Australian National University

Research School of Biology Newsletter

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Congratulations

Congratulations **Merryn Fraser** (Maier Group, BSB). After having qualified in an earlier round to compete in the Falling Walls Final hosted by the Australian Academy of Science, Merryn won the Australian final. Merryn will now compete in Berlin November 9. Watch here.

Congratulations to the winning team from RSB and CSIRO on their successful project in the 2022 ANU-CSIRO Agri-food Collaboration Program (AFCP) *Securing agri-food industry resources by developing systems for harvesting nutrients and clean water from wastewater*.

The inaugural ANU-CSIRO Agri-Food Collaboration Program, facilitated by CEAT, is a joint investment by Australia's National University and Australia's National Science Agency as part of a renewed push to combine their world-leading expertise and resources to solve some of the challenges facing the world today and into the future.

RSB researchers, led by the Byrt Group, are excited to have the opportunity to partner with CSIRO Agriculture and Food and CSIRO Manufacturing teams to collaborate on a project supported by the ANU-CSIRO Agri-food Collaboration Program that is focused on developing systems for capturing nutrient and clean water resources from agri-food industry liquid wastes.

The project takes a multidisciplinary approach bringing together plant biologists, waste treatment experts, chemists and membrane technologists from ANU and CSIRO. The team are working on developing innovative solutions designed to harvest valuable resources from wastewater.

Ralph Slatyer Medal ceremony

This month we honoured Professor Slatyer's achievements by presenting the Ralph Slatyer Medal to a distinguished scientist. Congratulations to Professor Belinda Medlyn who was awarded the 2022 Slatyer medal. Professor Medlyn is a Distinguished Professor of Ecosystem Modellings at the Hawkesbury Institute for the Environment, Western Sydney University.

She is known for her work on translating information from plant and ecosystem scale experiments to develop models predicting vegetation function, particulary vegetation responses to elevated carbon dioxide, rising temperature and drough. Professor Medlyn gave a seminar on her work on forest responses to a warming climate. The Slatyer family attended the ceremomy, together with the Vice Chancellor Brian Schmidt

and the Dean of the College of Science Kiaran Kirk, and the medal was presented by Mrs Slatyer to Professor Medlyn. (Pictured above the Slatyer family, Belinda Medlyn, Graham Farquhar and Craig Moritz).

Grants awarded

Damien Esquerre and **Mitzy Pepper** (both Keogh Group, E&E) have been awarded ARC Discovery Early Career Researcher Awards 2023 (DE23), $387k and $432k respectively.

Lucy Aplin (E&E) awarded a Cultural Evolution Transformation Grant $150k over 18 months to investigate cultural arms races between peole and cockatoos.

Daniel Noble (E&E) received ARC Future Fellowship funding for his research *Quantifying the impact of phenotypic plasticity on population persistance* $764k.

National Science Week

RSB Parasitologists ran a parasite-themed stall at Westfield Woden as part of "Science in the Centres" during National Science Week in August. The stall, coordinated by **Christina Spry** (BSB) and **Cibelly Goulart** (formerly van Dooren Group, BSB) was set-up and manned by Alex Maier (BSB), **Merryn Fraser**, **Patrick Phillips**, **Sam Shea** and **Saishyam Ramesh** (Maier Group, BSB), **Laura Shuttleworth** (Spry Group, BSB), **Shravan Divakarla** (Spry & Saliba Groups, BSB), **Ayman Hemasa** (Saliba Group, BSB), **Capella Maguire** and **Stephen Fairweather** (van Dooren Group, BSB), **Evie Hodgson** (Spry & van Dooren Groups, BSB), and **Sarah Shafik** (Djordevic Group, PS), along with **Melanie Rug** (CAM), **Phoebe Maier,** and undergraduate parasitology students **Makenna Short, Luka Ruwette, Citha Kannitha, Madelie Joubert** and **Larissa Liow.** Guests to the stall discovered the wonders of parasites through parasite themed games and displays, explained by these enthusiastic ANU parasitologists.

Image: Evie (top left), Patrick (top right), Merryn (bottom left) and Laura (bottom right) engaging with visitors to the ANU Parasitology stand.

Floriade

With Floriade back in town, members of Plant Sciences were asked to contribute a bit of science education on plant communication.. **Cindy Wang** (Mathesius Group, PS), **Julie Leroux** (Pogson Group, PS) and **Uli Mathesius** (PS) presented a talk and had a number of hands-on materials for visitors to investigate the kinds of signals that plants use to communicate with their environment and with other organisms. The public found out about electrical signals controlling plant movement, volatile signals that plants send out to recruit beneficials, as well as chemical signals directed at symbionts. They were happy to get some feedback and questions from members of the audience on growing orchids, plant-plant communication via mycorrhizal hyphae and the importance of legumes. A second presentation will follow on the 16 October and there are spots if anyone wants to join them at Floriade.

News

As of 1 September, the ARC Training Centre for Future Crops Development has officially commenced! This means the Centre's programs will start to emerge over the coming months and we look forward to celebrating with you at an informal RSB celebration on the afternoon of Thursday 13 October. More information to come.

PhDs commenced

Fatema Akhter (Jennions Group, E&E)
Md Mahmud Al Hasan (Jennions Group, E&E)
Ivan Jeremias (Lanfear Group, E&E)
Ebtihal Mohamed (Byrt Group, PS)

PhDs awarded

Judith Bourne (Gordon Group, E&E) *Comparative genotypic and phenotypic characteristics of human associated extraintestinal Escherichia coli isolated from cats and dogs*

PhDs submitted

Mahin Chavoshi Jolfaei (Rowell Group, E&E) *Molecular phylogeny, generic delineation, and historical biogeography of Cryptocheilus Panzer, 1806 and Heterodontonyx Haupt, 1935 with taxonomic revision of Australian species using mitochondrial genes, the ribosomal operon and UCE loci.*

Imelda Forteza (Mathesius Group, PS) *Comparative Biology of Invertebrate Microbiomes.*

Sarah Ingrid Coughlin (Ball Group, PS) *Tree structure and carbon cycling in a tropical rainforest under long-term drought.*

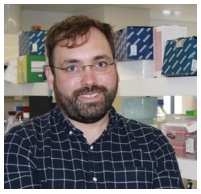
Truce Nguyen (Gordon Group, E&E) *The ecological niche of human-associated E. coli.*

Lauren Harrison (Jennions Group, E&E) *Sex and conflict: How competition shapes reproduction, behaviour and life-histories in various animals.*

Katia Taylor (Djordjevic Group, PS) *An investigation of the protein interactions underpinning CEP-CEPR1 signalling and the evolutionary conservation of this pathway in crops.*

Yuzhen Fan (Atkin Group, PS) *From light to dark: linking the roles of mitochondria in C4 photosynthesis with dark respiration.*

Welcome



Charlie Morgan recently joined the School as its inaugural Research Development Strategist. He is excited to learn from researchers across the school how he can assist them in strategic research planning and secure funding. He aims to foster and strengthen collaborations and relationships across the School, College, University, and to external partners. Charlie grew up in the mountains of rural Oregon, USA, later completing a PhD in Chemical Biology in San Francisco, a Science Policy Fellowship in Washington DC and a joint industry-academic postdoc at the University of Cambridge. Recently he led strategic research efforts at Children's Medical Research Institute in Sydney, developing gene therapies to treat rare genetic disease. He also volunteers on the Australian Academy of Science's EMCR Forum Executive, engaging and advocating on behalf of EMCRs across Australia to advance effective policies and connections.
While his research background is in biomedical research, including chemical and synthetic biology, he is thrilled to be involved with strategic initiatives across the diverse themes and areas of the school. Please introduce yourself by email or come visit in RN Robertson Rm E304.

Welcome to **Ruitao Jin** (Corry Group, BSB) who started as a postdoc. Ruitao did his PhD at Latrobe University and a postdoc at Deakin University before joining us last month. He is an expert in molecular modelling of proteins and nanomaterials and will be working on ARC and industry funded projects related to RNA sensing in the immune system and ion channels involved in mechanosensation.

Also welcome to **Kasimir (Kas) Gregory** (Corry Group, BSB) who also joins as a postdoc. Kas gained his PhD in Chemistry at Newcastle University and has recently been working at the Research School of Physics at ANU, where he has examined the role of different ion species in mediating biological and chemical phenomena. He will be using modelling tools to understand how temperature gradients can be used to separate and manipulate ions and biological molecules.

Plant Services Team would like to welcome **Patrick Black** to "Team Plants". He will be helping the Plant Services team maintain the School's greenhouse facilities, and plant stock. Patrick has had many years of experience in the indoor plant hire, and garden maintenance businesses, and has worked as a volunteer on a number of ecological farms.

Farewell

Farewell to **Laura Shuttleworth** (Spry Group, BSB) who has headed off to London to start her PhD at the Francis Crick Institute under the supervision of Carola Vinuesa. Laura has been working as a research assistant in the Spry Group since January. Her contributions to getting the Spry lab up and running, to student supervision and to an NHMRC-funded project, have been invaluable. She will be sorely missed, but we wish her all the very best for her new adventures.

In the media

Emily Roycroft's research on the diversification of native rodents was covered by ABC news
Emily also wrote an article in The Conversation to accompany the paper and was interviewed on ABC Radio Canberra, 2SER Sydney and 6PR Perth. The link to the paper is here: https://www.cell.com/current-biology/fulltext/S0960-9822(22)01298-2.

Lucy Aplin's Group has published a paper in current biology on bin-opening by cockatoors and bin protection by people, This paper received ltos of press including Science, New Scientists and the Guardian. Other publications included ABC.au, CNET, Daily Beast, Forbes, Gizmodo, The Hill, New York Times, Newsweek, der Spiegel.de, der Standard.at, La Vanguardia, The Conversation, Cosmos, Earth.com, Nature Briefing, Popular Science,Scientific American, The Scientist, South China Morning Post.

Papers

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