



From the Director

I write to thank all in RSB for a "year well done". Though lacking the fires and weather-related drama of early 2020, 2021 did serve up some significant challenges. These included reorganisation of our professional staff, and the second wave of COVID-19 in the ACT, with renewed lockdowns and the return to online-only teaching in 2nd semester. I know that these events have proved very difficult for many of you.

Thanks to the effort and resilience of you all, RSB has come through all this to emerge in great shape. We have recruited new professional staff across all teams and a stellar set of new Group Leaders who will commence progressively over the coming year. At the same time, many of our recently retired Group Leaders - the "transcendents" continue to share their knowledge through research and/or teaching, for which I am very grateful.

I was particularly proud of how multiple RSB teams stepped up to adapt their skills to helping with management of the repeated covid outbreaks - contributions included new ultrafast phylogenetics of COVID-19 sequences, rapid full-genome sequencing for all ACT isolate and testing of sewerage samples. These are superb examples of how capabilities developed through fundamental research can rapidly be repurposed to solve emerging problems.

In recent weeks several staff have been recognised in the annual VC's and College of Science awards:

- Alex Maier received the VC's award for Education Excellence.
- The RSB SARS-CoV-2 sequencing team was recognised by the College as a 2021 COVID-19 team contribution.
- The RSB Ecology & Evolution PhD Coordinators received the College "team service contribution" award.
- Owen Atkin received the College "outstanding leadership" award.

My congratulations to you all.

I hope you all can relax and refresh over the New Year break - hopefully with family now that travel is possible. 2022 will be a good year for RSB and I'm looking forward to seeing you all as we return to near-normal.

Craig

Congratulations

Honours student **Alice Hutchinson** (Corry Group, BSB) won the best student talk prize last week at the Annual Meeting of The Australian Society of Biophysics, in Melbourne. A great finale to a brilliant Honours year.



Capella Maquire (van Dooren Group, BSB) has won the University Medal which recognises students who have obtained First Class Honours and demonstrated exceptional academic excellence across their studies.



Honours students **Matthew Mortimer** (Pogson Group, PS) and **Tony Xu** (JCSMR) are joint winners of this year's Love Prize.

The Committee could not separate both nominations and both were ranked equal first. The Love Prize is awarded to the student (or students) who has demonstrated an outstanding and significant contribution that has made a positive impact within Canberra, regional, national, or international communities and who will complete a Bachelor degree in the current academic year with a history of excellent and sustained academic achievement. The value of the prize is \$5,000 with a formal citation which is presented at a Conferring of Awards Ceremony.

Benjamin Schwessinger (PS), **Robyn Hall**, **Austin Bird**, **Rene Riedelbauch**, **Emma Crean**, **Elise Kellett**, **Salome Wilson**, **Ashley Jones**, **Rachel Leonard** (all Schwessinger Group, PS), **Carl McCombe**, **Daniel Yu** (both Williams Group, PS), **Gabrielle Smith** (Adamska Group, BSB), **Evie Hodgson** (van Dooren Group, BSB), **Scott Ferguson** (Borevitz Group, PS), **Caroline Correa Ospina** (JCSMR) and **Catalina Barragan Quintero** (RSB visitor) are the winners of the College of Science Award for Service in the 2021 'COVID-19' team contribution category. This is an outstanding recognition for the whole team who really pulled their weight and showed our community what makes ANU such a great university.

Two honours students received the RSB Director's Prize at the recent end of year party, awarded to honours students with final grades higher than 90%. Congratulations to **Capella Maquire** (van Dooren Group, BSB), left, and **Katherine Caley** (Huttley Group, E&E), right.



Oliver Stuart (Mikheyev Group, E&E), **Putter Tiatragul** (Keogh Group, E&E), **Ying Luo** (Keogh Group, E&E), **Audrey Prasetya** (Moritz Group, E&E), **Isabel Zeil-Rolfe** (Linde Group, E&E) and **Meng-Han Chung** (Jennions Group, E&E) are the winners of the College of Science award for service in the Team Service Contribution category. During the 2020 and 2021 lockdowns (and the subsequent off-campus working set-up) they have been instrumental in maintaining a bi-weekly journal clubs, bi-weekly TE&E session for students to learn basic skills in presentation, IT, stats etc and monthly PhD Chitchats to discuss general PhD issues. All of these activities have been important in keeping the division together and allowing the PhD students to sustain their community.

PhDs submitted

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

PhDs awarded

Pamodha Buddima Somasiri (Verma Group, BSB) *Caenorhabditis elegans as a potential animal model to study the pathogenesis of Shigella flexneri*

Kelly Chapman (Djordjevic Group, PS) *The roles of CEP-CEPR1 signalling in controlling root system architecture in Arabidopsis thaliana*

Julie-Anne Gabelich (Maier Group, BSB) Members of the Tryptophan-rich protein family are required for efficient sequestration of P.Berghei Schizonts

Farewell

Tory Clarke (von Caemmerer Group, PS) has left to join the University of Tasmania as a Research Fellow.



Loeske Kruuk (E&E) has recently returned to the UK for a prestigious Royal Society Research Professorship at the University of Edinburgh. Loeske was one of our leading researchers, specialising in the quantitative genetics of wild populations. During her time here she was, for example, awarded the John Maynard Smith Prize (a major honour for an evolutionary biologist) and an ARC Laureate Fellowship. Loeske was an active member of RSB and will be widely missed. She will, however, continue to maintain strong ties with RSB, with on-going field projects across Australia, including the long-term project on Superb fairy wrens in Canberra.



Patrick Meir (E&E/PS) has recently taken up a Royal Society Wolfson Fellowship at the University of Edinburgh. We are sad to see Patrick leave. Not only because he was among the most productive RSB researchers, but also because of his enthusiasm for biology. His research included many topics, but central to it was the use of observations and experiments to understand the effects of



climate change on tropical forests. Most famously, he and his colleagues induced an experimental drought in Amazonian forests to monitor the long-term consequences of a drier climate for growth, photosynthesis and tree survival.

Both Patrick and Loeske have been appointed to Honorary Professorships at the ANU.

New appointments

Hesam Jahromi has been appointed the Senior Student Administration Officer (HDR) and **Devyani Gupta** has been appointed the Student Administration Officer, both in the Biology Teaching and Learning Centre (BTLC).

In the media



Benjamin Schwessinger (PS) and his team featured in the Canberra Times and two ABC radio interviews about their genomic sequencing of the ACTs COVID outbreak. Benjamin's team mapped almost every single case of COVID-19 in the ACT.

Paul Cooper (E&E) gave interviews for The Australian Associated Press and Radio 2CC about how La Nina climate system has triggered an insect explosion in Australia.



News

Benjamin Schwessinger and his team are doing an amazing job with regard to their COVID-19 genome sequencing. In collaboration with ACT Health, tracking omicron in the ACT will also allow to infer how immune evasion of omicron applies to a highly vaccinated population. This is a key question for this variant and we in the ACT together with public health in NSW are ideally placed to answer this question. They caught the first omicron variant in the ACT early. This would have gone undetected for at least another 24-48 hours if they had not set up the service for ACT Health. Since then they have detected several more cases which had direct impact on public health decisions e.g. length of quarantine of omicron close contacts and re-assessment of exposure venues from casual to close contacts. Very likely more to follow. Detecting variants of concerns early has direct consequences for the University as it allows the community to react swiftly. Being right now top of these cases is very likely beneficial for border openings and the influx of international students. This is hugely beneficial for ANU.

Papers

Altin JG & Zhao YB. Using peptides to promote delivery and improve anti-tumour efficacy of liposomal drug. *Journal of Drug Targeting*

Bromham L, Dinnage R, Skirgord H., Ritchie AM., Cardillo M, Hua X et al. Global predictors of language endangerment and the future of linguistic diversity. *Nature Ecology & Evolution*. <https://doi.org/10.1038/s41559-021-01604-y>

Che Y, Fan D, Wang Z, Chow WS *et al.* Potassium mitigates salt-stress impacts on photosynthesis by alleviation of the proton diffusion potential in thylakoids. *Journal of Environmental and Experimental Botany*. <https://doi.org/10.1016/j.envexpbot.2021.104708>

Ermakova M, Osborn H, Groszmann M, Bala S, Bowerman A, McGaughey S, Byrt C, Alonso-Cantabrana H, Tyerman S, Furbank RT, Sharwood RE, von Caemmerer S. Expression of a CO₂-permeable aquaporin enhances mesophyll conductance in the C₄ species *Setaria viridis*. *ELife*. <https://doi.org/10.7554/eLife.70095>

Harrison LM, Noble DWA & Jennions MD. A meta-analysis of sex differences in animal personality: no evidence for the greater male variability hypothesis. *Biological Reviews*. <https://doi.org/10.1111/brv.12818>

Pavón-Vázquez CJ, Brennan IG, Skeels A & Keogh JS. Competition and geography underlie speciation and morphological evolution in Indo-Australasian monitor lizards. *Evolution*. <https://doi.org/10.1111/evo.14403>

Potter S, Bragg JG, Turakulov R, Moritz C. *et al.* Limited introgression between rock-wallabies with extensive chromosomal rearrangements. *Molecular Biology and Evolution*. <https://doi.org/10.1093/molbev/msab333>

Saraf I, Marsh KJ, Kumar V, Foley WJ *et al.* Comparative qualitative analysis of different classes of compounds in selected Australian and Indian Eucalyptus and Corymbia species: a convenient de-replication method for the eucalypts. *JPC - Journal of Planar Chromatography - Modern TLC*. <https://doi.org/10.1007/s00764-021-00136-2>

Van Dyke JU, Thompson MB, BurrIDGE CP, Zozaya SM *et al.* Australian lizards are outstanding models for reproductive biology research. *Australian Journal of Zoology*. <https://doi.org/10.1071/ZO21017>

Wedd L, Kucharski R & Maleszka R. DNA methylation in honey bees and the unresolved questions in insect methylomics. *Advances in Experimental Medicine and Biology*.