Centre for Biodiversity and Conservation Science

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CBCS NEWS

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Professor Hugh Possingham elected a Fellow of the Royal Society

Samantha Wong-Topp
CBCS PhD candidate

CBCS's **Professor Hugh Possingham** has been elected as a Fellow of the Royal Society – one of the highest honours in science, and a recognition shared by the likes of Isaac Newton, Charles Darwin and Stephen Hawking. A global leader in conservation science and a long-time advocate for biodiversity, Hugh is only the 10th Queenslander ever elected to the prestigious society since its founding in 1660. He described the news as "good" – delivered via email while sitting at home – and sees the real value of the honour in how it can be used: to amplify impact, shape policy and help protect the natural world. In this interview, he reflects on the privilege, people and purpose that have shaped his career – and what he believes matters most for the next generation of scientists.

This honour places you among the ranks of some of the most celebrated scientists in history. What does that mean to you?

"Professionally, the main advantage I see is it potentially gives me slightly more ability to influence politicians, bureaucrats and industry. There are about 40 or 50 fellows with the Royal Society in Australia. There are six in Queensland at the moment; 10 ever", Hugh says.

What experiences helped define your purpose in science and conservation?

"I feel lucky, because from an early age I knew what I was passionate about. I knew why I should get out of bed in the morning". Hugh recounts a particular moment that solidified his interest in conservation: "When I was 17, my father and I went to our favourite bird watching spot, a beautiful piece of pink and blue gum woodland in South Australia, and it had been replaced by wheat. It was in an area where there was very little woodland left. And to me, that was so outrageous. It made me so annoyed and angry", he says. "I think most people's advocacy paths and paths to purpose come from an assault on what they love, which could be an attack on people or nature, or it could be injustice. I think, you know, that people often need that trigger point to intervene and say, 'This is stupid. I 'm going to fix this'."

You've spoken openly about the role of privilege in your success. Can you expand on that?

"I would say most of this FRS stuff and all the other accolades are very much 90% privilege, the other 10% is 9% hard work and maybe 1% talent. On the wheel of privilege, there's about 12 dimensions, and on all those dimensions, I score at the top level, except one – I'm white, I'm male, over-educated, etc. My family wasn't filthy rich; they were middle class – that's the only area where I am not excessively privileged. So, in the end, if I didn't achieve all those things, that would be alarming, wouldn't it? My grandmother received a mathematics degree from The University of Sydney in 1913, and my mother a PhD in physics. I am sure that, if times were different, they would have been elected an FRS."

"Once you recognise that it's 90% privilege and it has nothing to do with you as a person, then you've got to say, 'Well, there are two things I have to do: one is to use that privilege for good, and the other one is to try and work out how you can make sure all those privileges are diminished into the future'".

What would you say to others who hold similar privilege?

"Make sure that you have impact. If you've got all that privilege, make it deliver benefit to nature and people. Most people use that privilege to amass wealth or power, but power without purpose", Hugh says. Hugh also highlights the importance of proactively levelling the playing field. "One thing I do like about Australia is that we have affirmative action. I give positive bias to people that, for a variety of reasons, don't have privileges … . I think you just need to include that in all your decision-making. Unfortunately, there are some people who push back on affirmative action."

What would you say to those just starting out who hope to shape real-world change?

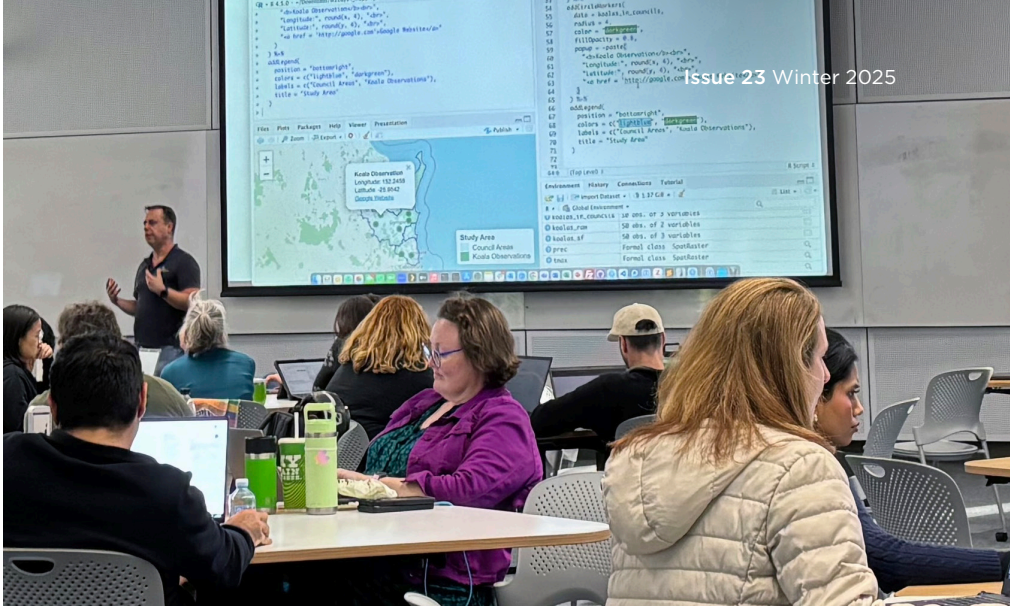
"It's important that you're doing something you love doing. I think passion and purpose are everything. If you have a purpose, and you know what you really want to achieve, that makes you wake up in the morning. And then it should be fun, it should be interesting, it can't be boring", he says. "Furthermore, happiness also relies on autonomy. People with autonomy know it doesn't matter how much money they have. I have been given the privilege of a great deal of autonomy working in the university and not-for-profit sectors."

Image credit: Samantha Wong-Topp

PROFILE

Carving a path through oceans of data

Dr Jason Everett
Senior Research Fellow,
School of the Environment
CBCS Affiliated Researcher



For as long as I can remember, the natural world, particularly the interface between land and sea, has captivated me. Growing up on the edge of Sydney's Garigal National Park, my childhood was spent bushwalking, exploring, climbing and sharing my backyard with an array of native wildlife – from the quiet visits of wombats and echidnas to dramatic encounters with snakes and the occasional bushfire evacuation. These early experiences shaped my deep-seated love for the environment.

When I wasn't playing sport or exploring my extended backyard, I was in the water, surfing or involved with the local surf lifesaving club. These activities instilled in me a profound connection to the ocean. Like being deep in the bush, surrounded by only the sounds of nature, I'd look forward to quiet moments in the surf – nothing but the sound of waves breaking and the thrill of riding them. In the end, it was a natural step to combine these loves, leading me to complete a Bachelor of Environmental Science, majoring in marine ecology, at the University of New South Wales.

A dual approach

I thoroughly enjoyed my time at university, in particular all the field-based classes I took, but it was my Honours year that cemented my path. I thrived on the research focus and the camaraderie of my peers. I found immense support in working alongside fellow budding scientists and loved the experience of undertaking science independently. This positive experience spurred me directly into a PhD with Professor Iain Suthers and Dr Mark Baird, working in estuarine ecology with many weeks of field work based at Smiths Lake, on the mid-north coast of New South Wales.

My PhD was a fascinating blend of data collection and modelling. I spent many weeks in the field but just as many building biogeochemical models in MATLAB. I genuinely enjoyed the mix of testing ideas in the field and then constructing models to better understand the underlying processes on my computer. This dual approach felt incredibly natural; I was given an Apple IIe computer as a child and spent countless hours learning to code in Applesoft BASIC. Looking back, it seems inevitable that I'd eventually be drawn to projects involving programming. While many people might detest being stuck in front of a computer all the time (I did at times too), I was lucky that the Sydney Institute of Marine Science was founded during my PhD, and I have fond memories of spending days on end programming and writing my thesis overlooking Sydney Harbour. Those days were fantastic, as we regularly went swimming in the Harbour or walking around the headlands at lunch time.

The ocean's unmistakable call

A pivotal moment came during my PhD when I volunteered for 14 days at sea on Australia's Marine National Facility, the *RV Southern Surveyor*. Two weeks spent in close quarters with 19 other scientists and crew working 12-hour shifts sorting slimy net samples might sound horrible – but I thrived. I loved being in the middle of nowhere with nothing but horizon all around. It was only then that I truly appreciated all the different colours of the ocean, and it made me start to wonder again about what was happening below the surface. This experience unexpectedly steered my career onto a new course, rekindling my deep interest in the ocean's vastness and mysteries; however, I would have wait for a time before embarking on this new path. Besides, I had a PhD to finish. So, I got back to it.

After submitting my PhD a year later, I took a position with the New South Wales Government's Estuaries and Coast team. Working more closely with the policy side of science was a new experience for me. It was insightful to see how scientific findings translated into real-world management decisions. However, I soon realised I was missing the dedicated research focus of academia, and that call from the open ocean was growing louder.

Clockwise from top right: Jason teaching at the Winter R Workshops in July 2025. Image credit: Supplied

Rough weather aboard the *RV Southern Surveyor* meant no sampling and lots of time to watch the waves. Image credit: Jason Everett

My favourite time of day on the *RV Southern Surveyor*. Towing nets at sunrise. Image credit: Jason Everett

Thankfully, an opportunity arose for a postdoc in biological oceanography, bringing me back to the University of New South Wales. This period saw me at sea many more times, studying plankton, fish, ocean currents and eddies. The biological oceanography community in Australia was relatively small back then, fostering close collaborations. One of my most significant connections was with Professor Anthony Richardson; we shared a deep fascination with how oceanographic processes influenced the plankton community. This collaboration blossomed, leading to numerous research voyages, working groups, multiple ARC grants and, eventually, my move to The University of Queensland and CBCS.

Bridging worlds: Data science for conservation

Moving to UQ meant a temporary shift to working remotely from Sydney for family reasons, a transition that became surprisingly common when COVID-19 lockdowns hit, and ended up becoming long term. While living in Sydney and working in Brisbane has had its challenges, the welcoming community at CBCS has made it so much easier. Whenever I visit, there are always friendly faces in the corridor and at CBCS drinks.

It was through this vibrant community that I forged a wonderful new collaboration with Associate Professor Daniel Dunn. Together with Daniel, Anthony and our amazing students, I've shifted my main research focus towards data science. My core drive behind this shift is to enhance stakeholder engagement in the marine spatial planning process by building intuitive R-packages and Shiny Apps (you can see our work at spatialplanning.github.io). This new direction has allowed me to engage directly with Marine Protected Area (MPA) processes in diverse and critical locations, including the Weddell Sea (Antarctica), Kosrae, Vanuatu and the Red Sea, to name just a few. In the Weddell Sea, our Shiny App – *shinyplanr* – was used during workshops of 50+ scientists and policy-makers to help the participants learn about spatial prioritisation and experiment with different planning scenarios instantly.

"My goal is to leverage the power of data to bridge the gap between complex scientific understanding and real–world action"

This process would previously have taken months of back and forth between stakeholders and planners. The Weddell Sea Phase 2 MPA proposal – recommending ~628,000 km^2 of ocean for protection – was led by the Norwegian Polar Institute and became the fastest MPA proposal to pass to the Commission for the Conservation of Antarctic Marine Living Resources.

Looking ahead

While I've largely stepped away from field-based oceanography, I've been fortunate to maintain my links to the biological oceanography community by developing valuable tools like the Biological Ocean Observer (shiny.csiro.au/BioOceanObserver/). I also co-teach the CBCS R Workshops twice a year, reflecting my commitment to building technical capacity in science. I'm always on the lookout for new collaborations to build tools that empower the community to connect with and understand scientific data.

Ultimately, my goal is to continue leveraging the power of data to bridge the gap between complex scientific understanding and real-world action. As we navigate the immense challenges of climate change and strive for ambitious targets like "30x30" protection, the capacity to translate vast datasets into meaningful outcomes will be paramount. Equally critical is ensuring the next generation of scientists and policy-makers possess the skills to interrogate and interpret these vital data.

"I'm always on the lookout for new collaborations to build tools that empower the community"

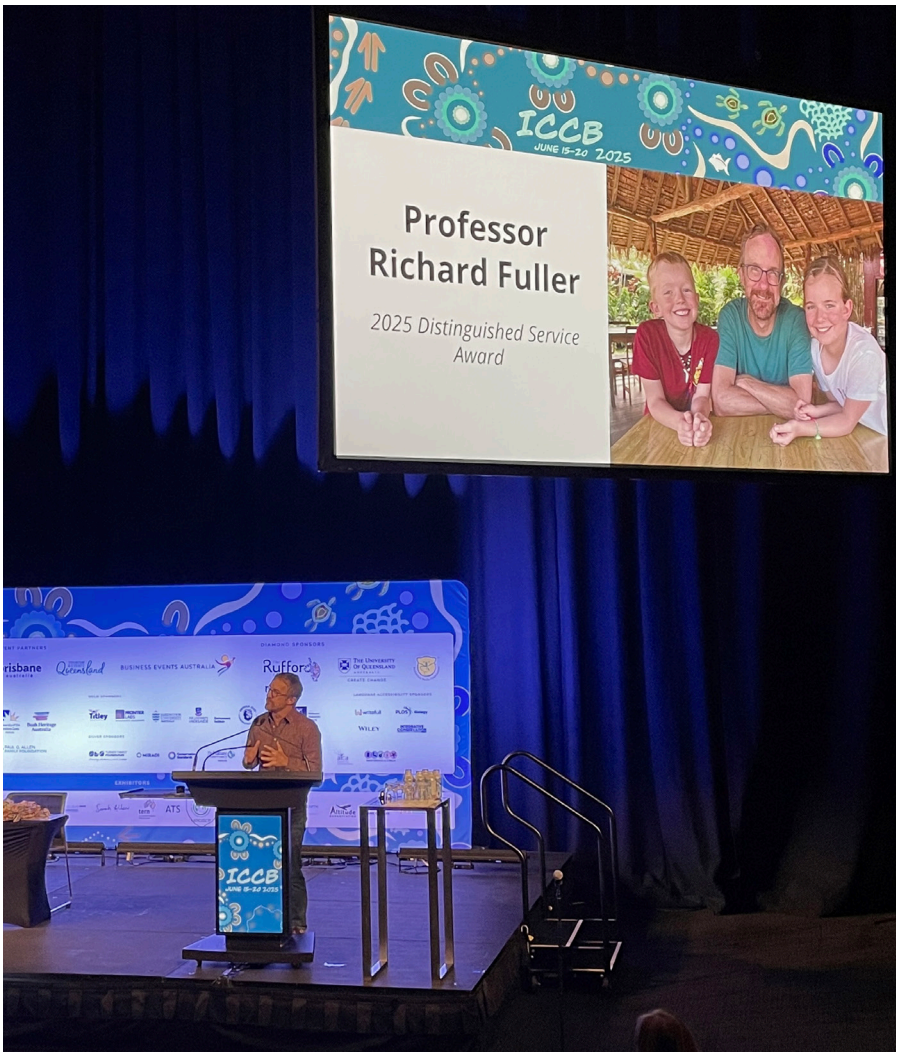
Outside of research, my life hasn't strayed far from those early inspirations. I still find joy in bushwalking, embracing the great outdoors, and being in the water every chance I get. Only now, I share these moments with my wife Anna and our two daughters, Skye and Hayley – often after cheering them on from the sidelines of their latest netball or football game. This balance, nurtured by family and a continued connection to the environments I study, helps fuel my dedication. Despite the somewhat curvy path that brought me here, I wouldn't change a thing; every varied experience has helped me forge the unique skills and perspective I now bring to my marine research coupled with a new love of data science.

From top to bottom: Sydney Harbour from the *RV Southern Surveyor*. Image credit: Jason Everett

Here we are leaving Sydney Harbour aboard the *RV Southern Surveyor*. Image credit: Karen Whitehead.

Professor Richard Fuller receives prestigious SCB 2025 Distinguished Service Award

Samantha Wong-Topp
CBCS PhD candidate



At the 2025 International Congress for Conservation Biology (ICCB), **Professor Richard Fuller** received the prestigious Society for Conservation Biology (SCB) Distinguished Service Award. This honour recognises individuals, groups or institutions that have made outstanding contributions to the field of conservation biology. Here, we sat down with Rich to talk about what the award means to him, reflect on his career and hear his thoughts on the future of conservation.

How did you feel when you found out you'd won the Distinguished Service Award?

"Honestly, I was stunned. I've always seen awards like this going to the giants of our field – people who blaze trails in ways I could only admire from afar. So to receive the SCB Distinguished Service Award felt surreal. It means a lot, both professionally and personally, especially because it recognises not just scientific impact but communication, mentoring and policy engagement – all the messy, human dimensions of conservation work. That's what makes this award so meaningful. It's a tribute to the long arc of collective action, persistence and care that drives change in conservation."

Looking back, were there any pivotal moments or challenges in your career that shaped the direction of your research?

"There have been many, but one stands out. A year after we first analysed those bird data, I presented the findings at a shorebird conference in Tasmania. Almost every talk at that meeting told a story of decline – population collapses, disappearing birds, a shared sense of grief and helplessness. We all felt that no-one in power was listening. That moment was pivotal. It lit a fire in me. I realised the science alone wasn't enough. We needed to communicate better, build partnerships and show up in policy spaces.

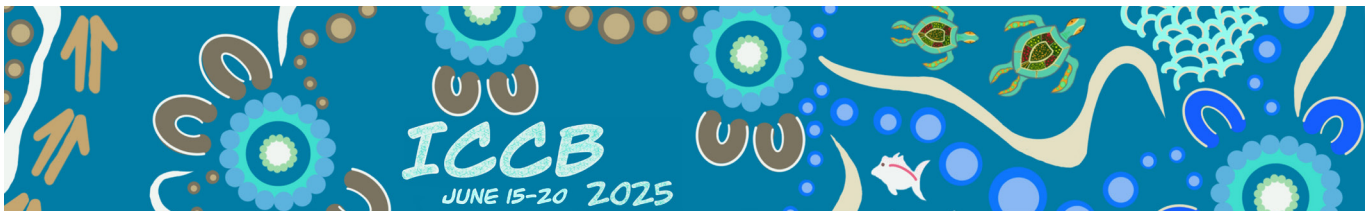
"From that point on, I began thinking differently about what my role as a scientist could be. I still loved data and analysis, but I also started learning how to engage with government, how to tell stories that resonated beyond academia and how to support others to do the same. And, perhaps most importantly, I began to understand that real conservation success is built on relationships – across countries, cultures and disciplines."

What advice would you offer to early-career scientists who hope to have similar impact?

"First, know that there's no single recipe for making a difference in conservation. I'm an introvert. I'm not a natural networker or public speaker. I've often doubted myself. But I found a niche in science that suited me, and over time I learned how to step outside my comfort zone when it mattered. If you recognise yourself in any of that, please know there is a place in conservation for you too.

"Second, be patient. The journey from identifying a conservation problem to seeing real-world solutions can feel interminable. But if you stay connected, stay curious and keep showing up – even when it's hard – change can and does happen. And finally, remember that science is only part of the puzzle. The most powerful outcomes I've been part of have always involved a community – local volunteers, passionate students, brilliant international collaborators, policy advocates, Indigenous leaders. So build those connections and nurture them. Conservation is a team sport!"

Professor Rich Fuller receving his Distinguished Service Award at ICCB25. Image credit: Nga Yee Lai



CBCS HDR Representation at ICCB 2025

Samantha Wong-Topp
CBCS PhD candidate

This year, the 32nd International Congress for Conservation Biology (ICCB 2025) brought together thousands of conservationists from around the world in Brisbane/Meanjin, Australia.

Hosted by the Society for Conservation Biology's Oceania Region, ICCB is a leading global forum for discussions on biodiversity, blending insights from a broad range of other disciplines such as genetics, ecology, economics and anthropology.

Among the diverse voices shaping these conversations were students and researchers from the Centre for Biodiversity and Conservation Science (CBCS) at The University of Queensland.

From presenting their research to participating in workshops and networking with global experts, CBCS students experienced ICCB in a range of unique and inspiring ways.

Here, we share reflections from some of these students – highlighting not only the diversity of their research, but also the different paths through which they are contributing to the future of conservation science.

Chloe Dawson

CBCS PhD candidate

My talk at ICCB was titled "Incorporating mining land use to improve global biodiversity assessments", and was part of the symposium *Ecologically responsible mining of energy transition minerals: Implications for biodiversity conservation.*

It was such an honour to present at ICCB and connect with other academics in my field. My talk focused on the importance of including mining data in biodiversity assessments to ensure we do not overestimate the current state of biodiversity in a global context. Our symposium stimulated interesting discussions on the nexus between biodiversity and mining that have led to wider engagement with the conservation community. It was great to meet industry partners and academics alike who were interested in this frontier of conservation science.

Chuan Lei

CBCS PhD candidate

I gave a speed talk titled "Conserving Nemo: Genomic insights into the history and status of endangered anemonefish species *Amphiprion mccullochi* and its sister species *Amphiprion akindynos*". It was a very nice experience!

I had a great time at ICCB 2025, and I was surprised how many amazing genetic/genomic projects are ongoing and being applied in conservation. I would love to see more integration of genomic data into real-world conservation planning and to be part of interdisciplinary collaborations that bridge evolutionary biology and applied conservation.

Nayelli Rivera Villanueva

CBCS PhD candidate

My speed talk at the ICCB was titled "Trends in Spanish-language publications on ecology and conservation" and it was part of the Equity and Diversity in Conservation session. I feel very honoured that I presented the first chapter of my PhD project. This seeks to identify research priorities and opportunities, not only for non-native English speakers but also to inform conservation strategies. The findings reflect a change in the perspective of biodiversity studies towards more data-driven applied studies with experimental and modelling approaches in Spanish-language literature.

It was an incredible opportunity to highlight the importance of non-English literature to promote diversity and to democratise knowledge in a multi-cultural landscape, as in conservation science.

Left to right: Chloe presenting at ICCB.
Image credit: Natalie Duffus

Chuan presenting his speed talk on endangered anemonefish.
Image credit: Samantha Howitt

Nayelli presenting her talk at the ICCB.
Image credit: Poppy Wyndham.

Conrad Pratt

CBCS PhD candidate

I gave a speed talk at ICCB 2025 entitled "Language barriers in the environmental sciences in Japan: An analysis of linguistic trends in the academic literature" as a part of the Equity and Diversity in Conservation session. I presented some preliminary data on the proportion of articles published in English versus in Japanese by Japanese scientists working in conservation, discussing the potential drivers of these trends including the likely role of language barriers.

As I was in just my third month of my PhD, I was grateful for the opportunity to share my research and attend an international conference so early on in my project. During the rest of the conference, I was able to meet and chat with many other amazing attendees from all over the world; the opportunity to connect with Japanese colleagues was particularly valuable, as I was able to practise my Japanese language skills, build connections and have conversations about their experience with language barriers in their work to inform future directions for my project.

I was very impressed with the measures implemented by the amazing Language Accessibility Subcommittee (led by my supervisor, Associate Professor Tatsuya Amano) to reduce language barriers during the conference, which included live AI text translations of talks and also some talks given in non-English languages (including Japanese). Overall, this conference gave me great optimism that we can dismantle language barriers in science by continuing to promote linguistic inclusivity and diversity at conferences like ICCB.

Shu Chen

CBCS PhD candidate

CBCS HDR Representative – Engagement and Community

At ICCB 2025, HDR student Shu Chen chaired and delivered a symposium titled "Engaging landholders in their conservation covenanting journey".

The session brought together researchers, private land conservation practitioners and government representatives to share experiences and insights on how best to support landholders in adopting perpetual conservation agreements and scaling up private land conservation to meet global biodiversity targets – such as the "30x30" goal.

The symposium highlighted the diverse social, psychological, policy and institutional factors that influence landholder participation, long-term stewardship and overall experiences with conservation agreements. Presenters explored common barriers landholders face, and how tailored communication, relational trust and sustained support can make a meaningful difference.

The session concluded with a lively panel discussion focused on cross-sector collaboration, emphasising the importance of designing programs that are not only scientifically sound but also socially grounded and practically effective.

Samuel Ho

CBCS Honours graduate

My talk at ICCB 2025 was titled "Highlighting the species diversity, pricing trends and conservation concerns in a major ornamental fish hub", presented as part of the Wildlife Trade session.

My presentation focused on how the ornamental fish trade exploits species of unknown taxonomic and conservation status, highlighting significant blind spots in regulation and monitoring. It was an incredible opportunity to share my research and engage with researchers working across wildlife trade and freshwater biodiversity. Together, we discussed key knowledge gaps, existing loopholes in conservation, and explored potential avenues for collaboration. I had a wonderful experience learning from and connecting with conservationists both within and beyond my immediate field of research.

Tin Buenafe and Sandra Neubert

CBCS PhD candidates

I, Tin, co-organised and co-led a pre-congress workshop and a symposium at ICCB 2025 with my fellow PhD candidate Sandra Neubert. Both the workshop and symposium align with our research interests around climate-smart spatial planning or how we can incorporate climate adaptation and climate mitigation aspects in spatial planning. The pre-congress workshop, "Conservation planning in R: Spatial data wrangling and spatial prioritisations", focused on imparting practical knowledge of spatial planning to participants. Sandra and I designed the one-day workshop to focus on helping participants understand how spatial planning workflows can be done in R, from start (wrangling and cleaning your spatial data) to finish (doing spatial prioritisations using prioritizr) and beyond (developing Shiny apps to communicate your science). The workshop was successful, with around 30 participants, and was supported by the broader team of Dr Jeffrey Hanson, Dr Jason Everett, Professor Anthony Richardson, and Alvise Dabalà. It was great to meet people from different research fields and see how they have (or plan to) incorporate spatial planning in their work.

We were lucky to have a jam-packed room during our ICCB symposium, "Climate-smart considerations in conservation and spatial planning: Synergies, lessons learned and future directions", where we, and our wonderful panel, discussed how we can move towards achieving global conservation and sustainable use goals and commitments in a climate-smart manner. Scott Atkinson from the UN Development Programme presented

Top: Like Nayelli, Conrad is working to break down language barriers in conservation. Image credit: Poppy Wyndham

Centre: PhD candidate Shu Chen, far left, with panel members. Image credit: Kate Moore

Bottom: Sam presenting his talk in the Wildlife Trade session.

the Essential Life Support Areas (ELSA) framework that has been deployed across 12+ pilot countries. Dr Marta Cimatti from Sapienza Università di Roma shared how their group has incorporated different climate-smart strategies in conservation planning. Professor Maria Beger from the University of Leeds and The University of Queensland talked about dynamic conservation strategies and how they can be applied. I also presented some of my PhD work, mainly material from our *Nature Reviews Biodiversity* paper, to get people to think about how we can more proactively incorporate climate change in conservation.

We had a fantastic and engaging audience, eagerly asking questions at our panel discussion. Personally, I found the symposium stimulating and it has potentially provided some good brain fodder for me to think more about how we can proactively incorporate climate change in conservation planning not just from a science point of view but also through a more practical and applied lens.

Indonesian delegates strengthen global ties at ICCB 2025

Dr Karlina Indraswari, Aditya Pramudya, Rinaldi Gotama

More than 20 Indonesian participants attended the recent International Congress for Conservation Biology (ICCB 2025), representing a diverse cross-section of the conservation community – from grassroots, local and international NGOs, and ecotourism initiatives and company-led conservation programs. For some, it was their first experience at an international conference, offering rare opportunities for professional growth and global engagement.

ICCB 2025 served as a valuable platform for networking, learning and sharing experiences. Several early-career participants, including Masters students, found the space particularly empowering, gaining insights into global conservation challenges and finding a renewed sense of purpose, while also seeing the relevance of their local work in broader contexts. The presence of The University of Queensland's Centre for Biodiversity and Conservation Science (CBCS) added depth to the experience. CBCSer Dr Emily Massingham led a session with an orangutan conservation focus fostering new conversations. The ICCB Language Inclusivity initiative also made a meaningful impact – one participant presented in Bahasa Indonesia and was fully understood, allowing his passion and findings to shine without language constraints.

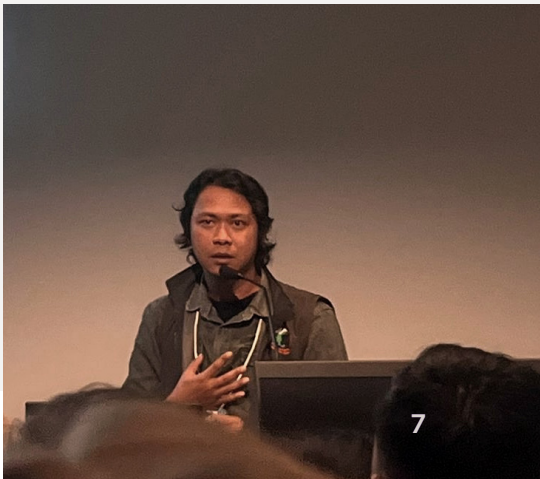
Other highlights included a seminar hosted by the Sustainable Minerals Institute, where an Indonesian participant contributed to discussions on sustainability measures for the extractive industries, and a well-attended session on conservation in Indonesia, which generated strong engagement despite being one of the last sessions in the conference.

Outside the sessions, participants gathered for a dinner at a local Indonesian restaurant. The event offered space to reflect, strengthen relationships, and build new connections with both Indonesian and international colleagues. The delegation has since continued collaborating via an active group chat, demonstrating that ICCB 2025 was not just an event, but a catalyst for longer-term regional and global conservation work.

Clockwise from top: Karlina (far left) and Indonesian colleagues enjoying ICCB. Image credit: Amanda Ridarson

An Indonesian presenter delivering his talk in Bahasa Indonesia with real-time translation. Image credit: Tatsuya Amano

Indonesian participants gathered for a dinner at a local Indonesian restaurant. Image credit: Retno Ningrum



Angela Liu wins SCBO's Regional Student Conference Award

Samantha Wong-Topp
CBCS PhD candidate

At the International Congress for Conservation Biology 2025 (ICCB), the Society for Conservation Biology Oceania (SCBO) gave its Regional Student Conference Award to CBCS PhD candidate **Angela Liu** for her presentation on marine migratory connectivity. We caught up with Angela to hear more about the experience.

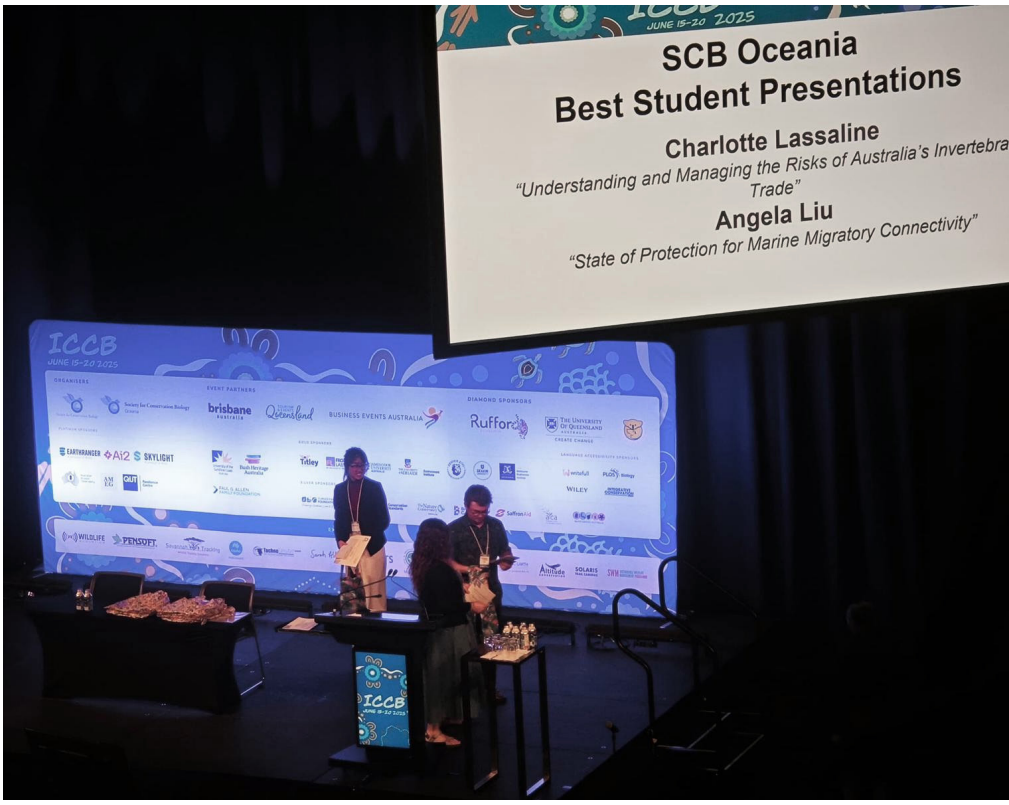
"I felt incredibly grateful for this recognition", Angela says. "I am still in the first year of my PhD where so many things seem nebulous and up in the air, and it meant so much to receive an award that affirms the direction I am taking with my research. Although, in the moment, I was primarily just flabbergasted."

Can you tell us more about your PhD?

"My talk [was] on the first chapter of my PhD, where I aim to develop a framework quantifying the 'State of Protection for Marine Migratory Connectivity' by evaluating Marine Protected Area coverage of important life history sites, such as for breeding or foraging; and, at the network level, emphasising the unique and critical role of connectivity in wide-ranging marine megavertebrates. Network-level site protection often requires international collaboration, and our analysis derives country-level metrics and indicators to inform how nations are currently protecting these important sites within their domestic borders and also how well their connected sites are being protected abroad."

How was your experience at ICCB?

"ICCB was the first international conference that I've attended and, while I was mostly oscillating between awe and anxiety for much of the week, I was above all excited for the chance to connect with some incredible researchers and to share my work with the community. I also ran a pre-congress forum and was a part of the ICCB Language Accessibility subcommittee – opportunities that gave me an even deeper appreciation for the collaborative and inclusive spirit of conservation."

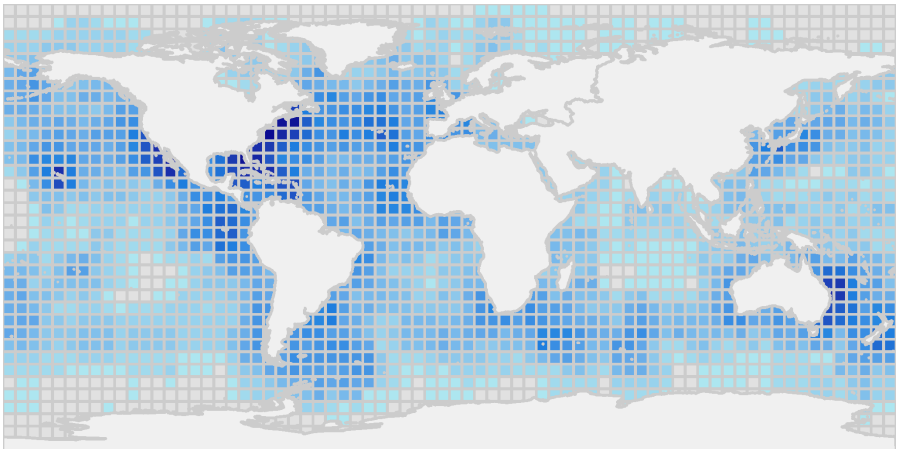


Top: Angela accepting her award at ICCB 2025. Image credit: Harris Heng.
Bottom: Angela's award-winning presentation. Image credit: Harris Heng

Global marine migration database highlights critical conservation connections for over 100 species

Samantha Wong-Topp
CBCS PhD candidate

Postdoctoral researcher **Dr Lily Bentley** has led a landmark **study** published in *Nature Communications* that maps the global migratory routes of marine megafauna – including whales, sharks and sea turtles. By synthesising data from 1304 sources, the team identified 1787 key sites used by 109 migratory species.



These findings form part of the Migratory Connectivity in the Ocean (MiCO) database, a freely accessible global tool designed to help researchers and policy-makers understand how marine migrants move and how to better protect them. This system, led by CBCS Director and senior author on the paper, Associate Professor Daniel Dunn, represents many years of work from researchers across Duke University, UQ, and over 50 consortium members who contributed their time and data.

"This paper shows us, for the first time, a summary of the published knowledge on marine migratory connectivity for over 100 species", Lily says. "There's so much more to know, and gaps of many kinds, but it's incredible to see how extensive even the minimum number of connections drawn by these remarkable migrants as they link almost all regions of the globe."

Lily told UQ News that the MiCO database highlights the urgent need for international cooperation. "To protect these species effectively, nations must work together", she said.

While this work represents a major step forward, researchers note that more than two-thirds of marine migratory species remain unassessed. Future expansions of the MiCO database are already planned to close these gaps and build a more complete picture of ocean connectivity.

Top: Atlantic-centric | Pacific-centric. Concentration of species whose area use overlaps at a 5-degree resolution. Development of MiCO was supported by the Global Ocean Biodiversity Initiative (GOBI) under a grant from the International Climate Initiative (IKI).
Image credit: **mico.eco/system**

Below: Breaching humpback whale. Image credit: Adobestock

Taking coding to the next level: CBCS Winter R Workshops

Tin Buenafe
CBCS PhD candidate

Who knew that so many people would be keen to learn more about data science?

After 14 years of running successful Summer R Workshops focused on introductory coding in R and statistical skills, the CBCS R Workshops team has launched something new this year: the Winter R Workshops. This successful series – seeing over 100 participants from academia, government and industry – focused on how data science skills can be leveraged to produce more efficient and tidier workflows in R. Apart from data wrangling, the instructors delved into the world of visualisation and interactive mapping, teaching participants to wrangle, visualise and map different types of data. The teachers also demonstrated different ways of communicating and sharing your workflows and code through building R packages and developing user-friendly R Shiny Apps.

The teaching team comprises CBCSers Professor Anthony Richardson and Dr Jason Everett, Professor David Schoeman from the University of Sunshine Coast, and Dr Nicholas Clark from the School of Veterinary Sciences at The University of Queensland. Senior Scientist Claire Davies from CSIRO was also critical to helping the teaching team throughout the week and was especially pivotal in co-teaching how to develop interactive R Shiny Apps with Dr Jason Everett.

"These R workshops are led by a team with strong experience teaching in person and using R in real-world projects", Dr Nicholas Clark says. "We teach in a way that feels clear and practical because we've learned by doing. We continue to learn from each other and from everyone who joins the team. I feel lucky to be part of this team and I'm very excited for what's ahead."

An exciting challenge for the teaching team

Navigating this new R Workshops series was challenging yet fun for the teaching team. "Teaching new material means taking workflows that I would usually deploy in the solitude of my office and packing them up in a way that I think is accessible to R users of different levels of experience", Professor David Schoeman shares. "This is a bit of a trial-and-error process but working in such a strong team meant that we were mostly successful."

With the workshops taught by self-taught programmers, the participants were exposed to practical and useful tips from the teaching team. "I think that these workshops are unique in that they are produced by self-taught coders. We learned R the hard way, and our aim is to make that process a little easier for others by guiding them around the obstacles and rabbit holes we encountered", David says. Jason shares how these workshops might be different from course material you can easily find on the internet. "I loved contributing to these workshops because they really encapsulated what I do day-to-day. While there's a lot of knowledge available online these days, it's always tough distilling what might be important for your own workflow. These workshops provide a great opportunity for me to pass on what I've learnt, hopefully making things easier for the participants", Jason says.

The response from the participants was overwhelmingly positive, with 97% saying they would recommend the workshops to colleagues and friends, and 96% rating the course materials and notes as excellent. An anonymous participant shared, "As a manager at an environmental NGO, I haven't had many chances to use the technical skills I developed during my academic years. This week-long R training in data crunching, visual storytelling, spatial R and Shiny apps helped me reconnect with those skills. It gave me a solid refresher and boosted my confidence to take on more technical and data-focused tasks again".

More workshops in 2026

"We have learnt a lot building and delivering the 2025 Winter R Workshops. We will use this experience to make 2026 even more successful", Jason says.

2025 had a lot of firsts for the R Workshops team, welcoming Dr Nicholas Clark to the team and piloting the first of many Winter R Workshops series. The teaching team will be back in 2026 to deliver these R workshops series, including a new practical conservation planning workshop in R.

"Whether you're looking to refresh your skills or take them to the next level, our R Workshops are here to support your R journey," Anthony says.

Visit the official R Workshops website to learn more about what new things are in store for 2026!

The teaching team. Left to right: Dr Jason Everett, Professor David Schoeman, Dr Nicholas Clark, Professor Anthony Richardson.
Image credit: Samantha Wong-Topp

A low-shade cocoa farm in Ghana, where only a few scattered shade trees remain. Such farms dominate West Africa's cocoa landscape. Image credit: Wilma Hart

Dr Wilma Blaser Hart leads agroforestry project in Ghana's cocoa-farming regions

Samantha Wong-Topp
CBCS PhD candidate

Dr Wilma J. Blaser Hart's research tackles some of the world's most pressing challenges: how to feed the global population, adapt to and mitigate climate change, and conserve biodiversity. Her work quantifies the trade-offs between agricultural production, climate change and biodiversity in tropical agricultural landscapes, with a major focus on agroforestry — the strategic integration of trees into cultivated lands. While Wilma notes that agroforestry isn't a one-size-fits-all solution, her research shows that when informed by quantitative analysis, it can improve biodiversity and climate outcomes without compromising agricultural productivity.

From national parks to cocoa farms

Reflecting on her path into this area of research, Wilma explains that it was both unexpected and deliberate. "My move towards agroforestry was a little bit random, but I think in a way also

Image credit: The University of Queensland

a conscious decision because working just in the national park sometimes was a bit frustrating. You just say protect everything that's in there, but you don't really work with the people around it. And so moving towards agriculture and helping to make that more sustainable was nice. It felt more like I'm actually working with the people, trying to help create solutions, rather just saying stay away."

This focus on working directly with communities eventually led Wilma to cocoa farming systems, a sector she describes as rich with complexity and opportunity. "[Cocoa] is a really nice topic because so many problems come together. There are huge socioeconomic challenges, and then there's also huge environmental challenges", she says. "And I love chocolate – but I'm not the only one! So it's a really nice topic to work on. It is easy to talk to people about it because everyone wants their chocolate to be guilt-free!"

Rethinking shade-tree cover in cocoa landscapes

In her research, Wilma has often focused on how cocoa farmers' yields interact with ecosystem services such as biodiversity and carbon storage. While shade trees can enhance these services, they also compete with cocoa for light, water, and nutrients — raising concerns that increasing tree cover could reduce yields. But Wilma has found that modest integration of trees into cocoa farms – up to around 30–40% canopy cover – can deliver substantial environmental benefits without immediate losses in productivity. Her work shows that well-designed agroforestry systems

"Agroforestry isnt a one-size-fits-all solution – but when done right, it can benefit biodiversity, climate and cocoa yields."

can avoid trade-offs, creating crucial "room to move" for both farmers and the cocoa industry: it's not an all-or-nothing choice between yields and sustainability.

Building on her previous work, Wilma is now leading an ambitious agroforestry project in Ghana, focused on improving conservation outcomes within cocoa-growing landscapes. Her earlier work revealed that, contrary to some expectations, shade cover across cocoa farms is extremely low. "Average shade cover is 13% based on maps that we created, so I think for a long time people were saying, 'Oh, we don't have agroforestry systems here, but in the east you'll still find them' and we thought it'd be nice to just have a map of all cocoa growing areas to really see how much shade is there and to guide promotion of agroforest in the regions where we need more shade." These maps have just been published in *Nature Sustainability*, providing the first high-resolution baseline of shade-tree cover across West Africa's cocoa belt and a powerful tool for guiding restoration efforts.

Mapping cocoa's conservation potential

The ultimate goal of Wilma's current project is to create maps that identify high-priority areas for conservation interventions like agroforestry. "There's huge tree-planting projects going on in West Africa through the Cocoa and Forest Initiative – around 33 million trees were planted between 2018 and 2022 – and they're still planting more. But that only covers about 8% of the cocoa-growing area. So, if we could tell them where planting would have the greatest conservation benefit, we can help focus future interventions," she explains.

To support this, Wilma and her team are investigating the distribution of animals, such as birds and mammals, to understand how these overlap with cocoa-growing areas and remaining forests. "We need to know how different birds respond to having more trees in the landscape: which ones can actually benefit from agroforestry, and which ones can only occur in intact forests. That helps us parameterise our model to work out which species will benefit, which won't, and where we should actually plant trees", she says.

The project is a team effort, drawing on diverse expertise, Wilma highlights. "Our PhD student Hannah Rigney is covering plant diversity, mostly trees. Robert Otten-Appau, a Ghanaian ornithologist is surveying birds, and we also have an Honours student, Charlotte Jenkins, who is focusing on mammals. All of them are co-supervised by researchers from CBCS, and we are hoping to compare how different taxonomic groups – birds, mammals, and trees – respond to different drivers of diversity."

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Top: A shaded cocoa farm. Though uncommon across much of West Africa, cocoa agroforestry systems offer significant unrealised potential for climate change mitigation and biodiversity conservation if implemented at scale. Image credit: Wilma Hart

Left: Cocoa pods are harvested and opened to extract the seeds used to make chocolate. Image credit: Wilma Hart

CBCS HDR RQ2 Pizza Night

Harrah Friedlander
CBCS PhD candidate
HDR Representative – Advancement and Community

On Friday 4 July, we had our quarterly HDR pizza night at Saint Lucy's Caffe e Cucina to celebrate the end of another fantastic research quarter. We saw a great turn out. Honours students, HDRs based in Brisbane and from as far away as Palau, and partners of students came together to talk research, pizza, conference experiences, and just relax after a wild few weeks that included the end of the academic semester and ICCB.

PhD candidate Justine Ohlrich summed up the evening perfectly: "CBCS events are always lovely! Research can be incredibly isolating at times, making it crucial to socialise and commiserate with other HDR students going through the same thing. Plus, the delicious pizza seals the deal." This sentiment was echoed by HDR Representative Shu Chen, "HDR nights are always a highlight! PhD can be a lonely journey, but connecting with peers reminds you that you're not facing the challenges alone. It's not just about project chats – it's the shared laughs and mutual support that really keep you going".

For newer CBCS students, these evenings can also be an opportunity to learn about other chances to meet and talk to members of CBCS (Tuesday teas and seminars, Tuesday drinks). It was a fun end to the week, and an opportunity to toast the end of one research quarter and the beginning of another! As an HDR representative for CBCS, I love the opportunity to work with my fellow reps to create these chances for people to, as PhD student Zoë Lieb says, "see our HDR friends, relax a bit, and reflect on the semester – plus, pizza is a super food, right?"

Shu, Maddi and I are very excited for our upcoming writing retreat for members of CBCS and UQ's Centre for Marine Science at O'Reilly's Rainforest Retreat, where we can continue to build community, this time in the middle of Lamington National Forest.

Top: Left side of table, front to back: Lana Waller, Samuel Ho, Greta Sartori, Rinaldi Gotama, Hanna Sakaki, Conrad Pratt, Justine Ohlrich. Right side front to back: Joanna Smart, Raja Ram Aryal, Sharad Bayyana, Jordan Drochmann. Image credit: Harrah Friedlander

Left to right: Jonathan Mills-Anderson, Tom Stuart (doing a Masters in neuroscience but interested in CBCS), Yi Fei Chung, Ben Lucas, Nga Yee Lai, Lena van Swinderen, Shu Chen, Harrah Friedlander. Image credit: Harrah Friedlander (with thanks to the Saint Lucy's staff)

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PROFILE

An amphibious and fishy path

Samuel Ho
CBCS Honours graduate

"What is zoology?
You want to work in a zoo?"

That's what people asked – often with genuine confusion – when I told them I wanted to study zoology. Like many kids in Hong Kong, where I am from, I was expected to pursue something stable for my career: global business, medicine, law. I kept my passion quietly on the side, and picked up wildlife photography, but convinced myself to follow a "safe" path, anything but muddy boots and field surveys.

Everything changed the summer I was selected from thousands of applicants for a sponsored field trip to Madagascar. Wandering through rainforest streams alongside ecologists and researchers, I witnessed conservation in action. I remember vividly on a 3am trek back to our lodge, I was exhausted yet exhilarated after spotting a few Madagascar bright-eyed frogs. In that moment, I knew I was willing to forgo the "stable" careers everyone expected and to pursue science. After graduating high school, I enrolled at The University of Queensland studying ecology and zoology.

The time I went undercover

During my undergraduate years, I threw myself into doing research projects. I initiated a project to investigate the highly unregulated wildlife trade market in Hong Kong – the ornamental freshwater fish trade. To do that, I literally went undercover. I visited pet shops rocking a cap, mask and a hidden microphone tucked beneath my mask to furtively record every species and price that were publicly available for consumers. It was conveniently during the COVID-19 pandemic, and I looked just like a normal citizen shopping for fish. I felt like a spy working for science, for the greater good. With the support of more researchers, this project revealed that we are exploiting a large number of freshwater fish species, many of which have unknown taxonomic or conservation status. The findings were presented at ICCB 2025 and are leading to a forthcoming publication.

My first trophy

During my Honours year in 2024, I investigated the diversity and distribution of amphibians and freshwater fishes on all Australian islands. My thesis topped my cohort and resulted in a publication in the journal *Diversity and Distributions*. All this wouldn't have been possible without my supervisors and collaborators including Professor Salit Kark, Dr Simon Hart, Dr Peter Baxter, Michael Hammer and Peter Unmack.

Interests and other shenanigans

My broad interest lies in conservation biology, often focused on but not limited to freshwater systems and herpetofauna. This ranges from protecting their habitats to preventing their exploitation and endangerment. Freshwater habitats are incredibly biodiverse but often overlooked in conservation biology. In a way, I think I'm drawn to them partly for that reason. Now working as a research assistant for TERN, I hope to pursue a PhD to widen my skillsets to better contribute to conservation.

> *"Freshwater habitats are incredibly biodiverse but often overlooked in conservation biology"*

Outside of research, you'll still find me out in the field, sometimes with a camera in hand. Don't be surprised if you see me climbing a waterfall with a snorkel mask, tracking down fishes, amphibians, reptiles and many other "uncharismatic" species. I've spent more time than I'd care to admit staring at the bottom of streams, waiting for the perfect shot of a goby fish. Whether I'm diving into a dataset or into a creek, my motivation is the same: to make meaningful impact in conservation, not just for us or future generations, but for the intrinsic beauty of these ecosystems.

From top to bottom: Bright-eyed frog (*Boophis* sp.) photographed in Andasibe-Mantadia National Park, Madagascar. Image credit: Samuel Ho

A stand-off with a Chinese cobra (*Naja atra*) in Pok Fu Lam, Hong Kong. Image credit: Jeffery Chan

One example of the fish I have shot in their habitat is the Vulnerable ornate rainbowfish (*Rhadinocentrus ornatus*) Image credit: Samuel Ho

Me and my waterproof camera to photograph native freshwater species in their natural habitat. Image credit: Lamuel Chung

CBCS-funded "Beyond Academia" workshop provides students and researchers with alternative career path insights

Samantha Wong-Topp
CBCS PhD candidate

Dr Tina Skinner
CBCS Research Fellow

Dr Tania Kemyon
CBCS Research Fellow

UQ researchers Dr Tina Skinner and Dr Tania Kenyon recently hosted a CBCS-funded Beyond Academia workshop to help ecology and conservation HDRs and ECRs explore career paths beyond academia.

"Our goal with the 'Beyond Academia' workshop was to support HDRs and ECRs in ecology and conservation who are exploring career opportunities outside academia", Tina says. "With fewer academic positions available and many PhD graduates pursuing alternative paths (fewer than 0.5% of PhD graduates in Australia ultimately become professors!), we recognised a need for targeted guidance and resources in navigating this transition."

Held at the UQ Brisbane City Campus, the Beyond Academia workshop attracted 35 enthusiastic attendees, and was a resounding success. "The energy throughout the afternoon was fantastic!" Tina says. "Each session was practical and relatable, with real stories from people who had made the leap from academia to other sectors."

The workshop aimed to equip participants with practical tools and insights, focusing on four key goals:

1) demystify non-academic career pathways in ecology and conservation (unlike in other sectors, it's often hard to identify a direct link with non-academic roles)

2) provide practical tools for tailoring academic CVs for non-academic roles

3) facilitate networking with professionals from government, industry, NGOs and national science agencies

4) highlight the transferable skills valued outside academia.

What sessions did you have at the workshop?

- ***Session 1:*** Magdalena Wong, from UQ Employability, ran a workshop on how to "un-academify" your CV, which was a highlight. Many participants said it was the first time that they truly understood how to frame their experience for jobs beyond research, with others commenting that they could have listened to her insights all day.
- ***Session 2:*** Dr Laura Puk from WWF Germany Zoomed in at 5am her time to share her career journey. Her openness and advice were incredibly appreciated by attendees.
- ***Session 3:*** The final panel discussion brought together an all-star lineup of female leaders across consulting (BMT), government (DETSI), CSIRO and the not-for-profit sector (GBRF). Their insights into hiring practices, transferable skills, and personal career journeys were both practical and inspiring. We left the session feeling energised and optimistic about future career possibilities – all perfectly capped off by a relaxed networking drinks session on the Naldham House Terrace.

What are some key takeaways from the event for those who couldn't attend?

1) *Tailor your CV* – Cut down on academic detail and focus on relevant skills and achievements.

2) *Highlight transferable skills* – Project management, communication, data analysis, stakeholder engagement – we forget how many important skills we have developed throughout our PhDs.

3) *Know your audience* – Think like an employer outside academia: What problems do they need solved?

4) *Start networking early* – Informational interviews and LinkedIn connections can open unexpected doors.

5) *There is no "one path"* – Many speakers had non-linear career journeys, which is ok! Stepping outside academia also doesn't mean closing the door; you can still collaborate across sectors or return when the time is right.

Careers panel discussion featuring experts from consulting, government, the not-for-profit sector and national science agencies, offering diverse perspectives on career pathways. Image credit: Tania Kenyon

Selby Fellow visit from the NCEAS

Professor Ben Halpern, Director of the National Center for Ecological Analysis and Synthesis (NCEAS), visited CBCS as part of his 2024 Selby Fellowship.

The Australian Academy of Science's Selby Fellowship is awarded to two distinguished overseas scientists to visit Australia for seminar tours. CBCS and the School of the Environment jointly hosted Ben's seminar "The promise and peril of the Blue Economy".

In addition, CBCS hosted a one-day workshop with Ben on synthesising marine ecology and human impact data. The workshop focused on both past and future collaborations between Ben's research group and CBCS researchers.

View Ben's seminar here.

Top to bottom: Professor Ben Halpern delivering his seminar "The promise and the peril of the Blue Economy". Image credit: Carissa Klein

Ben's workshop for CBCS. Image credit: Carissa Klein.

About CBCS

The Centre for Biodiversity and Conservation Science (CBCS) is a world-leading solution-oriented research centre for biodiversity conservation.

Based at The University of Queensland (UQ) in Brisbane, Australia, CBCS works in partnership with scientists, governments, non-governmental organisations and industry to help solve the most important conservation problems around the world.

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