Centre for Biodiversity and Conservation Science

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CBCS NEWS

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A shot from *The Secret Lives of Animals*, which Christina filmed with Daniel Meier. Image credit: Chris Hay

Dr Christina N. Zdenek contributes to Apple TV's new documentary series, *The Secret Lives of Animals*

Samantha Wong-Topp
CBCS PhD candidate

CBCS's **Dr Christina N. Zdenek** speaks to us about her contributions to the recent documentary television series, *The Secret Lives of Animals*, created by Apple and BBC Studios Natural History Unit. The 10-part series, narrated by notable British actor Hugh Bonneville, features everything from seals and chimps to caterpillars and, of course, the palm cockatoo.

Christina lent her expertise and her camera skills to help bring the palm cockatoo segment to fruition. "I first consulted remotely for 12 months in the long planning phase and then in the field in the remote far north of Queensland for nine full-on weeks across three trips and two years", she explains. "I was their liaison with the local First Nations mobs, their wildlife consultant and, during one shoot, a camera operator, assisting the BBC to acquire rare footage and make the story. The latter took an abundance of patience, focus and tolerance of mosquitos. Many, many mosquitos."

Despite the challenging conditions, Christina feels contributing to the documentary was incredibly important to her, as it is "peak science communication".

"I have worked tirelessly for many, many years to raise the public profile and conservation status of palmies (palm cockatoos), yet this documentary overnight probably reached larger, more global audiences than any scientific paper or report of mine ever will. It will undoubtedly leave a strong impression on people: palmies are incredible. It's undoubtedly worth the investment to save this umbrella species", she says.

Palm cockatoos are Australia's largest cockatoo by weight, and are the only non-human species in the world to be documented using tools musically, drumming with a drumstick to defend their hollows and assist pair-bonding. Increasing public awareness of Endangered palm cockatoos is of utmost importance, Christina emphasises.

Christina has been studying palm cockatoos for 17 years across Cape York and, while she hopes this documentary aids overarching conservation efforts to protect the species, she believes that we must employ numerous strategies to better protect their habitat:

1. Employ Indigenous fire management: "Governments and philanthropists should support First Nations rangers to employ their traditional burning regimes across Cape York ... We need cool burns in mosaic patterns early in the dry season (including pyrodiversity (e.g., time since fire)) to prevent out of control, super-hot fires late in the dry season. Doing so takes time, expertise, deep knowledge of the landscape and resources. Fire management is particularly crucial for palmies: in one of my sites, I observed the destruction of 45% (17/38) of palmy nest hollows from fire in just 12 years. If we don't act soon, they won't have anywhere to breed and will go locally extinct."

2. A multi-pronged approach: "We are trying to address the issue of old-growth nesting tree loss not only by protecting what we have left (via protective firebreaks around individual old nest trees) but also by trialling ways to supplement what's been lost. We are installing nest cameras to find out why so many nests fail, as well as developing call recognisers for adult and juvenile calls so that we can more efficiently survey for them and their nests. Our funding to do these things runs out at the end of this year. And what we don't have any funding for currently but absolutely needs to happen is to track palm cockatoos with radio transmitters. This will tell us how they use the landscape in time and place, which would directly guide mining activities that threaten (and in some cases outright destroy) their habitat."

To support palm cockatoo conservation, please donate to Christina's People For Wildlife's palmy page here: **https://www.peopleforwildlife.org/theapudthamareserve-capeyork-australia/palmcockatooproject**

To watch *The Secret Lives of Animals* - and see palm cockatoos using drumsticks musically! – check out the documentary, hosted on **Apple TV**.

"Palmies are incredible. It's undoubtedly worth the investment to save this umbrella species"

Top to bottom, left to right "If you look closely, you can see one of the frames in the doco. Man, the mozzies were bad", Christina says. Image credit: Daniel Meier

"It took me weeks to get this shot, but well worth it because it made the cut in the doco!". Image credit: Chris Hay

The Endangered palm cockatoo. Image credit: Christina N. Zdenek

PROFILE

A transdisciplinary journey

Dr Laura Grogan
CBCS Senior Lecturer in Wildlife Science

The beginning

I grew up in the New South Wales forest near "Protestor's Falls", the site of the 1979 Terania Creek protests. This site marked the "origin of Australia's environmental movement" with non-violent direct-action blockades against deforestation. Both my parents were science teachers and very much environmentalists. My mother was also an artist and was actively reforesting our property. We were, I guess, kind of hippies.

For most of my childhood we had no television, so I spent my time playing in the forest and illustrating wildlife for the local newspaper. It didn't take long for me to fixate on becoming a vet so I could "work with animals". But when I finally started my vet degree, I soon realised it wasn't about wildlife... Yes, I was that naïve, but who isn't when they've just turned 18?

The switch

So, I suffered through the long years of dissecting dogs and inadvertently inhaling formalin as a veterinary student. Meanwhile, I snapped up every opportunity I could find related to wildlife, ecology and conservation. At the beginning of my Honours research year studying the health and ecology of urban brushtail possums, I distinctly remember attempting to learn an entire ecology degree's worth of material (including numerous textbooks), for the sheer love and fascination of it. I had finally found the metaphorical home for my career.

From then on it was just a matter of time until I could finally convince myself that I would never, ever want to work as a practising clinical veterinarian again. It didn't take long. Dr Timothy Portas (Zoo Veterinarian at Western Plains Zoo at the time) finally shook some sense into me: "It's not going to be enough for you to just work with individual wildlife in zoos, Laura. I can see that you want to have a broader impact. You need to go back and do research."

Top to bottom, clockwise Dr Laura Grogan. Image credit: Samantha Wong-Topp

Acrylic painting of the head of a brolga (*Grus rubicunda*). Painting credit: Laura Grogan

Acrylic painting of a white-plumed honeyeater (*Lichenostomus penicillatus*). Painting credit: Laura Grogan

"The features of wildlife disease that make it challenging also make it deeply conceptually fascinating and rewarding"

Left to right Pastel painting of the alpine tree frog (*Litoria verreauxii alpina*) – a species that declined due to chytridiomycosis, and the focus of much of my PhD. Painting credit: Laura Grogan

Activities of the Biodiversity Health Research Team. Image credits: Laura Grogan

Metamorph!

Josie Humphries culturing the fungus

Skin swabbing frogs in the field

Thais Sasso and **Liam Bolitho** collecting eDNA

Rearing tadpoles

Now, any good careers advisor will tell you to "make the most of your career capital", which is to say, don't just throw away eight years of training and experience on a whim! I had this foundation of understanding how animals work and, also, how disease can stop things from working. So, it made sense to utilise this expertise when transitioning to a career in ecology and conservation focused on wildlife. "That's it", I thought. "Research on wildlife disease ecology! That's what I need to do!"

I had found my super-power. There tends to be a disciplinary (and scale) divide between vets and ecologists – they don't really speak the same language. But trained as a vet, and having taken a transdisciplinary leap into wildlife ecology and conservation, I now had the language and understanding to bridge the two. And it turns out that getting everyone understanding each other is becoming pretty important these days – enter the One Health and Planetary Health paradigms.

The calling

In recent decades, there's been a marked increase in the number of emerging infectious diseases that cross disciplinary silos – the COVID-19 pandemic will no doubt come to mind as a zoonotic disease that affects humans and animals and has had profound socioeconomic impacts globally. But there are numerous other diseases having devastating impacts on our wildlife that have largely flown under the radar. Unexpectedly, fungal diseases seem to be having a heyday.

For my PhD I focused on the most significant disease, amphibian chytridiomycosis. This fungal skin disease of frogs has caused greater loss of biodiversity than any other disease of vertebrates ever recorded. We're not just talking about range contractions and extirpation of frog populations here. We're talking about a single disease wiping out 90 species of frogs around the world and causing the decline of at least 500 more species. Many of the declines are ongoing – this is still an urgent issue.

Now, the problem with mitigating infectious diseases of wildlife is that you're dealing with the interaction of dynamic processes with a multitude of drivers. The tiny beasties doing the damage – the pathogens and parasites – have their own population dynamics. You also must work across multiple scales including the individual animal, the population and the landscape scale. This is not just a case of "restore habitat and the wildlife will come back". In the case of frog chytrid fungus, the most affected species were in near-pristine habitats. So how on earth do we fix this?

However, the features of wildlife disease that make it challenging also make it deeply conceptually fascinating and rewarding. It's complex. We're at a frontier. We humans are fundamentally responsible for spreading these most devastating diseases to new populations and species. But we also have the profound opportunity and immense potential to actually make a difference.

The Biodiversity Health Research Team and beyond

In the 15 years since I started my PhD studying wildlife disease, then later set up my own research team, I have become more and more captivated by this topic. We are now called the **Biodiversity Health Research Team**. Leading a team is without doubt the most rewarding part of my job as an academic – it is an absolute privilege to inspire and empower the next generation of conservation researchers and leaders.

The core of our research is understanding mechanisms that promote population and species recovery in the face of a multitude of threatening processes, usually including infectious diseases such as amphibian chytridiomycosis, koala chlamydiosis, emerging reptile fungal diseases and so on. My team and I work across systems, scales and methodologies: we get out into the field to catch and observe animals; we take samples from animals and their environments; we bring animals into the lab to understand how they can respond and recover from disease and contaminants; we perform advanced immunological, molecular and genetic analyses to understand those responses at the physiological level; and we also model population and community dynamics to understand the mechanisms putatively driving decline or recovery.

In the past three years, I've also had the immense honour of acting as the Chair of the Wildlife Disease Association (WDA) Australasia section, as well as Australasian representative on the International WDA Council, a term that finished in late 2024. My experience in these roles has been incredibly valuable, allowing me to engage with a diverse network of passionate researchers and practitioners in Australia and around the world who share the common goal of improving conservation and welfare outcomes for wildlife.

"Photographing and then painting wildlife in glorious colour brings me immense joy"

The creative and the collective

While most things in my life revolve around my enduring passion for wildlife and the environment, it's definitely not all about work. Inspired and encouraged by my artist mother from an early age, my love for the creative arts – a means by which to celebrate and share the beauty of nature – has continued to develop through the years. Photographing and then painting wildlife in glorious colour brings me immense joy which helps to offset some of the more sombre environmental messaging we face day to day when working in the field of conservation.

My other main joy is escaping digital dopamine addiction by sharing my love of tabletop board gaming with friends, family and colleagues. I especially love to teach and play games with environmental themes and beautiful artwork. Bonus points to the game designers if they manage to sneak thematically appropriate ecology mechanisms into the strategy of their games! A few current favourites include Meadow, Wingspan and The Fox Experiment.

Having outlets for my passion and creativity, and people to share them with, provides me with essential balance and purpose alongside my conservation-based career goals.

Acrylic painting of a green sea turtle (*Chelonia mydas*). Painting credit: Laura Grogan

Dr Alice Twomey named one of Australia's Superstars of STEM

Samantha Wong-Topp
CBCS PhD candidate

CBCSer **Dr Alice Twomey**, a multidisciplinary Research Fellow working with Professor Catherine Lovelock, has been named one of Science Technology Australia's Superstars of STEM – an Australian initiative that aims to tackle the gender inequity of visible diverse role models featured in the media as experts in STEM.

Selected as one of just 60 participants in the highly competitive program, Alice is excited at the opportunity to challenge stereotypes about what it means to be a scientist and connect with a strong network of like-minded researchers. "What I'm most excited about is the community I'm going to be a part of", Alice says. Speaking to us after attending her first welcome event as part of the program, she tells us that "it felt so great to be in a room full of people who are there to support you, and be surrounded by a group of women and non-binary people who are all striving for the same thing: to promote and inspire STEM pathways for young people. It felt like a big warm fuzzy hug!"

Coastal protection and communication

Alice's research focuses on improving the hydrological connectivity of coastal ecosystems such as mangroves, saltmarshes and seagrasses. By modelling water flows through wetland areas, she helps identify opportunities to restore tidal movement, enhancing the resilience of these critical habitats and supporting their role as nature-based solutions for coastal protection.

As she embarks on this new journey with the Superstars of STEM, Alice is looking forward to using her platform to share her work, inspire future scientists and break down outdated perceptions of who belongs in science.

Measuring mangrove root geometry in the Wynnum Wetlands to validate hydrodynamic models that aim to predict sediment accretion. Image credit: Miranda Fittock

"For the next two years I'll be communicating science and developing more skills on how to do that in the media, because the goal of Superstars of STEM is to really promote women and non-binary people in STEM to show all the other women and non-binary people that yes, there are role models – because you can't aim to be what you can't see", Alice says.

"Additionally, a lot of the focus for me over the next two years will be talking in schools and communities that are likely landlocked and don't have access to the coast. In that way, not only are they seeing a female role model in a non-traditional field – engineering has very low female participation – but a lot of young people might not have ever seen the ocean. And they might not know that my job exists; for example, ecological engineering didn't exist when I was in high school... it's a very new and emerging field", Alice explains.

At the same time, Alice is expanding her own research horizons. "I've just been awarded a Short-Term Fellowship from the Smithsonian Tropical Research Institute (STRI) in Panama", she says. "Later this year I'll be heading over to Panama for three months to work with Dr Rachel Collin, Director of the Bocas del Toro Research Station at STRI. I'll be building ecosystem models that hydrologically connect mangroves, salt flats and karst systems, and I'll be linking this project with work that I've done in Exmouth, Western Australia. This fellowship provides a unique opportunity to compare these landscapes which both face distinct local threats (salt mining in Western Australia and land conversion to aquaculture in Panama). I'll be doing a Panama–Australia comparison, aiming to understand how vulnerable they are to local threats as well as climate change. These are extremely data-poor environments and so I'm also trying to understand what we might be losing if they are degraded."

"What I'm most excited about is the community I'm going to be a part of"

Taking sediment samples in the seagrass meadows at Nudgee Beach. Image credit: Miranda Fittock

Kelsey Hannah wins student prize for best spoken presentation at ESA2024

Kelsey Hannah
CBCS PhD candidate

I had the privilege of attending the Ecological Society of Australia (ESA) conference held in Melbourne in December 2024. Being in the final year of my PhD, this conference was a significant opportunity to build connections and share my research with peers and leading experts in the field of conservation science. The experience became even more memorable when I was honoured with the Society for Conservation Biology (SCB) Student Prize for Best Spoken Presentation on Conservation Biology.

Inaugural winner

The SCB is a global organisation dedicated to advancing the science and practice of conserving the Earth's biodiversity. This award was one of several prizes presented at the conference, with 21 awards granted to students alone this year. ESA2024 also marked the inaugural presentation of this specific award. To be chosen from hundreds of student presenters amid such fierce competition was deeply humbling.

My presentation, titled *Understanding the flow of information and evidence in multilingual conservation citations*, delves into a critical yet often overlooked challenge in conservation science: the underutilisation of non-English-language evidence.

Conservation decisions depend on the best available scientific evidence, yet much of this evidence exists in languages other than English and is rarely incorporated into global conservation frameworks. My research aimed to uncover patterns of citation and evidence flow across 15 non-English languages and their interaction with English-language publications.

Tangible steps, practical measures

The findings revealed significant disparities. Non-English-language articles were cited far less frequently in the English-language literature than their English counterparts, despite their high citation rates within their respective languages.

Kelsey Hannah delivering her award-winning presentation at ESA2024, Melbourne, December 2024. Image: supplied

"To be chosen from hundreds of student presenters amid such fierce competition was deeply humbling"

Languages such as Hungarian, Polish, Korean and Russian emerged as being particularly under-cited in the English literature. Interestingly, articles with translated English abstracts were more likely to receive English citations, highlighting a tangible step that can be taken to increase the accessibility and visibility of non-English evidence. Surprisingly, other factors like study design rigour or a focus on threatened species had no significant impact on citation rates in English, further underscoring the dominance of linguistic barriers.

These results demonstrate the need to bridge language gaps to build a more inclusive and comprehensive understanding of global conservation challenges. Conservation issues are inherently global, and excluding evidence from non-English sources risks creating biased or incomplete solutions. My research advocates for practical measures, such as promoting the inclusion of English abstracts in non-English articles and fostering collaborations that amplify non-English contributions to conservation science.

Building awareness of language barriers

The ESA 2024 conference provided a platform to present this work, engage in thought-provoking discussions and gain insights from a diverse array of research spanning ecology, conservation, environmental and interdisciplinary science. Winning the SCB award was not only a personal milestone but also an affirmation of the importance of addressing language barriers in conservation.

I would like to extend my heartfelt congratulations to my fellow CBCS students who attended the conference and delivered outstanding presentations throughout. I am also deeply grateful to my supervisors, Associate Professor Tatsuya Amano and Professor Richard Fuller, for their invaluable guidance and support throughout my research journey. Additionally, I wish to acknowledge the School of the Environment for providing the funding that made it possible for me to attend this conference.

For me, this award is a testament to the growing awareness of the challenges my research addresses. Language barriers in conservation are not just an academic issue but also a practical one that affects how effectively we can protect species and ecosystems worldwide. The support and recognition from the SCB and the broader ESA community motivate me to continue this line of research and advocate for more inclusive scientific practices.

Finally, I am excited to share that the paper stemming from this research has been accepted for publication in *Conservation Biology*, and is expected to be published shortly. I hope it will contribute to the ongoing discourse on understanding language divisions and making conservation science more equitable.

Attending ESA2024 and receiving this award has been a highlight of my academic journey, and I am deeply grateful for the opportunity to share my work on such an important stage. As I near the completion of my PhD, I look forward to building on these insights and continuing to explore and overcome the barriers that exist within the field of conservation science.

CBCS launches inaugural diversity report

Samantha Wong-Topp
CBCS PhD candidate

The success of CBCS is built on the diversity of our people. This diversity has allowed us to create nuanced, interdisciplinary and innovative science.

However, until now we didn't know for sure exactly how diverse we really are. So, last year we conducted the first CBCS-wide survey with two key objectives: (1) understanding the diversity of CBCS members in terms of gender, sexual orientation, ethnicity, nationality, culture, disability, disciplines and collaboration; and (2) investigating what types of support CBCS members need most through our CBCS Small Grants Scheme and other mechanisms.

Led by CBCS's immediate past Deputy Director of Research, Associate Professor Tatsuya Amano, alongside PhD candidate and former HDR representative Nicola Sockhill and former ECR representative Dr Alice Twomey, the survey was distributed on 18 March 2024, and a report from its findings created, which is now available for download from the CBCS website.

Figure 1. Survey participants by gender identity.

The classifications were taken from the 2020 Standard for Sex, Gender, Variations of Sex Characteristics and Sexual Orientation Variables by the Australian Bureau of Statistics.

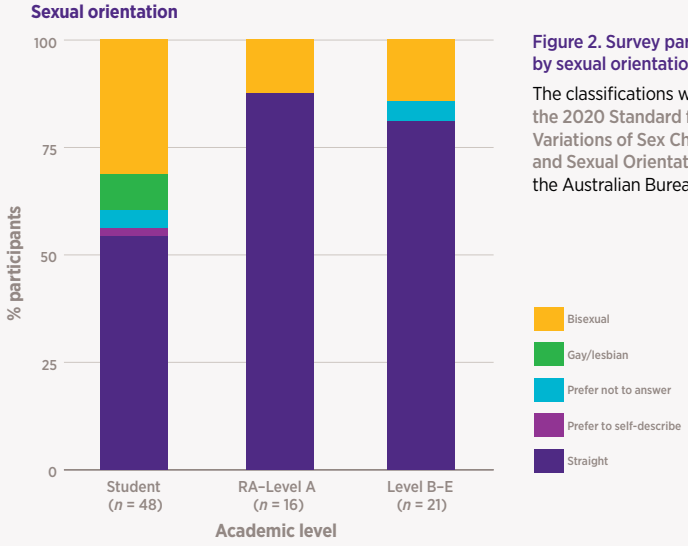


Figure 2. Survey participants by sexual orientation.

The classifications were taken from the 2020 Standard for Sex, Gender, Variations of Sex Characteristics and Sexual Orientation Variables by the Australian Bureau of Statistics.

"We at CBCS value and believe in diversity."

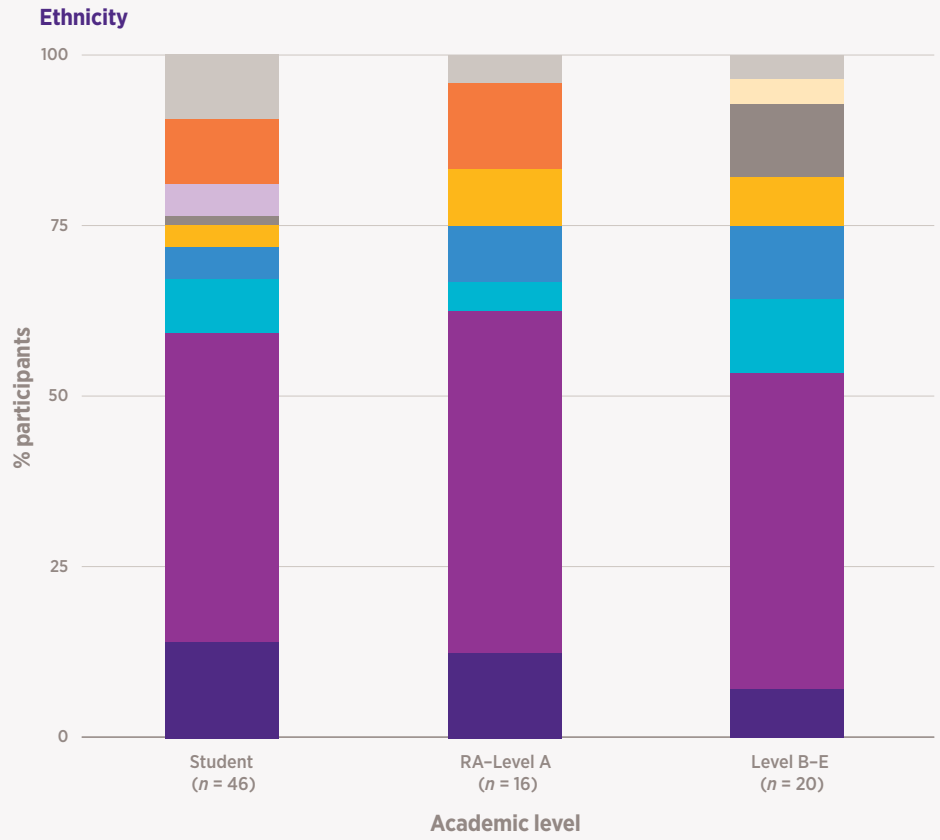


Figure 3. Survey participants by ethnicity.

This question related to participants' heritage, i.e., where their ancestors are from. Participants were asked to select any relevant options from 28 options ("Narrow groups" based on the Australian Standard Classification of Cultural and Ethnic Groups (2019) by the Australian Bureau of Statistics), plus Other. The responses were then aggregated into nine "Broad groups" based on the same source. North American was, however, separated from South and Central American, resulting in 10 Broad groups.

"We already knew that CBCS was a community of people from diverse backgrounds, but this first ever CBCS-wide survey has provided us the data to back that up", Tatsuya says. "We also reflect on our experience of the CBCS Small Grants Scheme over the past four years, and explore ways to support CBCS members, especially those in vulnerable positions.

We feel it is particularly meaningful, perhaps now more than ever, to emphasise that we at CBCS value and believe in diversity, and intend to support those who are currently and have historically been underrepresented in the field of conservation."

Some of the key findings from the report are presented here graphically. Access the full report here.

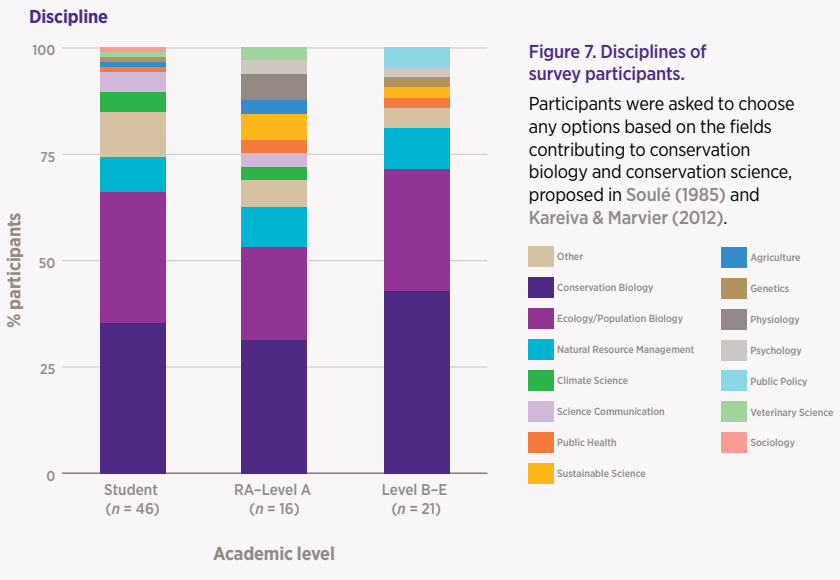


Figure 7. Disciplines of survey participants.

Participants were asked to choose any options based on the fields contributing to conservation biology and conservation science, proposed in Soulé (1985) and Kareiva & Marvier (2012).

Number of participants with collaboration

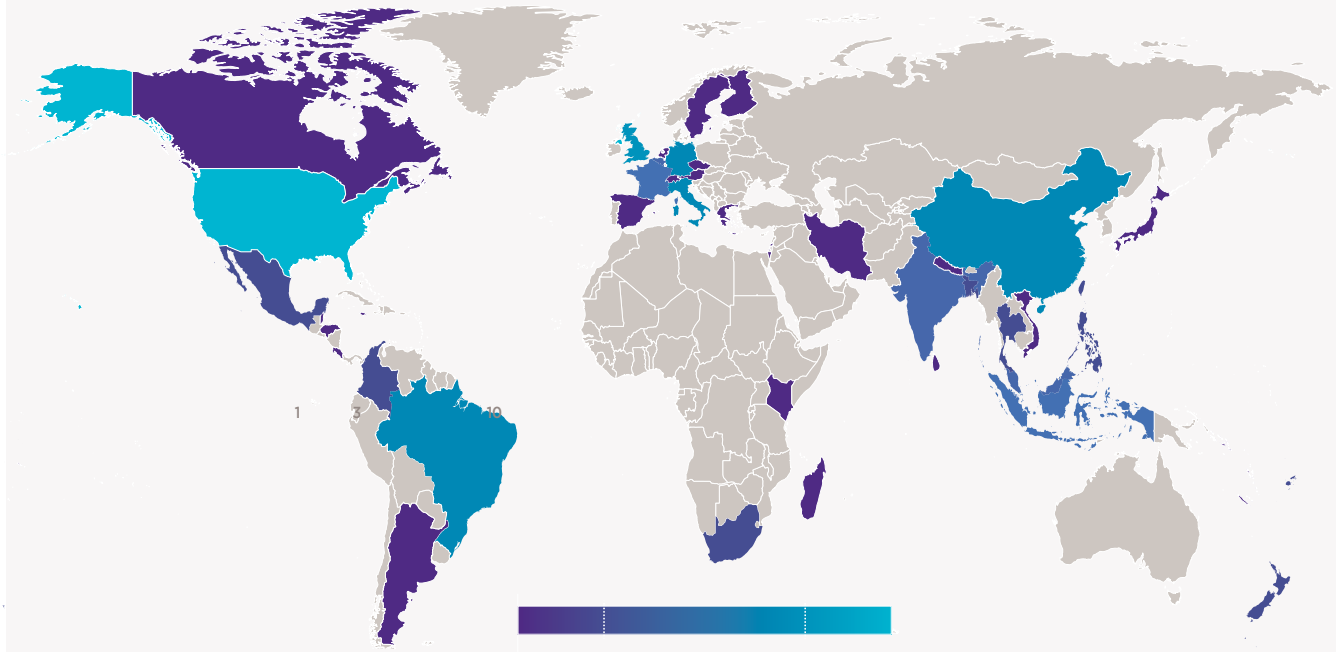


Figure 8. Number of survey participants who have collaborators affiliated with each country.

Participants were asked to list up to five countries of affiliation of their collaborators. Collaborators were defined as coauthors of the peer-reviewed papers that they published as the first author, corresponding author, or last author in 2023. Collaboration within Australia is not shown here.

Number of participants who have collaborators in each country

Country/territory	Number of participants
United States	24
United Kingdom	20
Brazil, Germany, Singapore	6
China, Italy	5
France, Indonesia	4
Belgium, India, Malaysia	3
Bangladesh, Colombia, Fiji, Mexico, New Zealand, Philippines, South Africa, Taiwan, Thailand	2
Argentina, Austria, Belize, Canada, Costa Rica, Czechia, Finland, Greece, Honduras, Iran, Israel, Jamaica, Japan, Kenya, Madagascar, Nepal, Netherlands, New Caledonia, Samoa, Solomon Islands, Spain, Sri Lanka, Sweden, Switzerland, Vanuatu, Vietnam	1

Table 2. Number of participants who have collaborators in each country.

Participants were asked to provide up to five countries of affiliation of their collaborators, limiting this to coauthors of the peer-reviewed papers that they published as the first author, corresponding author, or last author in 2023. Collaboration within Australia was excluded from this table.

Top to bottom The first day of the workshop. Image credit: Salit Kark
Greenwoodoconcha nux, an endemic land snail assessed during the workshop. Image credit: James Tweed

Norfolk Island invertebrate threat assessment workshop

James Tweed
CBCS PhD candidate

Insects and other invertebrates are vital to healthy ecosystems, providing functions and services such as pollination, nutrient cycling, pest control and food resources.

However, despite this importance, invertebrates are almost invariably underrepresented on threatened species lists. The IUCN Red List is the most complete source of threatened species information in the world. Currently, a total of 91,667 species are listed, of which only 30.4% are invertebrates.

This highlights the bias of conservation towards vertebrate species, as globally invertebrates account for >96% of the approximately 1.1 million described animal species.

The focus of my PhD research is the conservation of Norfolk Island's insect fauna. None of Norfolk Island's nearly 300 described endemic invertebrates have yet been assessed for the IUCN Red List, apart from a handful of snails (all outdated), one beetle and a freshwater shrimp. Given the tiny size of Norfolk Island (37.7 km^2) and its high degree of environmental degradation, it is vital we understand its endemic species and the threats they face to enable effective conservation.

"This workshop and the resulting threat assessments will help invertebrate conservation on Norfolk Island"

Experts and the wider CBCS community

To kick things off, we organised a workshop to bring together experts to collaboratively conduct the first comprehensive threat assessment of Norfolk Island's endemic invertebrates. I was lucky enough to receive grants from both the CBCS Small Grants Scheme and the Mohamed bin Zayed Species Conservation Fund that allowed me to make this idea a reality.

IUCN Red List assessment training took place before the workshop. This training was delivered by James Tallant (Ecosure Environmental Consultancy) and Janice Chanson (Re:wild), both expert Red List assessors, and was made available to all workshop participants. We opened additional spaces on the one-day training course to the wider CBCS community, providing a great opportunity for our CBCS colleagues to upskill in this important process.

The workshop was held in dual mode at The University of Queensland, with some participants attending in person and others joining online from Norfolk Island and various parts of Australia. A total of 18 experts participated in the workshop from 12 organisations, with several others contributing to assessments at later dates. A diverse range of specialists were represented, including taxonomists, ecologists, conservation managers and Red List assessors, among others, all with skills and expertise vital to accurately assessing the threat status of species.

Signpost species and assessments

The workshop ran over three days from 2–4 December 2024. The first day began with an excellent discussion of the threats known or suspected to be having an impact on Norfolk Island's invertebrates at present, as well as plausible future threats. The afternoon was spent undertaking assessments for what I termed "signpost species". These species were specifically chosen to represent the full range of taxonomic groups, ecologies, relative abundances, distributions and levels of knowledge of the Norfolk Island invertebrate fauna. By collectively undertaking assessments of these species, we were able to more rapidly assess the remaining taxa and ensure consistency between our assessments.

Days two and three focused on specific taxonomic groups. During these sessions, we completed preliminary assessments for land snails, arachnids and other non-insect arthropods, and made a sizeable dent in the insect group (by far the largest group of endemic invertebrates).

Next steps

The next step is to draft the assessment for each species. This is the laborious component of the assessment process; however, completing the drafts for the signpost species will undoubtedly speed it up, as they will provide a template for the other species.

The drafts, once completed and circulated to the relevant workshop participants, will be submitted to the IUCN for review and eventual publication on the Red List. I am balancing this with the completion of my PhD; however, we hope to submit the first batch of assessments to the IUCN in the first half of this year.

Ultimately, it is hoped that this workshop and the resulting threat assessments will help to set a baseline for invertebrate conservation on Norfolk Island. By involving a diverse range of experts in the process, it has been possible for us to identify species and threats of particular conservation concern, as well areas of data deficiency and directions for future research. In addition to the assessments themselves, we hope to collectively publish a paper summarising the approach used during the workshop and the outcomes of the assessments to provide a framework for similar projects elsewhere.

A huge thank you to all who participated in the workshop. Big thanks, too, to the CBCS Small Grants Scheme and the Mohamed bin Zayed Species Conservation Fund for their financial support, without which this workshop could not have been possible.

"It is vital we understand Norfolk Island's endemic species and the threats they face"

Brontispa norfolkensis, an endemic leaf beetle assessed during the workshop. Image credit: James Tweed

Wrapping up 2024: a celebration with the CBCS community

Samantha Wong-Topp
CBCS PhD candidate

Maddison Brown
CBCS PhD candidate
CBCS HDR Representative – Research and Community

Our annual CBCS end-of-year party

CBCS wrapped up 2024 with a fantastic end-of-year celebration on 3 December at The Pavilion, St Lucia campus, bringing together countless members of our community. It was a great opportunity to connect, reflect on the year's achievements and look ahead to 2025.

Associate Professor Angela Dean, Deputy Director of Community for CBCS, shares a few words about the night: "It was wonderful to see everyone come together for the end-of-year CBCS party. The people within the CBCS community (that is all of you!) are so central to what we do. The support of the CBCS network can help us all deliver scientific outputs for conservation impact and also help us on our career journey".

Angela also highlighted the importance of community support. "Turning up is so important – so, thanks to all of you.

If you are new to CBCS, please come and say 'hi'. As we move through 2025, we hope to keep supporting you, and enabling you to support each other – so please get in touch if you have needs or ideas for coming together."

On behalf of the CBCS Management Committee, we'd like to say a big thank you to everyone who attended and helped make the event such a success. We look forward to another year of collaboration, impact and connection in 2025!

Our annual CBCS speed talks

Before the end-of-year party, CBCS HDR Representatives Maddi Brown and Harrah Friedlander hosted another successful speed talk event in the awe-inspiring location of the Global Change Institute, bringing together members from all of CBCS to hear our PhD students share their research in a fun and informal setting.

Each student had five minutes to introduce themselves, share some of their work, and throw in a few unexpected facts along the way (did you know Harrah is a trained opera singer?!). Highlights of the talks included Skye Anderson's adorable photos of baby wedge tail shearwater chicks (her work spans from seabirds in Hawaii to cassowaries in tropical rainforests), Brodie Crouch's hilarious failed attempts to convince far north Queensland farmers to plant native trees, and Angela Liu's well-thought-out retirement plan (because it's never too early to prepare!). Thank you to all who spoke at the event.

The CBCS HDR speed talks were a great way to celebrate the breadth of research happening within CBCS. We can't wait to do it all again!

Left to right, clockwise End-of-year morning tea in the Great Court, hosted by CBCS Director Daniel Dunn. Image credit: Christina N. Zdenek

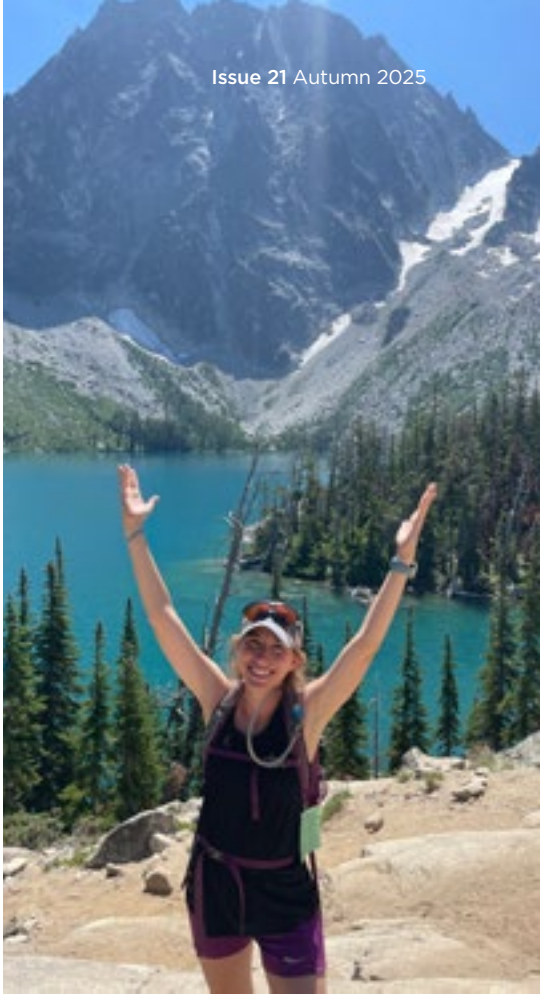
Carissa Klein moderating a panel discussion following a special seminar by Madeleine McKinnon. Left to right (seated): Amelia Wenger, Chris Roelfsema, Daniel Dunn, Madeleine McKinnon. Image credit: Christina N. Zdenek

Maddi Brown and Harrah Friedlander at the annual CBCS speed talks. Image credit: Skye Anderson

PROFILE

From stage to stream: finding harmony among heatwaves

Harrah Friedlander
CBCS PhD candidate
CBCS HDR Representative – Advancement and Community



Top to bottom, clockwise Hiking outside of Leavenworth, Washington, in the Cascade Mountain Range. Image credit: Joan Friedlander

Harrah performing in an immersive performance art piece in an alley in Chicago. Credit: NON:Op Open Opera Works

Harrah played Amy in this production of the opera *Little Women* at Northwestern University. Image credit: Joan Friedlander

If you had asked my high school self what her greatest dream was, it would have been to be a Broadway star performing nightly before massive crowds, living in a small but gorgeously decorated studio apartment in a crowded building in the centre of the Big Apple, the city that never sleeps, New York City.

This aspiration took me to Northwestern University, pursuing a theatre major, which eventually morphed into the new dream of becoming an operatic diva, singing on a new stage on a new continent every week, and I completed my Bachelor's with a degree in voice and opera performance. A Master's degree in voice and opera followed, during which I also dipped my toe into directing and developing productions. This culminated in a graduate recital that ended with me covered in paint and singing while other performers recited poetry and philosophy.

Volunteering leads to realisation

You may be double-checking at this point to see why this profile is in the CBCS newsletter. High school me would be just as shocked. Shocked that the idea of living smack-dab in the middle of a huge city would become anathema to me. Shocked that the only times I get on a stage, I am talking and not belting my heart out. Shocked that my new definition of a successful "performance" is getting a lab experiment to work or a field campaign resulting in usable data.

However, the signs were always there. When I was a student and performer at classical music festivals, I would spend the week of classes and rehearsals counting down to when I could get outside and explore the local national parks and hikes. This carried into my professional life as a performer, director and music teacher, where each week became a series of boxes to tick until the next time I could drive out to the local prairies or forest preserves. I began to volunteer with local conservation organisations and the Lincoln Park Zoo in Chicago, Illinois. Finally, I had the realisation that I could do this kind of work full time, and immediately began to apply for conservation biology programs around the United States.

"I began to see conservation not just as the preservation of a single entity but as the protection of an infinite web of interlocking pieces"

Infinite pieces, interlocking balance

At the University of Idaho, where I received my Bachelor's degree in conservation biology, I tried to absorb as many experiences and perspectives as I could. I felt like I was both making up for lost time and was eager to learn as much as possible about this world I had not even realised existed until long after my first undergraduate degree, during which I only needed to complete one science course and chose astronomy. I gained experience working with graduate students on rough-legged hawk and African ungulate research, interned with the Washington Department of Fish and Wildlife assisting with their pygmy rabbit conservation project, and filled my free time with exploring the unique Palouse landscape around Moscow, Idaho.

One of the most integral experiences of my undergraduate conservation degree was collaborating with and learning from then PhD student (now Dr!) Molly Garrett and her advisor and my undergraduate thesis advisor Dr Lisette Waits.

I assisted with Molly's research on landscape community genomics in the sagebrush steppe ecosystem, in which, in brief, Molly was looking at how the genetics of a foundational plant species impacted higher levels of biological organisation. Within this larger project, I focused on the arthropod communities on big sagebrush shrubs, assessing whether sagebrush subspecies impacted the larger arthropod community and how this was mediated by other variables like latitude or elevation. Through this work, I began to see conservation not just as the preservation of a single entity but as the protection of an infinite web of interlocking pieces, the loss of any one of which upsets the balance of the system. Like a piece of music, in which each instrument and voice contributes its own unique timbre and resonance, each element of the sagebrush steppe from the unassuming titular shrub to the majestic greater sage grouse to the microscopic soil microbes adds its own melody, the loss of any one of which leaves a devastating silence.

With a rough-legged hawk during my undergraduate degree at the University of Idaho, while assisting a PhD student. Image credit: Neil Paprocki

Ecological dynamics and social facilitation

My PhD research now at The University of Queensland focuses on how extreme temperature events affect ecological dynamics. While previously I was analysing the interweaving melodies of disparate organisms at a single moment in time, my objective now is to understand how disturbances can alter those melodies over brief and long periods. Are they able to re-form with the same strength as before, do they modulate into new harmonies, or are they lost? With my primary advisor **Dr Simon Hart** and **Professor Richard Fuller**, I am looking at the effects of heatwaves from the level of single species and their individual music in lab experiments to the global symphonic level across continents and hemispheres using huge datasets.

I am excited to explore these questions about ecological networks over the next few years and just as excited to facilitate collaborative and social networks within the CBCS community. As a student in CBCS during the first year of my PhD at UQ, I loved getting to know people and their research through CBCS events. Now as an HDR representative, I am eager to take an active role in facilitating those connections between students, faculty and external groups to amplify our voices, joy and impact.

"I am excited to explore questions about ecological networks"

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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