phenotyping work also utilised the GRDC-funded APPF growth capsules at the ANU, allowing us to study the effects that fine-scale changes in night and day temperature have on wheat metabolism.

Brad Posch examining elite wheat lines for heat tolerance in one of the re-fitted shipping containers invested in by GRDC. Photo: Onoriode Coast.

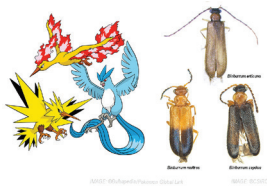
In the media

Fernanda Alves (Langmore Group, E&E) 'How to help one of Australia's rarest birds save itself from extinction' in the Sydney Morning Herald. Scientists have struck on an ingenious method of harnessing the homemaking habits of the 40-spotted pardalote to save its chicks from a grisly fate.

Naomi Langmore's group has their cuckoo research published in a fun article in ANU in Science. If you thought the magpie was mean, the cuckoo is much worse.

Benjamin Schwessinger (PS) quoted in Nature publication in the 'Five keys to writing a reproducible lab protocol' article.

Yun Hsiao (Rowell Group, E&E) names three new rare beetle species after their Pokemon and Digimon lookalikes. Three Pokemon – *Articuno, Zapdos* and *Moltres* – inspired the names of three beetles: *Binburrum articuno, Binburrum zapdos and Binburrum moltres.* The beetles and the Pokemon are both hard to find. Digmon is a fictional insect in the Japanese anime TV series Digimon Adventure. It inspired the name of a new cycad-boring weevil, Demyrsus digimon. The animated Digmon possesses the power of drilling and manipulating the earth. Similarly, the weevil can bore into the hard trunks of cycads.Some highlights include; ABC Breakfast, The Guardian. CNN, Yahoo made a TikTok, Canberra Times.



Welcome

Lauren Baseden who has joined our Building and Infrastructure Service Team.

Papers

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