Australian National University

Research School of Biology Newsletter

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From the Director

Since I last wrote (May newsletter) RSB has continued to flourish as a workplace and across our core business of teaching and research. I think we are now back to our pre-covid levels of activity and I see a lot of buzz in the Little Pickle. All the positive interactions here, and in social events, seminars and classes is what makes RSB a great place to work. I hope we can maintain this momentum.

On the teaching front, we are now well and truly engaged in Semester 2, with strong but not excessive enrolments across all courses. I was really pleased to hear today that in one of our 3rd level classes there was palpable enthusiasm from a near-full, in-person class – yay! I also note the now substantial cohort of Masters students including several from our joint program with Shandong. This is very good from RSB in many ways and please make all welcome.

RSB continues to excel in winning research funding from multiple sources. Last Friday we heard that **Peter Solomon**, with colleagues from Plant Sciences and Ecology & Evolution, will lead a new ARC Training Centre in Plant Biosecurity to build future research capacity in this critical domain. On Thursday, Dani Way was awarded an ARC Future Fellowship to increase resilience of wheat crops to rapidly changing CO2 and climate conditions. In addition, there have been substantial awards for other projects on treatment of waste water from mines (Rio Tinto to **Caitlin Byrt** (PS)), crop resilience (GRDC awards to **Owen Atkin** (PS) and to **Peter Solomon** (PS)), Koala-related research (**Karen Marsh** (E&E)) and capacity building in East Timor and Indonesia (DFAT to **Benjamin Schwessinger** (PS) and **Hendry Susila** (PS)). There are other recent successes – but I mention these ones to highlight the breadth of our research funding. These awards demonstrate the strong connection from blue-sky basic research to industry-facing translational research and then to capacity building in Australia and through our region. We can all be proud about this.

RSB Executive had a bit of a break over June-July, meeting fortnightly rather than every week. Phew.... that said, there was still plenty to discuss and resolve, as follows:

RSB Exec outcomes – June/July 2023
Strategic matters
Performance & planning dialogue – each year the VC and other Senior Managers meet with the College of Science Dean & Directors to set goals against the ANU Strategic Plan and to review progress against the objectives from the previous year. One value to RSB is that it requires us to articulate our own priorities such as are relevant to the VC's objectives – including increasing revenue... For the 2023 dialogue we put the following for consideration: (i) developing and delivering our Masters programs, (ii) sustaining industry-facing research, especially in plant sciences, (iii) developing the cross-campus program in Synthetic Biology and (iv) securing central support for infrastructure bids.

Education
One of our major education initiatives, led by **Maja Adamska** (BSB/BTLC) and **Isabelle Ferru** (BTLC), is to help students with their writing skills. Feedback from course conveners has been very positive and the Executive has agreed that this should continue for Semester 2 courses.

Shandong University and the ANU Joint Science College (JSC) program has proved successful and is set to continue for another five year term. We are soon to embark on in-person teaching at Shandong as well as at ANU. This collaboration leads to recruitment of great students and will also support the school in other ways. I am very grateful to **Marcin Adamski** (BTLC), **Benjamin Schwessinger** (PS) and **Megan Head** (E&E), along with their teaching teams and BTLC admin, for their ongoing effort to ensure the success of this program.

Over the coming months, we will review our Masters programs in relation to Shandong/JCS and also the growing need to train students at the interface of biotechnology and synthetic biology.

Several staff from E&E recently visited the Indian Institute of Science (IISc) campus in Bangalore to explore establishing a joint PhD program. There appears to be strong interest on both sides to take this further and Execs of both CoS and RSB are now figuring out how to support this initiative. Thanks to **Sasha Mikheyev** (E&E), in his role as Associate Dean International, for driving this along.

Budget and spending
The Executive continues to monitor overall spending against our 2023 budget and I'm pleased to report once again that we are on track. The mid-year report is available on the intranet here. Please keep spending responsibly and in the knowledge that there will be no carry forwards allowed at the end of year.

Leave balances are now reduced and most staff with excess balances have submitted plans to address this. Thanks to all concerned. Taking your leave is important to enable work-life balance and it also avoids potential financial penalty to RSB.

We continue to invest in research infrastructure with two rounds of small equipment funding and a commitment to establish a Precision Fermentation Facility in collaboration with an industry partner, Samsara. This infrastructure will support SynBio activities across the school and also position us for more collaborations with industry across research and training.

Research
The Research Committee, ably assisted by **Charlie Morgan**, continues to coordinate development of a Research Strategy for RSB. Each Division has ongoing work to feed their views into a school-wide document that we expect to guide future investment, including faculty recruitment and infrastructure development. In many ways, the process itself is as important as the end-product and I encourage all to engage. We have had good success with recent funding applications (see above) and RSB Executive continues to support efforts to secure large-scale Centre, Fellowship and industry funding.
One significant issue is how to ensure the integrity and security of research data. Given the diversity and massive

scale of data generated across our labs this a complex issue. Work continues to develop a practical and effective policy.

RSB as a workplace
Following from the recent survey of ANU staff and subsequent internal discussions, RSB Executive has continued to develop a workload model for academic staff that balances the need to balance contributions across teaching, service & research while not micromanaging the valuable work that our staff do. As noted below, there is now a Specialist classification for Technical staff that in many ways parallels academic staff progression. This is primarily for externally funded positions that do not fit well to existing classifications.

RSB's IDEA Committee is now re-established with **Farid Rahimi** and **Emily Furlong** as Co-Chairs. Please let them know if you have suggestions on how to make RSB an even more inclusive and diverse environment.

Congratulations

ARC recently announced the funding outcomes for Future Fellowships 2023 round and our very own **Danielle Way** (PS) was awarded a prestigious ARC Future Fellowship. Many congratulations Dani.

Congratulations to **Peter Solomon** (PS) and several staff in Plant Sciences whose application for an ARC Training Centre for Plant Biosecurity has been fully funded.

A very special congratulations to our own **SaiShyam (Sai) Ramesh** (Maier Group, BSB) for winning both the first prize AND the people's choice award at the ANU 3 minute thesis competition. The title of his talk was *Redefining the Trojan horse strategy*.

iGEM is a prestigious international Synthetic Biology competition for undergraduate students and this is the first time that ANU has entered a team since 2015.

This year **Jack Dalton** (Jackson Group, BSB) and the ANU iGEM team have been awarded a USD2,500 impact grant by the competition organisers due to our project's novelty, innovation and focus on sustainability.

They are designing a modular bioaccumulation platform for heavy metal bioremediation. This project will tackle the problem of heavy metal contamination in old mining and industrial sites. To do this they are engineering heavy metal binding proteins and encapsulins to capture and store toxic heavy metal ions within bacteria. This platform will be delivered into bacteria common in contaminated sites using tailored bacteriophages. The modular nature of our platform allows us to switch out the heavy metal binding protein or phage depending on the target environment to be remediated.

Congratulations to **Tomas Fuenzalida** (M. Ball Group, PS) who received the RSB Award for Best PhD Thesis submitted in 2022, *Plant Hydration Dynamics: Measurement and Uptake Pathways.*

New stream for professional staff

The College of Science Specialist Career Progression Framework was approved by the University Senior Manager Remuneration Committee in March 2023. The Framework was developed through consultation with the College of Science Executive and key senior specialist staff from across the College. The Framework provides an overview of key competencies for the career progression of highly specialised technically focussed roles that are outside of the scope of the Technical and IT streams as defined in the ANU Enterprise Agreement. More information can be found on the College intranet.

Recent outreach in the Teaching Lab

Andras Keszei (BTLC) and the RSB Teaching Lab staff ran a DNA profiling and phenotyping practical for 60 students in years 9 to 12 from the Emmanuel Catholic College in WA. The staff and students were in Canberra for a week to visit the main attractions and chose to participate in one of our outreach programs while here.

This week the Teaching Labs have been hosting 70 girls in years 9 and 10 participating in the Curious Minds Program. Curious Minds is a hands-on extension and mentoring program for girls who are passionate, high performers in STEM but have limited opportunities because of where they live (regional or remote locations), their socio-economic background, and/or their indigenous status.

Grants awarded

Karen Marsh (E&E) received NSW Koala Strategy Research Grant, NSW Department of Planning and Environment, $996,757.

Hendry Susila (Pogson Group, PS) received a DFAT (Koneski Scheme) grant, $349,411.

Welcome

Baso Ilham has joined the Corry Group (BSB) as a Future Research Talent Scholar from Indonesia until September. Baso is looking at the molecular mechanisms of lactate transport in bacteria and malaria parasites.

Welcome to three people in the Farine Group (E&E).

James Klarevas-Irby completed his MSc and PhD at the Max Planck with Damien Farine, working on a range of different tracking projects. James now a postdoc with Damien and tasked with setting up new field projects.

Brendah Nyaguthii completed her MSc at Eldoret University while managing Damien Farine's vulturine guineafowl project for the past 5 years. Brendah is now starting her PhD with Damien, working on understanding the multilevel society of white-winged choughs.

Esha Shekar is a Masters in Biological Sciences (Hons.) at Birla Institute of Technology and Science (BITS) Pilani-Hyderabad Campus, India. Esha is currently doing her undergraduate thesis with Damien Farine and Brendah Nyaguthii, working on inter-group interactions in the white-winged choughs.

Farewell

Jessica McLachlan (Langmore Group, E&E) is finishing her post-doc. Jessica has been a powerhouse in the field, a wonderful colleague to work with and an invaluable support to students. She will continue Canberra fieldwork in other roles, so hopefully we will continue to see her around RSB.

In the Media

Lucy Aplin (E&E) spoke with ABC Canberra about her work investigating Canberra's cockatoos.

2GB and Mildura radio station River 1467 reports on a study led by **Sasha Mikheyev** (E&E) that looked at the origins of destructive honeybee viruses.

3WM radio has reported on a new discovery about sugars in fruit cells from **Yong-Ling Ruan** (PS) that is a significant step towards breeding tastier and healthier fruit.

Papers

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