

CBCS NEWS

A quarterly newsletter
Issue 13 — Autumn 2023



Uncle Norm from the Minjerribah Moorgumpin Elders-in-Council speaking to the significance of cultural sites as part of the neembēba binung gana full-day training completed by the UQ Marine and Conservation academic and professional staff and students.

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.

cbcs.centre.uq.edu.au

CBCS On Country in Tjerrangerri

CBCSers recently took part in cultural learning activities on Quandamooka Country.

On 5 December 2022, the Sustainable Urban Seascapes Moreton Bay (SUSMB) Team as well as staff and students from the UQ Moreton Bay Research Station participated in On Country Cultural Awareness and Competency Training. SUSMB is a UQ strategic research investment led by Associate Professor Carissa Klein and Professor John Pandolfini.

The cultural awareness and education program was led by the Minjerribah Moorgumpin Elders-in-Council (MMEIC) to neembēba binung gana (see, listen, understand) and develop competencies in traditional ways of life and learn about the impacts of historical events on Tjerrangerri (Minjerribah/North Stradbroke Island). The neembēba binung gana full-day training included an Elder's Welcome to Country; viewing the Elders museum and history boards; a smoking ceremony; songs and dances; a guided tour of the Terra Bulla Bush Tucker Trail; and guided visit to Terra

Bulla (Myora Mission), Bummiera (Brown Lake) and Moolomba (Point Lookout).

A delicious gourmet bush tucker lunch was provided by the MMEIC with an assortment of traditional and local dishes. The afternoon included a Yarning Circle which enabled UQ scientists to ask the MMEIC Elders questions about traditional ways of life and the ongoing impacts of colonisation to the community. The Yarning Circle also enabled conversations about how we can better work together to support community priorities and uphold First Nations rights across Quandamooka Country.



All the participants of the On Country Cultural Awareness & Competency Training, following a beautiful smoking ceremony presented by the MMEIC.

PHOTO: KATE ADAMS, MINJERRIBAH MOORGUMPIN (ELDERS-IN-COUNCIL) ABORIGINAL CORPORATION

SUSMB Research Showcase

The SUSMB Team hosted a UQ Research Showcase at the UQ Moreton Bay Research Station on 6 December to highlight the research from the SUSMB programs and identify future research priorities and projects. The day was facilitated by Quandamooka woman Tegan Burns, and enabled conversations and discussions between UQ researchers, Elders from the MMEIC, community members and industry partners. Uncle Norm from MMEIC started the UQ Research Showcase in positive way with a Welcome to Country. This was followed by the SUSMB researcher presentations which highlighted the major findings from the past 18 months; these included presentations by Ilha Byrne, **Bridie Crowe**, a UQ student, and early career researchers Gal Eyal and Nathaniel Deering.

Bridie presented the findings of Mapping Social Values of Moreton Bay, an interdisciplinary research project to understand how recreational boaters use and value Moreton Bay. Dr Eyal presented a snapshot of the photogrammetry work his team has been conducting to capture the distribution and seasonal changes in coral communities in the region. Ilha complemented this work by presenting an overview of the environmental DNA biomonitoring project that has been conducted alongside the photogrammetry work.



Research assistant Ilha Byrne presented an overview of the e-DNA biomonitoring project conducted as part of the SUSMB project to stakeholders and Traditional Owners.

Dr Deering finished the talks by showcasing an incredible dataset on the water quality of region obtained from thousands of sediment samples.

Speed talks and a poster session allowed for more networking and conversation surrounding the ongoing work across Moreton Bay. A Yarning Circle was led by Tegan Burns which allowed for insightful conversation centred around the topics of 1) working and engaging with indigenous groups; 2) research priorities for Quandamooka Country; and 3) future collaborations and opportunities for funding.

Main image: Uncle Norm from the Minjerribah Moorgumpin Elders-in-Council brought the UQ SUSMB Team to see a traditional rock fish trap at low tide.



PROFILE

Dr Natalie Jones

Research Fellow and Lecturer, School of Earth and Environmental Sciences

PHOTO: ROBERT COB-CROFT

Bringing diversity to decision-making

My research combines my love for the natural world and fascination with human diversity. I describe myself as an applied social scientist interested in human-environment interactions. As a kid, my weekends were typically spent outdoors, often exploring bushland around our family home south of Brisbane. This was my happy place where I felt alive, free and full of wonder.

Unfortunately, as an eight-year-old I experienced the strong emotion of what it feels like when a place that is special to you is lost or destroyed, particularly a natural place. I remember setting out on our adventure one morning only to find our world had come crashing down, literally. A large swathe of bushland had been flattened. The big, beautiful eucalypts, and everything in between, had been knocked over and pushed into huge bundles that separated the remaining bush and the new clearing – a divide which my eight-year-old self struggled to reconcile. “Why on Earth would someone do such a thing?” I remember how shocked I felt at how quickly things can change: one week a woodland brimming with life, the next cut to the ground.

In the months that followed, more and more areas were cleared to make way for a new housing estate. The bush bike tracks

that once carried my brother and me further from home and closer to nature had become smooth bitumen roads. The tall native grasses that brushed our legs with early morning dew were replaced with orderly lawns. Our temporary cubbies were now three-bedroom brick veneers, and the strong, proud eucalypts that were at the heart of our magical place were pushed into the background.

A profound early lesson

Over the years, I watched families move into the new development and the community thrive. I now realise that was my first lesson in what it means to make trade-offs in environmental management. Decisions that determine how the environment is used and managed typically lead to both benefits and losses. This experience of witnessing the power of humans to transform landscapes so

rapidly, and observing how these changes affect people and nature had a profound impact in shaping my research interests in environmental management.

Another significant influence was the time I spent travelling overseas in my early 20s. As soon as I finished high school, I was itching to leave suburbia and explore the wider world. I saved enough money for a round-the-world plane ticket and enough cash to explore Asia for a few months, before travelling to London to take up a working holiday visa. Visiting countries spanning three continents, I became fascinated by the similarities and differences in the way people live and give meaning to their world. “Same, same but different” was a phrase I heard early on in my travels, and pretty much summed up my interpretation of the cultures I encountered as a young 20-something.

On returning to Australia, I continued to feed this curiosity by studying a Bachelor of Arts (double major in Anthropology) at The University of Queensland. This course taught me both the value of finding common ground in our shared human experience, as well as the importance and beauty of engaging with diversity.

Places of wonder

I was fortunate during my undergraduate years to get the opportunity join a research team doing archaeological fieldwork with Traditional Owners in northern Queensland to locate and document rock art. We camped in the bush, stayed on a cattle station and visited a fishing shack only accessible by boat. Our aim was to rediscover rock art that had been lost over the years. This was truly one of the most memorable times of my life. The people I met and the places we went were just incredible.



PHOTO: NATALIE JONES

A coconut-based agroforestry system in Fiji.

I then went on to enrol in a Master of Applied Anthropology and Participatory Development degree at the Australian National University (ANU), where I gained the “know-how” to apply anthropological concepts and modes of inquiry to solve real-world problems. This led to a six-month stint volunteering for an NGO on the Tibetan Plateau, working with nomadic yak-herding communities on livelihood and environmental issues – another experience I am hugely grateful for.

My first research position was at the ANU immediately following my trip to Tibet. I worked with an international team of multi-disciplinary researchers from CIRAD (the French Agricultural Research Centre for International Development) and other research institutions to advance knowledge and practice of participatory modelling, focusing on an approach known as Companion Modelling. This approach combines computer simulation with role-playing games in a participatory research setting. It is used to establish common ground among diverse stakeholders and support them in engaging in collective decision-making by exploring similarities



Diverse fruits and vegetables sold at local food markets in Fiji.

and differences in knowledge and understanding. Through this work I gained a deep appreciation for the importance of bringing diverse voices to the decision-making table and creating a space for constructive dialogue; a space for trade-offs to be negotiated and new knowledge created.



Small farms deliver a range of social and ecological benefits. Corn is an important cash crop for improving rural livelihoods in Laos.

Ensuring global food security presents one of humanity’s greatest challenges.

Purpose in challenging times

This research led me to undertake a PhD at UQ on mental models which represent people’s cognitive understanding of how an environmental system works. My interest in cognitive constructs continued through my postdoctoral research, where I studied values which represent what is important and meaningful to people, and are also highly influential in environmental decision-making. This research focused on identifying the diverse ways in which people value waterways in south-east Queensland, including both freshwater and marine ecosystems.

Most recently, my research has turned towards exploring social dimensions of agriculture, particularly the drivers, barriers and opportunities for transitioning towards more environmentally and socially sustainable food production systems. Ensuring global food security presents one of humanity’s greatest challenges. The stakes are high for both people and the environment, and the trade-offs are highly complex and uncertain. As I think about my career moving forward, it is important that my research has an applied purpose and contributes to navigating our way through the climate crisis, particularly in reversing trends that are having devastating effects on our planet, including biodiversity loss and unsustainable land use. Finding solutions to these issues, and future food security more broadly, will depend on interdisciplinary approaches and cross-sector collaborations. This is the space where I find myself full of wonder today.



Engaging with smallholder farmers throughout the world will play a key role in ensuring future food security.



Phaius australis orchid.



Spectacled flying-foxes.

The state of play: Australia's Threatened Species Index for 2022

Dr Geoff Heard and Tayla Lawrie, Terrestrial Ecosystem Research Network

The 2022 release of Australia's Threatened Species Index brings good news and not so good news. Which would you like first?

It's always a conundrum when someone asks you this. Do you seek the soothing news first and hope it softens the landing? Or do you take the jolt first, wagering that the good news will put you back on an even keel?

Go ahead – take your time to mull it over. While you do, we'll take a step back and first explain exactly what the Threatened Species Index is.

The TSX: A short history

The Threatened Species Index – or TSX for short – seeks to provide reliable and robust measures of change in the relative abundance of Australia's threatened and near-threatened species. The TSX is based at the Terrestrial Ecosystem Research Network (TERN) at The University of Queensland (UQ), and was a key output of the UQ node of the former NESP Threatened Species Recovery Hub. It is the brainchild of **Professor Hugh Possingham** and was created through the super-human efforts of former CBCS research fellows Dr Elisa Bayraktarov, Dr Ayesha Tulloch and Dr Micha Jackson, in collaboration with the team at Birdlife Australia.

Today, the index compiles over 19,000 monitoring datasets for threatened and near-threatened birds, mammals and plants, and uses these data to estimate abundance trends using the *Living Planet Index* method.

The TSX is now a key metric for understanding the status of Australia's biodiversity, being integrated into the *State of the Environment* report for the first time in 2021 and used by the Australian Government as a report card for its threatened species investments. The index was created with the support of the Australian Government and continues to be part-funded by the Department of Climate Change, Energy, the Environment and Water.

The TSX has had three previous releases, in 2018 (starting life as the Threatened Bird Index), 2019 (with the integration of the Threatened Mammal Index) and 2020 (when the Threatened Plant Index was compiled). Our latest release – which took place in December 2022 – consolidated the index after its migration to TERN and added significant new data (more on that below).

OK, had enough time to ponder your choices? We'll assume you have, and that you've gone with the default option when the news is mixed – taking the not so good news first.

The not so good news

The concerning news from this year's release is that our threatened and near-threatened species continue to decline in abundance, with an average across species from 1985 to 2019 of 55% (Figure 1). For birds, the average decline stands at 48% (across 70 species), with the average for mammals being 19% (across 79 species). Plants are the stand-out, but for the wrong reason – the overall estimate of decline being 77% across the 129 species for

which the TSX has data. On average then, the abundance of Australia's threatened and near-threatened plants is estimated to have reduced by over three-quarters since 1985: a statistic that should be of great concern.

Data in the TSX also allow for interrogation of how species groups within the major taxon groups are tracking. Greatest declines were observed among herbaceous plants (84% since 2000), small mammals <50 g body weight (84%) and orchids (81%), with significant declines for terrestrial birds (66%) and shrubs (63%).

What of Australia's national priority species? The TSX holds time-series data for 30 of the 110 national priority species under the Australian Government's Threatened Species Strategy, including 9 birds, 11 mammals and 10 plants (total time-series = 1,927). On average, the abundance of these species has declined by 77% since 1990. Declines were relatively steep after 1998, with some stabilisation since 2004 (Figure 2).

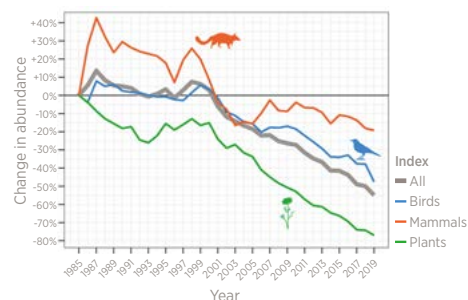


Figure 1. The Threatened Species Index 2022, showing trends up to 2019 across all species and separately for birds, mammals and plants.

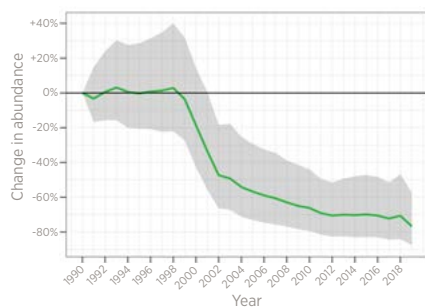


Figure 2. The trend for national priority species between 1990 and 2019. The grey shading is a 95% confidence interval.

The good news

Having now dealt with the uncomfortable news, let's turn our attention to the good tidings flowing from the latest TSX release. The first is that the monitoring data included in the index continues to grow, thanks to the goodwill of ecologists, NGOs, conservation managers, recovery teams and citizen scientists from across the county. The index now covers 278 species, with 24 new species added in 2022. What's more, 625 new time-series were added for this release, taking the total tally to 19,893. While there are various gaps in the TSX dataset – taxonomic, spatial and temporal – the dataset continues to build, meaning our confidence in the resulting trends can too.

The second piece of good news is that some species and groups of species are stabilising, showing signs of recovery or increasing. For example, critical weight range mammals (those with a body weight of between 50 and 5000g, which are particularly susceptible to feral predators) have stabilised, linked to the significant investment in recovering these species (Figure 3). Likewise, essentially all of the 13 large mammals for which the TSX has data are increasing in abundance (Figure 3).

The third piece of good news is that management data which the TSX holds provide evidence that when we invest in conservation we can slow declines and, in some cases, achieve rapid recovery. Compare mammals at actively managed

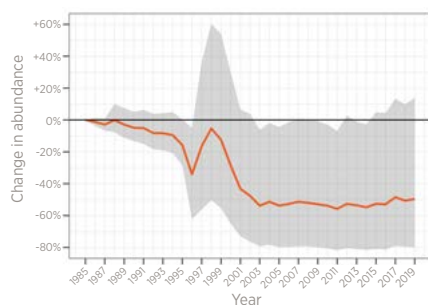
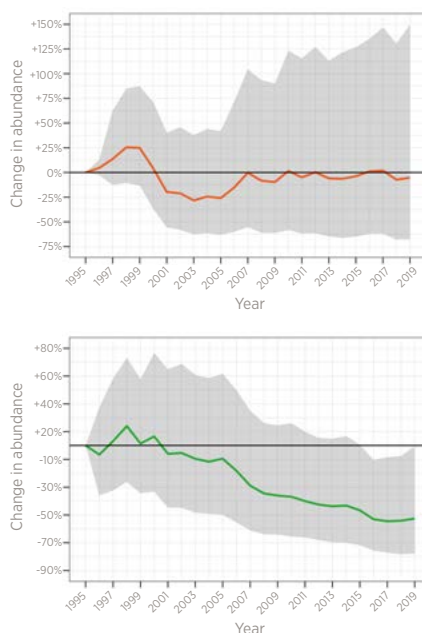


PHOTO: NICOLAS RAKOTOPARE

Actively managed



No known management

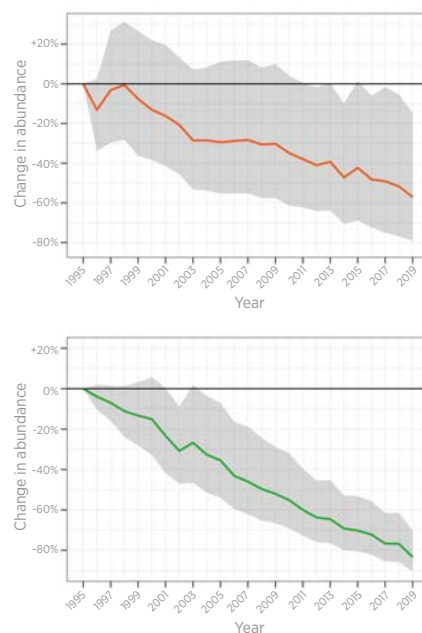


Figure 4. Trends for mammals (top row) and plants (bottom row) between 1995 and 2019 at sites that are either actively managed or at which there is no known management. The grey shading is the 95% confidence interval.

sites to those with no known management (Figure 4). At actively managed sites, mammals are stable on average, with some populations having significantly higher abundance than in 1995 (as indicated by the upper confidence limits on Figure 4, top right). For plants, populations at actively managed sites have declined less and much more slowly than at sites with no known management (Figure 4, bottom row).

Over to you

As you can see, the TSX is much more than just an overarching statistic on how our threatened and near-threatened species are tracking. It contains a wealth of information, of which we have given you just a snippet here. To investigate further, head to the TSX Visualiser Tool at www.tsx.org.au/tsx2022. You can discover trends for your favourite species group, examine how trends differ between different states and territories, and compare the trends with different baseline years (among numerous other ways you can cut the data).

We'll leave you with just one request. If you have data that you think could be of use for the TSX, please reach out at tsx@tern.org.au. You can find out more about what kinds of data the TSX can accept here: www.tsx.org.au/growing-the-index/contributing-data/. We are always on the hunt for new data and the opportunity it provides to strengthen the index.

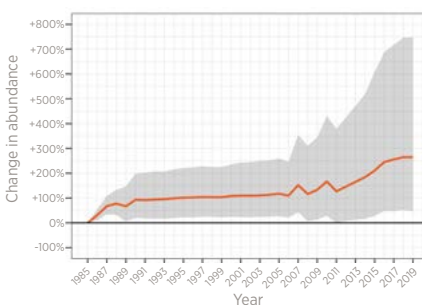


Figure 3. Trends for critical weight range (left) and large mammals (right) between 1985 and 2019. The grey shading is the 95% confidence interval.

OUT NOW

TRANSFORMING CONSERVATION A PRACTICAL GUIDE TO EVIDENCE AND DECISION MAKING

William J. Sutherland (ed.)

FREE TO READ AND DOWNLOAD AT
[DOI.ORG/10.11647/OBP.0321](https://doi.org/10.11647/obp.0321)



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Editor Professor Bill Sutherland.

CBCS Chief Investigator Dr Tatsuya Amano has contributed to a new open access book. *Transforming conservation: a practical guide to evidence and decision making* is edited by Professor William Sutherland at the University of Cambridge, and authored by 76 experts from around the world.

The overarching aim of the book is to facilitate the use of scientific evidence in biodiversity conservation and, more broadly, in any decision-making processes. The book covers a variety of important topics on the use of scientific evidence and will be of great use to a wide range of groups, such as practitioners, knowledge

brokers, organisations, policy-makers, funders, researchers, journal publishers, educators, writers and journalists. For example, Chapter 2 (Gathering and assessing pieces of evidence), Chapter 3 (Assessing collated and synthesised evidence), and Chapter 4 (Presenting conclusions from assessed evidence) detail how scientific evidence is identified, assessed, combined, and communicated.

Chapter 5 (Improving the reliability of judgements) reviews effective methods when asking experts to make judgements. Chapter 8 (Making decisions for policy and practice) and Chapter 9 (Creating evidence-based policy and practice) introduce structured processes for making decisions that incorporate evidence. Finally, Chapter 12 (Transforming practice: checklists for delivering change) provides

a series of downloadable checklists, with the aim of facilitating a cultural change across society and delivering a revolution in evidence use.

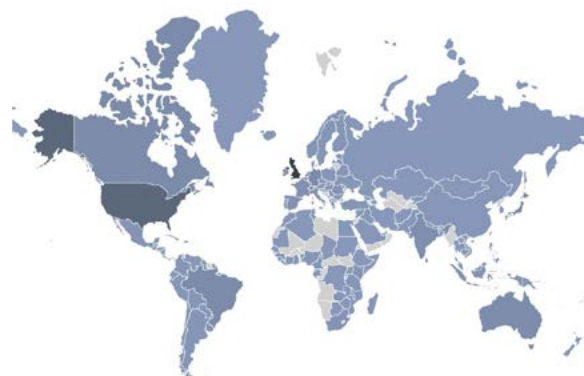
Tatsuya contributed to three chapters of the book – chapters 2, 4 and 12. In particular, Chapter 2 includes a section (2.5.5 Global evidence in multiple languages) on the importance of non-English-language evidence, which is based on the findings of the [translatE](#) project. (See, for more on this project, the story on page 21).

All contents of the book are open access and freely available at: <https://www.openbookpublishers.com/books/10.11647/obp.0321>.

The book has already been read widely, with a total of over 6,900 downloads from around the world since its launch in December 2022.

Other resources associated with the book are its [blog](#) and this [video](#) by Professor Sutherland.

 *We believe the processes outlined will deliver a better planet.*



Geographical distribution of book downloads.

How the new Australasian Mammal Taxonomy Consortium is contributing to conservation



PHOTOS: ANDREW BAKER

Pictured are two species of marsupials described in 2013: the nationally Endangered carnivorous marsupials the silver-headed antechinus *Antechinus argentus* (left) and black-tailed dusky antechinus *A. arktos* (right). Diana Fisher, QUT researcher Andrew Baker and QUT PhD student Stephane Batista are searching for new populations and working to protect these species in collaboration with Queensland Department of Environment and Science Principal Conservation Officer Ian Gynther, the New South Wales Department of Planning and Environment, Canines for Wildlife and Gidarjil Indigenous Rangers.

The Australasian Mammal Taxonomy Consortium (AMTC) was founded in 2021, with CBCS's Associate Professor Diana Fisher sitting on the first steering committee.

Taxonomy – the scientific description and naming of organisms – is critical to biodiversity conservation (and biology, biosecurity, agriculture and many other disciplines), because species are at the centre of conservation discussion, actions and law. Taxonomists are working to describe global biodiversity even as species vanish. There is a lot to do. However, taxonomic change can cause heated debate – people sometimes have conflicting interests in species classification. It is ever more important that taxonomic decisions are evidence-based, consistent with modern methods, accessible and transparent. The AMTC was established to meet this need.

Setting goals for mammals

The AMTC is part of the Australian Mammal Society. It has a broad membership of 31, and a steering committee of eight researchers affiliated with the Queensland Museum, the Australian Museum, the Western Australian Museum, The University of Queensland, Queensland University of

Technology, and the Australian National University. The AMTC has made substantial progress to meet its goals in recent months. These goals are to:

1. Promote stability and consensus in the use of Australasian mammal scientific names via updatable online species lists approved by AMTC members, thereby supporting more rigorous study of mammals and their biodiversity
2. Provide advice and guidance on taxonomy, and promote its cause and importance, to scientists and laypersons
3. Promote the importance of taxonomic-based research as well as foster and enable collaborative taxonomy-focused research projects.

Australian mammal species list

A major success is the new AMTC species list, which is now on the Australian Mammal Society website at <https://australianmammals.org.au/publications/amtc-species-list>.

This list is an accurate, updatable and unified checklist of Australian mammalian taxa recognised by experts and accepted by the mammal research community. It will continue to be updated annually as robust

taxonomic research is published. The list is supported by a publication [“The importance of appropriate taxonomy in Australian mammalogy”](#).

On the Australian Mammal Society website, the AMTC has also published a governance document, a position statement on taxonomic vandalism, and a set of transparent criteria that it considers sufficient to recognise species boundaries. To promote the work of taxonomists in the conservation of mammals, the AMTC has recently published an article in *The Conversation*: [“Australia has hundreds of mammal species. We want to find them all – before they’re gone”](#).

The current AMTC species list recognises 404 Australian mammal species, including two monotremes (platypus and echidna), 175 marsupials, and 227 placentals (native rodents, bats and cetaceans). The list includes 11 new species of mammals that have been described just in the last decade (see, for example, *Antechinus argentus* and *Antechinus arktos*, pictured). The AMTC has also identified more than 100 New Guinean marsupial species. These are not yet listed. A future task of the AMTC will be to work with research groups in Melanesia and Wallacea to add mammals from our broader Australasian region to the AMTC species list, and so identify Australasian mammals before more species are lost.



PHOTO: BROOKE WILLIAMS

CBCS at ESA-SCBO 2022: Reconnecting with nature, reconnecting with each other

CBCS was a proud sponsor of the 2022 joint conference of the Ecological Society of Australia and the Society for Conservation Biology Oceania (ESA-SCBO 2022), hosted in Wollongong from 28 November to 2 December last year.

The theme of the conference was “reconnecting”, and many CBCS members embraced the opportunity to reconnect – with each other, with nature and with efforts to restore connections within nature. After two years apart (yes, because of the thing you’re thinking about), it was great to come together again to share our work, knowledge and experiences, and look to the future. While the broad participation of current and previous CBCS members makes it impossible to mention everyone’s talks, here we attempt to summarise some of the highlights.

Reconnecting through language

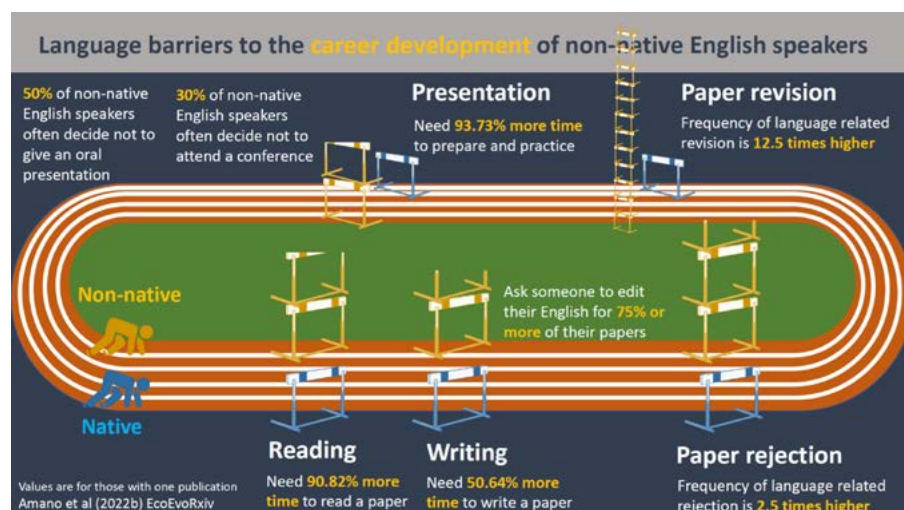
In a keynote presentation delivered by [Dr Tatsuya Amano](#) entitled “Transcending language barriers, reconnecting evidence and people for conservation”, he presented his recent work on the importance of scientific knowledge that is available in non-English languages, understanding how language barriers impede the application of science in decision-making, and solutions for exchanging information across languages

effectively. While Dr Amano’s stark results were no surprise to the many non-native English speakers in the audience, native English speakers were certainly struck by the disadvantages experienced by their colleagues in terms of academic reading, writing, publishing and presenting. For news of the ARC Discovery Grant awarded to the translE project, see the story on page 21.

First Nations initiatives

The ESA-SCBO conference was certainly well organised, and a particularly brilliant highlight was its emphasis on Traditional Knowledge, and Aboriginal and Torres Strait Islander culture. The conference included conservation stories from

First Nations-led initiatives, as well as examples of “right way science” based on collaborations between non-Indigenous and First Nations groups. Keynotes were delivered by Dorothy Esau and Esau Kekeubata, who both represented the Baru Conservation Alliance, a locally led not-for-profit organisation working to unite the Kwaio people of Malaita, Solomon Islands, so together they can live well in their place; and also by Oliver Costello, a Bundjalung man from the New South Wales Northern Rivers who has long been actively engaged in cultural land management projects with many Aboriginal communities across Australia (including founding Firesticks Alliance Indigenous Corporation).



The endless race of scientists. Slide: Tatsuya Amano.

Finance, and private land

PhD candidate [Natasha Cadenhead](#) presented on “The secret life of finance: Insights from financial professionals on how the sector is ‘mainstreaming’ biodiversity into business”, with a last-minute title change (see picture!). Her single slide consisted only of photos of her dressed up as various Australian animals, one of the many ways she tried to build interest and knowledge in biodiversity in the corporate world during a recent internship with an Australian bank. Her talk provided insights into the finance sector, touching on how they are approaching the impacts of biodiversity loss, and how conservation scientists and financial professionals can collaborate to improve outcomes for the environment. For more on her adventures in the world of finance, see page 18.

PhD candidate [Shu Chen](#) and postdoctoral researcher [Dr Brooke Williams](#) from the Sustainable Landscapes Group presented their work on private land conservation in the symposium, “Maximising outcomes for biodiversity and society through innovative approaches to private land conservation”. Shu presented on her project which is focused on developing effective communication strategies for koala conservation on private lands, and Brooke presented a planning framework which optimises the allocation of funds for private land conservation through reverse-auctions.

At least 17 other CBCSers presented, including: [Dr Diego Correa](#) on the identification of effective and feasible water quality offsets for reducing nitrogen pollution in the Great Barrier Reef World Heritage Area; [Dr Angela Dean](#) on pathways to change – the contrasting role of nature-based versus social experiences; [Dr Geoff Heard](#) and [Tayla Lawrie](#) on the [Australian Threatened Species Index](#) – challenges and opportunities for a continental-scale database of threatened species abundance (for more on this, see page 5); [Dr Vicki Martin](#) on mapping recreational boaters’ nature-based values of Moreton Bay; [Professor Hugh Possingham](#) on democratising Marxan – meeting credible 30 by 2030 goals using Marxan; [Dr April Reside](#) on how we can plan for species conservation considering climate change – a case study of cockatoos; [Dr Ruben Venegas Li](#) on an operational methodology to support the ecosystem goal of the post-2020 Global Biodiversity Framework; [Dr Claudia Benham](#) on understanding ecological grief – toward a conceptual framework informed by the Great Barrier Reef; [Emma Church](#) on social versus nature – how marine citizen science experiences promote stewardship actions; [Dr Matthew Holden](#) on how many species are in your house; [Emily Massingham](#) on working with communities to understand the killing of orangutans in Kalimantan; [Dr Helen Mayfield](#) on making targets meaningful – choosing the right currency

for biodiversity offsets; [Dr Courtney Melton](#) on whether the manipulation of understorey vegetation is likely to better support birds of conservation concern; [Tida Nou](#) on Putjikatu (cats) in remote Indigenous communities; [Yolanda Waters](#) on seeing the reef, loving the reef, protecting the reef – understanding the role of reef experiences in strengthening climate engagement; and [Dr Andrew Rogers](#) on Australia’s migratory shorebirds – population trends and conservation priorities after 25 years of monitoring. And that’s just to name a few!

CBCS members embraced the opportunity to reconnect.



Dr Vicki Martin presenting on mapping recreational boaters’ nature-based values of Moreton Bay. Photo: Brooke Williams.

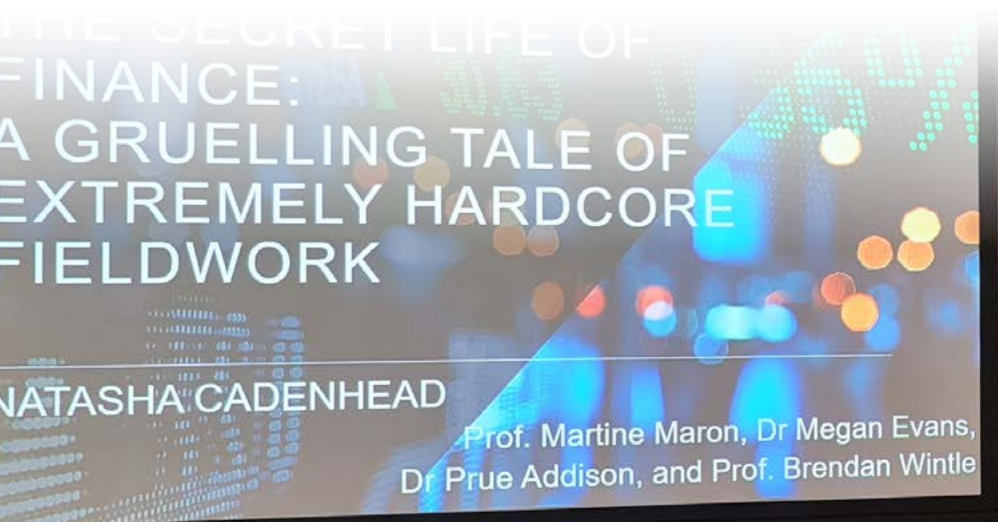


PHOTO: BROOKE WILLIAMS



Natasha Cadenhead presenting on biodiversity in the finance sector.



PHOTO: BROOKE WILLIAMS

Good times

The conference held a buffet dinner on the Wednesday night, giving old colleagues and new a chance to catch up. It provided an incredible networking event, despite the rather disagreeable Wollongong weather.

Alongside the talks were a dizzying array of extras on offer – student-specific weekend events, field trips, workshops, everyone's favourite poster session and more. And as if that wasn't enough, the conference was also filled with fun conservation-themed events, including SCB Social Science Speed Dating, Networking, a Queer Mixer, a Science Slam and a Trivia Night, the latter of which partially organized by CBCS HDR reps Natasha Cadenhead and **Rosa Mar Dominguez Martinez**.

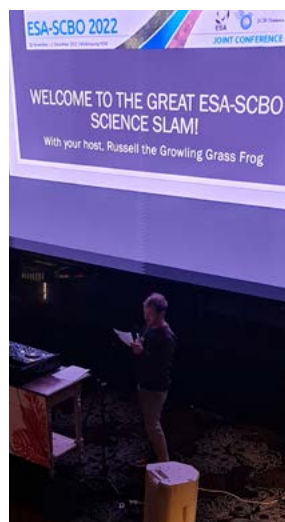
Trivia was adeptly hosted by CBCS household name Dr Matt Holden, who volunteered to fill in for Associate **Professor John Dwyer** – who unfortunately couldn't make it (or was demoted. We aren't sure).

All in all, it was great to be back in person (even a few of the people who caught Covid agree!), and with this year's ESA 2023 taking place in Darwin in early July, there won't be long to wait for the next one. So, get those abstracts in soon, people!



Katharina-Victoria Perez-Hammerle, Dr Carla Archibald, Natasha Cadenhead, Shu Chen, Dr Brooke Williams, Rosa Mar Dominguez Martinez and Erica Cseko Nolasco Freitas Fonseca.

PHOTO: BROOKE WILLIAMS



Left to right: Dr Matthew Holden's Twitter feed; Dr Matthew Holden hosting trivia; and Dr Angela Dean and Shu Chen. Photos: Brooke Williams.



Breakfast at Indigiscapes cafe for the conservation networking event.

PHOTO: CATH KELLEHER

Conservation Brekkie for International Women and Girls in Science Day

Dr Christina Zdenek

I recently (10 February 2023) had the honour of speaking at the conservation breakfast networking event in celebration of International Women and Girls in Science Day.

The event took place at the beautiful Indigiscapes venue in Redland City, and it was a fantastic opportunity to connect with like-minded individuals, celebrate the achievements of women in science, and innovate for the future.

The theme of the event was “Innovate, Demonstrate, Elevate, and Advance”, and it was a fitting tribute to the amazing women in the field of science who are making a positive impact on the environment. After we all enjoyed a healthy breakfast, our host, Ranger Stacey (who for many years was on Totally Wild on the telly), introduced us four scientists, including myself and Professor Hugh

Possingham of CBCS, and we each spoke for 10 to 20 minutes, sharing our stories, experience, and challenges in the field.

Early inspirations – and snakes!

Hugh described his observations throughout the decades in terms of women in conservation (e.g., in it for the purpose now rather than the job/career), and how his conservation inspiration derived from his mother and grandmother. Then, adorned with a snake around my neck of course, I spoke about why Australia is actually very lucky when it comes to snakes. I was followed by Dr Romane Cristescu, who spoke about working with conservation detection dogs to save koala habitat – plus new bluetooth-and-app enabled 4g transmitters to put on wildlife for citizen science! And, finally, Maggie Muurmans spoke about breaking down barriers between conservationists and everyday people to make real grassroots progress.

International Day of Women and Girls in Science Breakfast

Innovate. Demonstrate. Elevate. Advance. I.D.E.A.

Your breakfast host, Ranger Stacey, will introduce you to four remarkable scientists who have each made a positive impact on the natural environment by pursuing their individual passions in the field of science.

Professor Hugh Possingham
Professor at the University of Queensland School of Biological Sciences and former Chief Scientist of Queensland. Dr Possingham has supported and inspired many women to pursue their goals in the field of science and has been instrumental in conservation settings.

Dr Christina Zdenek
Fullbright Awardee, Biologist, Environmental and Plant Genetic Research Fellow at the University of Queensland. Dr Zdenek is a well-known expert and communicator, promoting a better world for both humans and wildlife.

Dr Romane Cristescu
Conservation ecologist and Director of Queensland State for Conservation. Researcher at the University of the Sunshine Coast. Dr Cristescu's research is focused around the conservation of threatened species, and the application of new and innovative techniques to help address a world dominated by humans.

Maggie Muurmans
PhD candidate at Griffith University and co-founder of a conservation organisation with a focus on the Great Barrier Reef. Maggie is a science and environmental education specialist, with a passion for connecting people to nature and inspiring the next generation of conservationists.

Indigiscapes Cafe
Friday 10 February, 7.30am to 9.30am
Location: 17 Runnymede Road, Capalaba, QLD 4157
Cost: \$45.00 per person
Included is a delicious and healthy breakfast. Places are limited, book now via the QR code.

Book now

redlands Indigiscapes 3824 8611



Kimbo the black-headed python getting around. Left to right: Adriana Bramley, Romane Cristescu, Christina Zdenek, Hugh Possingham, Maggie Muurmans, Ranger Stacey.

I was amazed by the diverse group of participants who attended the event, which was sold out – young girls eager to learn about science and the environment, seasoned professionals making a difference in their field, and everyone in between. The atmosphere was peaceful, the food enriching, and the take-home native plant delightful.

I would like to extend a special thank you to Indigiscapes's productive and friendly staff for hosting the successful event, and for the opportunity to speak, and to all the attendees for their interest in the work of women in science. It was wonderful to see the whole audience committed to conservation and the environment and eager to learn and get involved.

This conservation breakfast networking event was truly inspiring, and I recommend future attendance (or, if not, urge you to just visit Indigiscape's beautiful native gardens and facilities). I hope that everyone who attended was able to leave feeling motivated and inspired to continue their work in the field of science and conservation.



Adriana Bramley from Indigiscapes, Ranger Stacey and Christina Zdenek, with Kimbo the black-headed python.

It was wonderful to see the whole audience committed to conserving the environment and eager to learn and get involved.

The Antarctic Climate Expedition 2023

Yolanda Waters

The dramatic icescapes of Antarctica.

If you had told me a year ago that I would be heading on an expedition to Antarctica I probably would have laughed. Not only because, I mean, who gets to go to the literal edge of the world? But also, because I think that 20 degrees is cold, and that winter is by far the worst season. Add on top of that, that I would be working together with “Her Deepness” Dr Sylvia Earle? There’s no way.

Fast forward to now and I am preparing for a 10-day expedition to one of the coldest places on Earth with a “simple” mission in mind – develop a set of resolutions to help pace up net zero by 2035. The Antarctic Climate Expedition (ACE) hosted by Ocean Geographic and Dr Sylvia Earle will invite 110 ambassadors from around the world to come together and formulate a unique set of resolutions that highlight: (a) the role of the ocean in mitigating climate change; and (b) the power of individual and community action. The expedition is a floating conference of sorts – the idea being that being immersed in Antarctica, an iconic yet vulnerable place, will inspire fruitful discussions, stronger collaborations, and meaningful outcomes. The resolutions will be developed into action strategies that will be put into motion after the expedition.

How I got involved

So how did I end up here? For context, my background involves finishing my undergraduate honours degree in environmental studies, taking some time off to travel and work in the dive industry, and then returning in 2020 to undertake a PhD. My PhD research attempts to answer questions that I developed during my

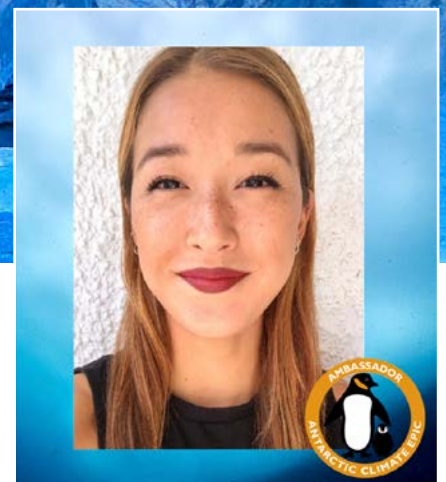
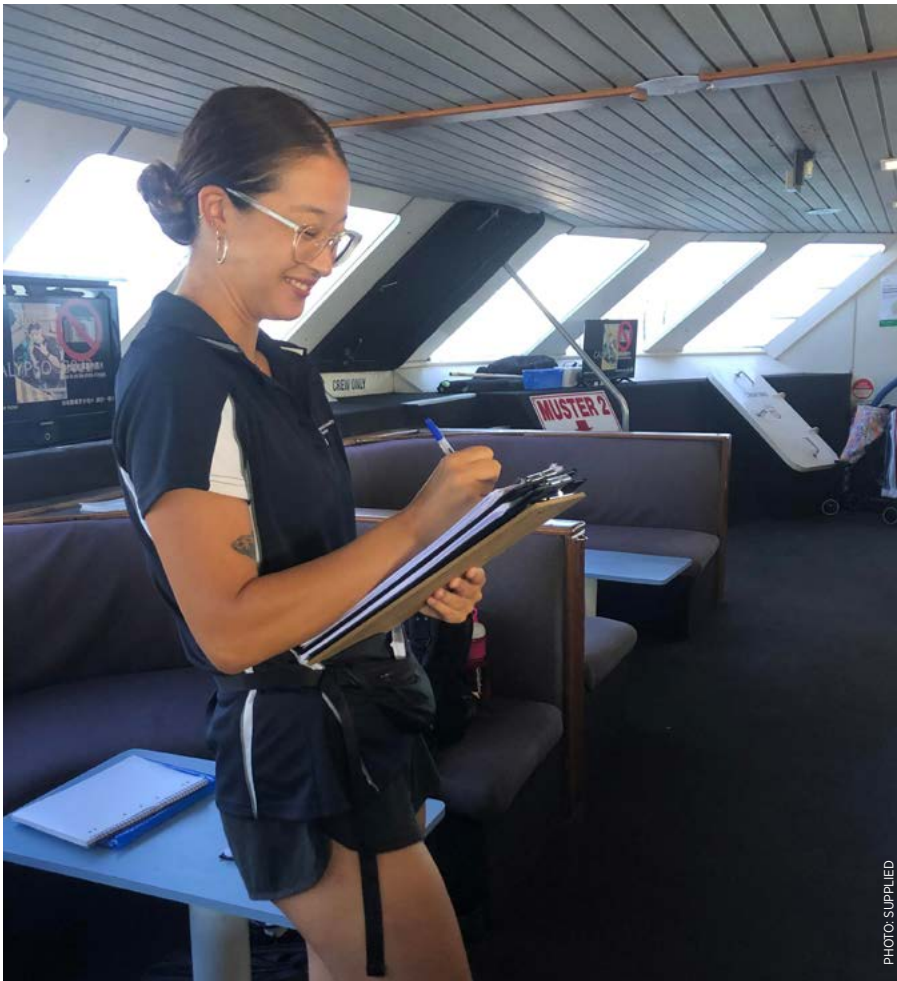


PHOTO: EMILY CHAN, OCEAN GEOGRAPHIC

travels when I realised that opportunities for meaningful climate change communication were being overlooked in marine-tourism settings. I am now deep into the world of environmental psychology and behaviour change.

Having previously worked with Ocean Geographic, I was made aware of the expedition in March 2022 and was asked to sit in on a steering committee meeting to learn whether there might be a role for me. The idea of the expedition was difficult to get my head around at first, but once I realised the potential it could have (a trip dedicated to developing a list of key actions and behaviours for effective ocean-climate action??) and the relevancy of my work, I started to share my thoughts with the team. To be honest, it surprised me how much I had to say, and I was worried I had said the wrong things (e.g., questioning their entire approach). But before I knew it – I was asked to lead an expert elicitation process to help develop the resolutions.



Yolanda at work onboard.

The process so far has been chaotic but eye-opening. For example, this is the first time I have experienced the trials and tribulations of large group emails, organising meetings for several different time zones (in other words, very late nights for me), moderating conversations between scientists and cinematographers, trying to keep large group conversations on topic, and so on. Being constantly surrounded by incredible social scientists during my PhD, it is also the first time I feel like I have really had to justify my every step. It turns out that not everyone recognises the value of social science methods in conservation. That, and that everyone seems to hate a survey.

Stepping outside the university context and into the “real world” has also taught me the reality of what it is to be young and female in a landscape riddled with agendas, egos and politics. Even though anyone who pays attention knows that this is by and large how the world works, it is another thing to see it up close and personal. To have your legitimacy questioned, to try and stand your ground in front of biophysical scientists, policy-makers, political leaders and renowned storytellers and suggest that maybe they don’t understand – it has been a steep learning curve to say the least.

Combine this with the never-ending battle with imposter syndrome (which I’m sure most PhD students are familiar with?) and it makes for a terrifying yet valuable lesson in applied research. Though I have to say that I am proud of the work I have done so far and look forward to continuing the process once we board the ship.



Penguin ballet, Antarctica.



Yolanda in her element.

Final pre-departure thoughts

Naturally the trip invites criticism – a floating conference only accessible to those who could afford to participate and those willing and able to travel from around the world. As we get closer to the departure date, I find myself reflecting on this, particularly considering recent global climate and ocean conferences. *Will we be able to make a meaningful contribution?* Regardless, I am inspired and determined to make the most of this trip. There is no doubt that it will be a once-in-a-lifetime experience and milestone moment in my career. I am grateful for all the support I have received so far and look forward to reporting back in a few weeks’ time!

You can find more details about the trip here: <https://elysiumepic.underwaterartists.com/project-brief/> or follow my journey on Instagram (@[yolandaleewaters](#)) or Twitter (@[yolowaters](#)).

Thanks to Ocean Geographic, CBCS and my generous GoFundMe donors for making this trip possible!



Seaweed lover Scott tucks in.

PHOTO: OLIVIA PAGE

Seaweed farming: Coming soon to an ocean near you

New research led by CBCS PhD candidate [Scott Spillias](#) reveals the global potential for seaweed farming in the world's oceans and investigates the local and global implications of developing this watery form of farming.

Scaling seaweed

Scott and fellow CBCSers [Dr Rich Cottrell](#) and [Professor Eve McDonald-Madden](#) have led two successful international collaborations to both estimate how farming seaweeds globally might reshape the impacts of land use and catalogue the social and ecological impacts of farming seaweeds at a local scale.

In the first study, undertaken as part of the Young Scientists Summer Program at the International Institute for Applied Systems Analysis in Vienna, the team estimate that roughly 650 million hectares of global ocean could support seaweed farms. While this is a huge amount of space, that figure represents just under 2% of the global ocean. The team go on to show that only a fraction of this space would be needed to have considerable impacts on terrestrial agriculture: using the Global Biosphere Management Model (GLOBIOM), Scott and his colleagues estimate that roughly 50 million hectares of ocean could supply 10% of future expected human food demand while saving over 100 million hectares of terrestrial land and avoiding -1 Gt of CO₂ equivalent per year in emissions from agriculture. Perhaps even more impressive is the -2.6 Gt CO₂e per year that could be avoided by incorporating Asparagopsis supplements into the diets of the world's ruminants.

Of course, these scenarios represent lofty ambitions that sit at the extreme edge of what is possible or likely. And indeed, many economic, logistical and cultural barriers still stand in the way of scaling seaweed production and demand. So in their second study, Scott and his CBCS colleagues engaged with another international team of researchers to explore the evidence for the social and ecological impacts of seaweed farming on a local scale. Together with colleagues from three east Asian countries whose seaweed industries are already well established, China, Japan and South Korea, they systematically reviewed the scientific literature on seaweed farming to identify the range of documented impacts on people and nature.

Biodiversity impacts – and the future for Scott

Encouragingly, they found that across many social and environmental dimensions seaweed farms have generated benefits, including by providing livelihoods, lifting living standards, remediating eutrophic coastal waters and regulating carbon. Nevertheless, of the 20 possible impacts that have been observed, the majority of evidence is either too variable to conclude that seaweed farming has been wholly positive, or there is not enough evidence to draw conclusions. Notably, when it comes to impacts on biodiversity, which have been well studied, an almost even split is seen between demonstrated positive and negative impacts on a range of flora and fauna.

Taken together, this new research shows that while the global potential for reducing land-use pressure with seaweed farms may be considerable, there may be local consequences that will need to be avoided or mitigated. And while much of the popular discourse around seaweed farming has focused mainly on the positives, researchers, policy-makers and the farmers themselves will need to carefully plan and prepare for ensuring that seaweed farms fulfil their potential across a range of sustainable development objectives.

Now that his PhD is (just about) wrapped up, Scott will be heading south to Tasmania to take up a postdoctoral fellowship with CSIRO. There he will be shifting his attention away from (sea) weeds and over to the role that artificial intelligence might play in helping us to model and understand marine ecosystems.

Spillias, S., Valin, H., Batka, M., Sperling, F., Havlík, P., Leclère, D., **Cottrell, R.S.**, O'Brien, K.R. and **McDonald-Madden, E.** (2023). Reducing global land-use pressures with seaweed farming. *Nature Sustainability*, pp.1-11.

Spillias, S., **Cottrell, R.S.**, Kelly, R., O'Brien, K. R., Adams, J., Bellgrove, A., ... & **McDonald-Madden, E.** (2022). Expert perceptions of seaweed farming for sustainable development. *Journal of Cleaner Production*, 368, p.133052.

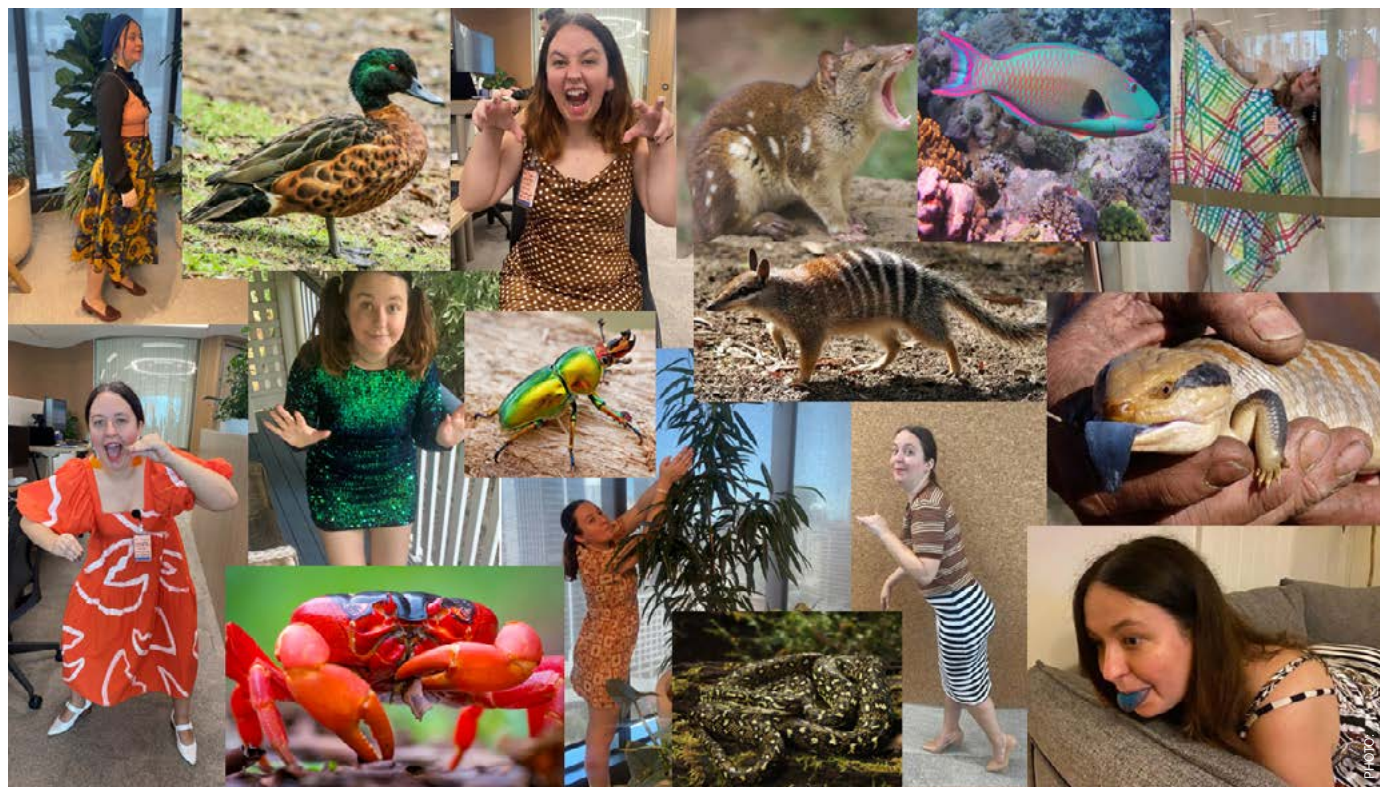
“Farming seaweeds could reshape the impacts of land use globally

Macrocystis pyrifera is a fast-growing species of kelp that is being targeted for cold-water farms from Australia to the United States.

PHOTO: OLEKSANDR SUSHKO, UNSPLASH

The secret life of finance: A gruelling tale of extremely hardcore fieldwork

Natasha Cadenhead, PhD candidate



Match the conservation scientist to the Australian animal.

I've always been a pretty dedicated field ecologist, from the 10 days of fieldwork I did during my Masters, where I wore hot pink silk shirts and floral culottes as my desert field gear and cried every day, to ... oh no, wait, that's it. That's my only field experience.

I've spent the past almost-decade sitting behind a computer, doing spatial analyses on landscapes from afar. So, you can imagine my surprise when I found myself doing 15 straight weeks of fieldwork in the second half of 2022, deep in the unexplored wilderness of one of conservation's most poorly understood and complex ecosystems: a commercial bank.

As part of UQ's PhD Industry Placement program, I arranged to take a break from the day-to-day imposter syndrome of doing a PhD and try being a real imposter – a conservation scientist working in the

finance sector! The placement program encourages PhD students to undertake up to 90 days of work in an industry in which they're interested in pursuing a career. Given that my PhD is looking at ways to integrate conservation science into everyday decision-making within Australian financial institutions to improve outcomes for biodiversity, this opportunity was a no-brainer. So, for 15 weeks, I sat with the Sustainability team of a Brisbane-based bank, learning about how the business functions, trying to wade through internal policy documents, and understand corporate hierarchies. The team were all extremely generous with their time and mentorship, patient with my financial naiveté (how many times can I ask what the difference between first- and second-line risk is?), and accepting of my academia-induced inability to be concise when answering anything. In return, I used my conservation knowledge and skillset to increase the team's understanding of how biodiversity is impacted by, and impacts, their business.

While I may have done some actual analyses while there, I found connecting with people's enthusiasm and interest in nature to be perhaps the most meaningful contribution and experience:

- The Sustainability team and I held our own Threatened Species Bake-off on 7 September, and people from all over the bank came to eat cake and learn about our threatened species.
- I quickly learnt to take any water-cooler moment to ask about people's roles and try to connect the dots with them about how the decisions made in their roles – what loans get approved, at what rates, in what places – ultimately impact the environment. Although it wasn't always successful, I was encouraged, and sometimes touched, by how interested some people were, and by the ideas those conversations brought up for both parties.

- Without a doubt, though, my crowning achievement came in my final two weeks, where, somehow, I agreed to dress up as a different Australian animal every day. With my nametag in place each morning – stating what I was and a fun fact about my (animal) self – I went about my business as if it were perfectly normal to be wearing a brown patterned dress, dripping in costume jewellery (diamond python), a vintage blueish-green turban hat (chestnut teal), or have a food-dye blue tongue (if you can't get that one on your own you're an even worse ecologist than me). Games were made of guessing what I was each day, often followed by Googling of said animal, and even the café in the lobby of the building got involved, calling out the name of my animal when my coffee was ready. More than one Executive Manager was sucked into a conversation on biodiversity while waiting for the lift and getting caught eyeing my nametag in confusion.



My final-day dress-up and parting message: "Hi! I am a Banker. I am an essential part of the ecosystem and I can help protect biodiversity".



I learnt an immense amount about the finance sector and working in a corporate environment, and have already returned to the bank to give follow-up presentations since the end of the placement. I came out of the experience reinvigorated for my PhD, with a deeper understanding of how organisational structure and capability impact the ways decisions are made, and with new colleagues and friends I admire and respect. We will always, always need conservation scientists working outside of the private sector, advocating for biodiversity and pushing corporations to "do better", but this experience has strengthened my belief that we need more conservation scientists working within the system as well, striving to improve outcomes for biodiversity from inside that untamed financial wilderness, even if it's through ways they didn't expect ... like dipping their tongue into a glass of blue food dye. The things you do on fieldwork!

More than one Executive Manager was sucked into a conversation on biodiversity...

A flamingo galah.



Biodiversity and net zero

“What is a conservation biologist doing at an energy conference?” was a question that CBCS researcher Dr April Reside was asked at the third national State of Energy Research Conference in Sydney (31 January – 1 February 2023).

Well, the answer is that biodiversity and, in particular, threatened species, should be considered in the planning of renewable energy infrastructure. The conference’s focus was on collaborative work towards a sustainable energy future, with discussions on just transitions for communities and implications for First Nations peoples.

April joined an esteemed panel at the conference on the Net Zero Australia Project led by Associate Professor Simon Smart (Deputy Director of the Dow Centre for Sustainable Engineering Innovation, UQ), Maria Lopez (PhD candidate, University of Melbourne) and Jamie Lowe (CEO, National Native Title Council and proud Gundjitrara Djabwurrung man), to discuss pathways to net zero emissions by 2050.

translatE project awarded an Australian Research Council Discovery Project grant

The **translatE** project, founded by CBCS Chief Investigator **Dr Tatsuya Amano**, aims to understand and overcome the multiple consequences of language barriers in conservation science. Since its official launch at The University of Queensland in 2019, the project has delivered a number of important outcomes, and has recently been awarded another major three-year grant from the ARC. The grant will be based on global collaboration with many, including Professor William Sutherland at the University of Cambridge and Assistant Professor Fangyuan Hua at Peking University.

One of the key findings of the **translatE** project is the importance of scientific evidence that is published in languages other than English for the implementation of evidence-based conservation globally. For example, a recent paper led by Tatsuya, with contributors including **Violeta Berdejo-Espinola** and many others at CBCS, identified a total of 1,234 non-English-language papers that provide evidence on the effectiveness of conservation actions, particularly in areas and for species where English-language evidence is scarce. This suggests that by making a better use of non-English-language evidence, we can fill geographical and taxonomic gaps in the availability of English-language evidence, potentially leading to a better uptake of evidence in conservation decisions.

However, inaccessibility of non-English-language evidence remains a challenge for many.

Given this background, the **translatE** project next aims to improve the accessibility of non-English-language evidence related to global challenges, through three complementary approaches: developing a database of non-English-language evidence on three global challenges (biodiversity loss, climate adaptation and animal-origin diseases), devising machine learning tools for identifying relevant non-English-language evidence, and establishing a machine translation platform to aid the integration of non-English-language literature in evidence synthesis.

The project's outcome is expected to transform the conventional practice of English-biased evidence use to multilingual evidence synthesis to enable us to better tackle global challenges. This should benefit national and international policies and practices by making a neglected source of evidence available for science-led decision-making.

Noisy miner removals: Habitat size counts

A new paper on the obstreperous noisy miner led by Dr Ross Crates from Australian National University and supported by CBCSers **Professor Martine Maron** and **Dr Courtney Melton** has just been published in *Conservation Science and Practice*.

The authors evaluate the effectiveness of noisy miner removals from important habitat for the Critically Endangered regent honeyeater, and test how important the percentage of suitable noisy miner habitat surrounding the removal area is in predicting removal success.



Removals were followed by an increase in songbird numbers at the majority of sites. Surprisingly, the percentage of suitable noisy miner habitat was not found to be a strong predictor of removal success; instead, the size of the treatment area was most important.

Larger treatment areas could be more important than the broader landscape context when it comes to managing noisy miners using these methods. Read the paper at: <https://doi.org/10.1111/csp2.12875>

From books to screens

My life trajectory feels a bit like that pinball game from the 90s.

I find a lot of people working in conservation have a personal tie to nature that goes back to their childhood, they always loved it and wanted to protect it, but ... that wasn't me. I grew up in a pretty small town in Spain, attended a music school and was trained in classical music, playing cello for 10 years. I hated the beach, was allergic to the sun, and my summers consisted of trips to the bookstore and endless reading sessions in the shade under the beach umbrella, while my brother would run and play around.

For the longest time I thought I was going to become a doctor and work for Doctors Without Borders. I knew I wanted to help people, and healing them sounded like the best way to do it. High school mathematics left long-lasting trauma though, so by the time I had to choose a Bachelor's degree I went to study History and Anthropology, Arabic and Mandarin instead (the farthest thing from science I could think of). But after two years at university in Madrid, my natural state of restlessness gave me itchy feet. So, I left Spain to start a new Bachelor's degree at the University of Stirling, Scotland, this time choosing the (in my eyes, then) lesser of the science evils: Biology.



Brisbane Festival, 2022.

All things ocean

I quickly realised I was passionate about conservation, I could still help people and I loved the interdisciplinarity of it, so I switched degrees. Then, after an exchange semester at the University of Hawai'i Hilo, I fell in love with all things ocean. I did my Honours with two (honestly, not-so-great) supervisors and completed it thanks to other amazing professors.

I guess I learnt two important lessons that have shaped my choices after: 1) I actually loved research; and 2) who you work with is almost as important as what you work on. When I finished my Honours project, I took a much-needed break from university until by luck or chance I came across an Erasmus Mundus Master program in Tropical Biodiversity and Ecosystems.

The next two years I got the incredible opportunity to travel and learn (my two favourite things to do) in three different countries and with an amazing group of people. I had started to enjoy modelling and programming, so I decided to improve my skills in this area. For my thesis, I searched for a lab that would allow me to do this while working on something that I was also passionate about. After some looking and searching, I came across Professor Anthony Richardson's lab at The University of Queensland, so I emailed him and after a couple meetings we decided on a topic.

MPAs and seafood supply chains

Originally, I was going to be working remotely, but again luck or chance made me decide to come to Australia for a couple of months, meet the lab, get started and then go back home. That was January 2020, and we all know how the story goes from there. I bought my tickets and (unintentionally) moved to Australia a month later. I did my thesis on climate-smart marine protected areas in the Indian Ocean and completed it during lockdown. After some trials and tribulations, I found a visa that allowed me to work while waiting for the borders to open and applying for PhDs.

PROFILE

Rosa Mar Dominguez Martinez

CBCS HDR Representative – Community



Lake Como, Italy.

I quickly realised I found conservation subjects the most interesting...

Now I still love books, but spend most of my time staring at computer screens. I'm on my second year of a PhD with Carissa Klein and a great team of co-supervisors. My research focus is international trade and its implications for the environmental and socioeconomic sustainability of seafood, and vulnerabilities to the sustainability and resilience of seafood supply chains in Australia. If you asked little Rosa where she would see herself in 2023, this desk would probably be one of the last places she'd come up with, but I am grateful to everyone that has helped and inspired me along the way to get here.

Getting involved with the CBCS Management Committee was a way of giving back and helping to create a support network for others, so they might have the opportunities I did.

Centre for Biodiversity and Conservation Science

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