

Notes from the Field

The biannual newsletter of the Intercollege Degree Program in Ecology



IN THIS ISSUE

Letter From the Editor 02

UPDATES FROM ECOLOGY

Meet our New Faculty 03

Faculty & Student Achievements 06

Snapshots from the Field 07

INCLUSIVE ECOLOGY

Meet the ABC Committee 09

Research Spotlight: Nghumbi Project to Improve Soil Health & Fertility 10

Making the field SAFER: Scientist Adverse Field Experiences Research 14

ANNOUNCEMENTS

Graduate Student Publications 17

Letter From the Editor

Welcome to the Spring 2026 issue of *Notes from the Field*. This spring, we turn our attention to inclusion – not in the abstract or as an aspiration, but as something being built right now, by people in this program. The pieces collected here span the breadth of that effort, from department-level initiatives to ongoing research around the world.

We welcome four new faculty and their wide-ranging research to the Ecology Program, celebrate the achievements and university-wide recognition of colleagues, and share student snapshots from the field – where I, with too much pride, include a grainy photo of my favorite rat.

You'll hear from the ABC Committee, whose efforts are quietly strengthening the culture and community of our program. PhD student Kelsey Mercurio shares the ups and downs of the Nghumbi Project, a model of community-based participatory research that asks us to consider who produces ecological knowledge and for whom. And we explore the SAFER Project: postdoc Dr. Kate Thompson's NSF-funded effort to document and prevent the harms researchers – especially those from marginalized backgrounds – face in the field.

I am grateful to everyone who wrote so candidly about their experiences. I will now speak, as usual, too candidly about my own. I started my PhD here in 2020 with one (1) cat in the middle of a pandemic, working remotely from my apartment where the long overdue and aptly titled new Strokes album was on repeat. Since then, I've left the house a few times to wax poetic about rats and frown on three different continents in five new countries.

In Nigeria, I was colonized with MRSA, learned to interrupt my advisor (and everyone else), and cohabited with a family of orange frogs in my poorly functioning toilet – an anecdote the aforementioned advisor still does not believe. In State College, my dissertation plan changed, changed again, and changed one final(ish) time. Despite misanthropic tendencies, I enthusiastically abandoned my mathematical aspirations to embrace the socio in socioecological. I painstakingly moved all my plants into the Susan Welch building and all my plants out again – my parked car totaled by an undergrad in the process.

I have remained ever reclusive, but the diversity, support, and warmth of this program's faculty and students is something I find genuinely bright. If you've made the effort to speak with me, I appreciate it – and ask only that you not recall my all too public and confident belief that I would defend before the patron saints of garage rock revival ever went back to the studio.

Here, now, at the close of my sixth year, I look fondly down the barrel of a seventh. I have three (3) cats. The Strokes have, impossibly, announced an album release date with no consideration for my real and imagined research delays. The postwoman brings me the new single on cassette tape and I meet her at the door – because, yes, with the collapse of the Susan Welch building, I once again work remotely from my apartment. My dissertation timeline, office space, and favorite aging rock stars remain equally, stubbornly unpredictable. For now, I've made my peace with that – but with all fondness, I hope I will not see you this time next year.

– Christina Harden / Spring 2026 Editor

Meet Our New Faculty

The Ecology Program is growing! Join us in welcoming four new faculty to our community.



HAYDEN BOCK
Plant Science

My scientific training meandered through soil ecology, microbial ecology, entomology, urban ecology, and plant science. In my current role as assistant professor of landscape sustainability, I use this interdisciplinary foundation to address questions in urban ecosystem ecology, with a particular focus on urban soils and the ways they shape, constrain, and support green infrastructure and ecosystem function. In my lab, we are currently investigating the ecological ramifications of soil excavation in urban systems and examine the biological and ecological consequences of common greenspace management practices. With such a large and vibrant community of ecologists across the program, I am excited to undertake more collaborative projects that expand Penn State's presence in urban ecology.

Outside of the lab, I enjoy fly fishing, competitive target archery, and spending time with my family.

KARA FIKRIG
Entomology

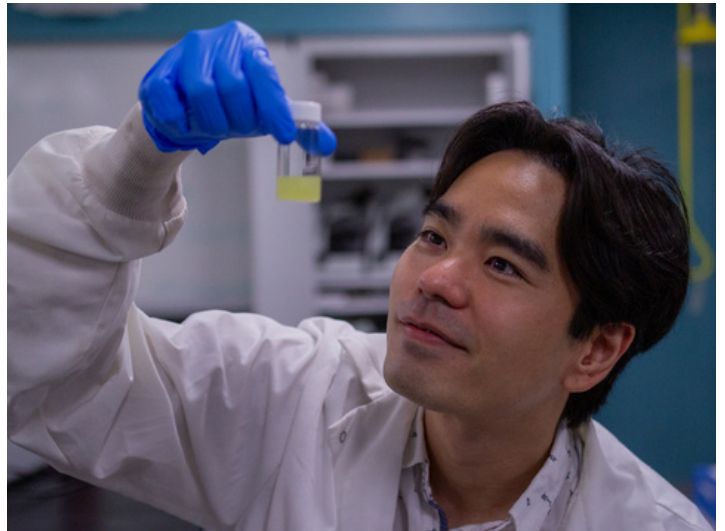
My research addresses questions at the intersection of entomology and public health, with a focus on understanding the drivers and barriers of mosquito invasions. I study two primary systems: the spread of *Aedes aegypti* and dengue virus in the Peruvian Amazon, and the invasion of *Aedes albopictus* in Pennsylvania.

In the Amazon, my research has documented the movement of the dengue vector from urban centers into remote rural communities. In parallel, I conduct epidemiological studies to examine how this expanded vector distribution



influences dengue virus transmission across the region. Using community-based participatory research approaches, my team evaluates the effectiveness of vector control strategies in rural communities, including solid waste management systems and household visits by community health workers to eliminate larval habitats. You can follow the project on Instagram at [@projectriolimpio!](#) In Pennsylvania, my lab explores questions related to the invasion of *Aedes albopictus*, as well as broader aspects of mosquito ecology and behavior, including mosquito feeding ecology.

Outside of the lab, I enjoy hiking with my dog and playing soccer!



HIDE INAMINE

Biology

I grew up in Okinawa, Japan, and got my BA in Biology at University of Chicago and my PhD in Ecology with Applied Math at Cornell. I came to Penn State as a postdoc and am now an Assistant Research Professor. I am a theoretical ecologist and an experimental microbial ecologist. In general my research program focuses on understanding how populations persist and evolve in dynamic environments. To address this question, I build and analyze mathematical models that connect processes occurring at the individual, population, and community levels, and test emergent model predictions using laboratory microcosms.

One of my current research directions is on understanding the effects of disturbances on the structures and functions of communities with competitive and trophic interactions. I tend to be system-agnostic and enjoy collaborating on various systems. I've worked on systems such as *Drosophila*, monarch butterflies, rats, cress plants, soil microbiomes, and protists.

Outside of the lab, I love movies and have been going to the [Centre Film Fest](#) (shout-out!) for the past few years.

JOHN MAJORIS

Biology



Dr. John Majoris leads the [Majoris Marine Ecology & Aquaculture Lab](#) in the Müller Laboratory. His research brings together marine ecology, aquaculture, and evolutionary biology to understand how environmental change shapes the early life stages of coral reef fishes and, ultimately, the health of marine populations.

A central focus of his work examines whether fish parents can influence how far their offspring disperse. As part of a collaborative National Science Foundation–funded project with researchers at Boston University and St. Olaf College, Dr. Majoris and his team study clownfish populations in Papua New Guinea to test whether parents adjust offspring traits in response to local reef conditions. The team predicts that parents living in healthy habitats will produce young that are more likely to stay close to home, while parents in degraded habitats may produce young that are better suited to travel farther in search of improved environments.

To test these predictions, the project combines field research on coral reefs with controlled aquarium experiments, long-term habitat monitoring, genetic analyses, and modeling approaches. Unfortunately, consecutive temperature induced coral bleaching events have led to rapid global declines in reef health, making healthy reefs harder and harder to find. By uncovering whether reef fish respond to environmental through developmental plasticity, Dr. Majoris' research advances our understanding of marine population connectivity and helps inform conservation strategies for coral reefs facing rapid global change. Through hands-on mentorship and interdisciplinary collaboration, his lab prepares students to address complex environmental challenges with both scientific rigor and real-world impact.

Outside of the lab, Dr. Majoris enjoys tackling home renovation and design projects, which provide a creative, hands-on counterbalance to scientific research. He also spends time harness-training his cats so they can safely explore the outdoors—an ongoing (and entertaining) experiment in patience, positive reinforcement, that's fueled by his passion for studying animal behavior.



Dr. Majoris also provided the cover photo for this edition of *Notes from the Field*.

Ecology Achievements

Join us in congratulating our Ecologists for their outstanding accomplishments!

PETER HUDSON

Biology

Dr. Peter Hudson, Willaman Professor of Biology and former director of the Huck Institutes of the Life Sciences from 2006-2019, was awarded the **Penn State Global Lifetime Achievement Award**. This award recognizes an individual who has consistently demonstrated exceptional achievement towards furthering the global vision of Penn State across their career at the university.

Dr. Hudson's photograph, Prairie Chicken Jump-Off, was also selected as **Highly Honored in the Nature's Best International Awards 2025**.



JASON KAYE

Ecosystem Science and Management

Dr. Jason Kaye, Distinguished Professor of Soil Biogeochemistry, was recently awarded the **Graduate School Alumni Society Graduate Program Chair Leadership Award** for his work as Chair of the Ecology IGDP. This award recognizes outstanding leadership by graduate program chairs who have made exceptional contributions to both students and faculty. It is a well-deserved honor, and a reflection of Dr. Kaye's dedication, thoughtfulness, and steady leadership of the Ecology Intercollege Graduate Degree Program.

MICHELLE ZAVALA-PAEZ

Ecosystem Science and Management

Former Ecology PhD student and current post-doctoral fellow, Dr. Michelle Zavala-Paez has been awarded the **Paul Hand Endowment for Graduate Education in Agricultural Sciences** by the College of Agricultural Sciences.

This image illustrates a jump-off between two male Greater Prairie Chickens (*Tympanuchus cupido*). One bird launches into the air in an attempt to strike its opponent. This triggers a reciprocal jump attack by its adversary.

HIGHLY HONORED | BIRDS | Prairie Chicken Jump-Off, Craig, Colorado, USA | By © Peter Hudson

Congratulations to the following PhD students on successful completion of their qualifying exams!

SHANNON RYAN

advised by Dr. John Tooker

LAURA KAUER-SHUCK

advised by Dr. Gui Becker

MACY LITTELL

advised by Dr. John Majoris

Snapshots from the Field

Current Ecology students share photos from their research!



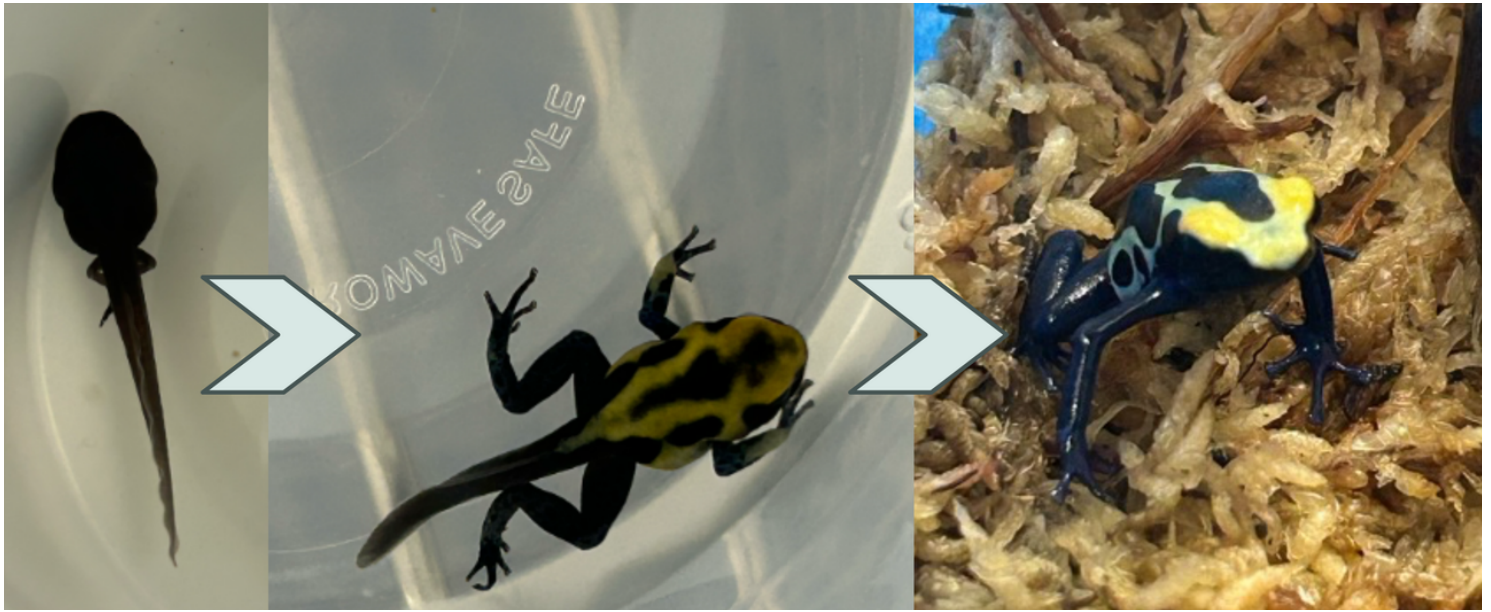
Christina Harden, PhD Student

Rodent trapping has begun for the Scaling Lassa Virus Dynamics within Anthropogenic Ecosystems Study (SCAPES)! We are examining exposure to *Mammarenavirus lassaense*, the causative agent of Lassa fever, in humans and rodents across an endemic area of southern Nigeria. We're using a combination of live traps, camera traps, and track plates to estimate the abundance of multimammate rats (*Mastomys spp.*), the main reservoir host of the virus. Here, one chats with a friend stuck in the trap.



Abby Weber, PhD Student

Capturing yearling black bears is hard work - especially when they are situated 6 feet underground in an excavation dug out by mom! This yearling male was denned up with his sibling and mom in southcentral PA, and he was fitted with a GPS collar that will track his movement and survival for 1 year. His data combined with 12 other yearlings collared during the denning season will help increase our understanding of what factors influence yearling survival, a potentially risky, but understudied, life stage for black bears.



Rosie Cuomo, MS Student

Tadpole to frog evolution! We are examining how aquatic microbial environments and carotenoid supplementation as tadpoles affects later life disease susceptibility in poison dart frogs (*Dendrobates tinctorius*).



Liz McAlpine, PhD Student

What do turtles do when it gets too hot? To find out, Liz and her colleagues tracked 74 turtles for three years, looking at habitat, behavior, and body temperature. Her turtles are carrying temperature loggers on their backs, giving researchers a completely new look into how reptiles use different part of the landscape to maintain their preferred temperatures.



Di'Carlo Jackson, MS Student

An island fence lizard (*Sceloporus becki*)! Di'Carlo recently had the pleasure of presenting a guest lecture at the University of the West Indies in Mona, Jamaica on his research on insular dwarfism and how it shapes reproductive strategies in reptiles on California's Channel Islands.

Meet the ABC Committee

Access, Belonging, and Community Committee Chair Dr. Sara Hermann, along with student representatives Di'Carlo Jackson Jr. and Laura Kauer Schuck share current projects and future goals

The Access, Belonging, and Community (ABC) Committee is an organization within the Ecology Graduate Program dedicated to fostering an inclusive, diverse, and supportive environment for graduate students. Established in 2020 by Dr. Sara Hermann and Dr. Jared Ali, the committee was created with the goal of facilitating workshops, training, and growth toward a diverse and equitable ecology community. Today, the committee continues to center its work on strengthening community and improving the graduate student and postdoctoral experience.

One of the committee's hallmark initiatives is the Chaos Cabinets program. These cabinets, placed in key academic buildings, are stocked with everyday essentials that students may need during long days on campus. Items range from non-perishable snacks and personal hygiene products to basic first-aid supplies, emergency items, and occasional seasonal necessities such as gloves or extra clothing. The goal of the Chaos Cabinets is simple: to alleviate some of the small stresses and unexpected challenges that graduate students often face while studying, teaching, or conducting research. The cabinets are currently located in the Forest Resources Building, the Agricultural Sciences Building, the Millennium Science Complex, and the Mueller Building, which are representative spaces for our Ecology program.

Beyond the cabinets, the committee also organizes and collaborates on a variety of social and community building events designed to help strengthen connections across the program. Because Ecology is an interdisciplinary field spread across several campus buildings and departments, it can be a challenge for us to regularly interact with another. To help bridge that gap, the committee has hosted events such as a cider and costume party and an outdoor field day, both of which have been well-attended and enjoyed by attendees. Many students have expressed that these gatherings are fun and meaningful opportunities to meet others in the program, and the committee plans to continue offering similar events in the future.

Another ongoing project is the development of a comprehensive Resource Booklet, intended to serve both incoming and current students, postdoctoral scholars, staff, and faculty. This guide will compile useful information on housing, food security resources, local and campus activities, transportation tips, and important points of contact within the university. By consolidating this information, the committee hopes to make it easier for students to navigate both the graduate program and life in State College, ultimately supporting a smoother transition into and through their time in the program.

Finally, the committee has developed and will regularly distribute well-being surveys to better understand the experiences and challenges faced by Ecology graduate students and postdoctoral scholars. These surveys will provide valuable insights into ecology member welfare, highlight areas where support may be lacking, and help the committee prioritize initiatives that most effectively address community needs. By collecting this feedback, the ABC Committee aims to continually assess the environment, identify areas of improvement, and provide resources to members of the program.

Research Spotlight: Nghumbi Project to Improve Soil Health & Fertility

Kelsey Mercurio, Ecology PhD student, dual title in International Agriculture & Development, on her collaborative research with smallholder farmers in Tanzania



I'm a co-founder of Mradi wa Kuboresha Afya na Rutuba ya Udongo Nghumbi (MKARUN), or Nghumbi Project to Improve Soil Health and Fertility, which is a program of the Tanzanian NGO Community Development Empowerment Organization (CDEO). Since 2022, MKARUN has collaborated with farmers in Nghumbi Village (Kongwa District, Dodoma Region, Tanzania), to test and promote legume cover crops and green manures in local maize and sorghum systems. We combine farmer field trials with training on soil health, nitrogen fixation, integrated pest management, and sustainable land management. The project has built local capacity by engaging farmers directly in research, monitoring, and adaptation of practices, ensuring the research is relevant to address challenges faced by real people and promotes multi-

directional learning between farmers, researchers, and agricultural service providers. Our participatory approach enables testing practices across a broader range of soil and management environments than is typical for field trials at research stations. This creates an opportunity to explore why practice performance varies across farms, including what role plant-associated microbiomes may play among the many factors shaping outcomes.

The Backstory: Since before starting undergrad, I knew I wanted to do collaborative research with smallholder farmers on plant-microbe interactions, but I had no idea what that would look like. My connection to Nghumbi started through Engineers Without Borders (EWB) at my undergrad institution, University of New Hampshire.

I was studying sustainable agriculture and I ended up connecting with EWB about agriculture-related needs in Nghumbi. We proposed an initial project that never went anywhere, but when I was graduating, I was encouraged to go to Nghumbi for a month or so, to learn and see what possibilities for future projects there might be. I decided against this, since I didn't feel I had enough experience, and much of my experience was in the lab. Instead, I got a job with the Natural Resources Conservation Service (NRCS) in Massachusetts, which gave me experience working with small-scale farmers on a wide range of projects, including cover crops.

A few months in, I decided that I had at least enough experience to go to Nghumbi, learn a lot, and not look like a complete idiot. I somehow convinced my new friend Sara, who had studied international agriculture in undergrad and soil science for her masters, to go with me. We connected with our future Tanzanian colleagues and travelled to Nghumbi for 2 weeks in the summer of 2022 to conduct a sort of informal needs assessment. Fast forward to a few months later, Sara and I found ourselves hurling headlong into a developing project that we were wholly unprepared for.

Informed by community discussions, we had settled on a design to test cowpea as an early-planted cover crop and intercrop. We were putting together training materials on soil health, soil nutrients, and integrated pest management, as well as field monitoring forms for farmers to use with the field season rapidly approaching. It was a rocky start.

During the first year of MKARUN, I applied to graduate school and the NSF-GRFP. Our first trip to Nghumbi had helped me decide on legume-rhizobia symbiosis and nitrogen fixation as the primary area I wanted to pursue. When I came across Liana Burghardt's lab, I felt like I had found the perfect fit for plant-microbe research that would be relevant in Nghumbi. Fortunately, Liana was very supportive of my request to bring my connections in Tanzania to her lab, and receiving the NSF-GRFP helped make that a possibility.

Now, as a co-founder, I work closely with my fellow team members in CDEO and contribute to planning and coordinating activities in the field, developing training materials and field monitoring tools for farmers, experimental design, developing field assessment protocols, and managing finances.

How can we make legume cover crops work better for farmers in semi-arid areas?

**Mradi wa
Kuboresha
Afya na
Rutuba ya
Udongo
Nghumbi**
**Nghumbi Project to
Improve Soil Health
and Fertility**



PennState



Sometimes field assessments include a formal research component, and other times the information we collect is just for internal program use. Usually, there is a combination of plant and field data collection and talking with farmers. I also help coordinate the collaborations with University of Dodoma and Penn State and apply for funding.

The Participatory Approach: Truthfully, the design of the project wasn't very participatory at the beginning, but that shifted during the first field assessments in April and especially the summer of 2023, when we had time to talk in-depth with each farmer and hold a brainstorming meeting as a group. That first year had very low rainfall, and we got a lot of feedback from farmers for how to improve things. Key takeaways were that seeds need to arrive earlier, rainwater capture practices should be included in the design, the practice should be tailored based on soil type, one row of cowpea instead of two, and change the maize and cowpea varieties. Since then, we've made a lot of changes based on farmer feedback.

For example, farmers helped us understand what we were seeing in the field across farms and years, and this has shaped how we've framed the research questions, soil parameters to measure, and approaches to data analysis. Reviewing interview notes and listening to recordings, I remembered that multiple farmers observed soil staying more moist in intercrop plots compared to sole cereal plots, and they considered that an important benefit relevant to the current growing season. That signaled the importance of also analyzing rainy season cover, and was one reason we decided to keep soil cover photos in the rainy season assessment that is finishing up this week.

One result we shared at a workshop last July was that nodule numbers varied a lot across farms. One farmer asked how they can make sure the plants have enough nodules. This question has shaped the design of a greenhouse experiment that we put in a grant

application and got partially funded, which will test crushed nodules as a locally available and potentially locally adapted inoculant.

The Challenges: Funding. When MKARUN first started, my friend Sara and I were paying for everything, including compensation for our Tanzanian team members and lead farmers. As time has gone on, we've applied for funding and have been fortunate to receive a number of small grants to keep things going and cover some research costs, but they've never covered the entire cost of running MKARUN, so there has always been a substantial amount paid out of pocket. Also, some of the funding sources are restricted in what they can cover, so they can't always be used to pay personnel or to cover in-country travel and accommodation costs for collaborators. And there are many costs for which we can't get receipts, especially for things purchased in rural areas. These issues, plus grant requirements tied to U.S. contexts, make it harder to cover costs on existing grants. The UDOM-CDEO-PSU team applied to several grants this past fall and one of them was successful! Liana received faculty bridge funding from Penn State Agricultural Sciences Global that will cover the costs of seeds for farmer field trials in 2027, supplies for our greenhouse experiment, and travel costs for me to set up our greenhouse experiment and join field assessments. We still need to get the funding to cover the remaining costs for next year, since the bridge funding can't be used to pay people. We are also supporting farmer field trials this year, for which I am the only funding source. I'm lucky that I've been in a position to do that so far, but it's tight, and I know that it won't be sustainable long-term.

Ethics are also a constant question – are we doing things the right way? Are we creating unnecessary risk or work for our farmer participants? How do we balance minimizing risk with keeping plots large enough for them to be worth farmers' time?

How do we decide which farmers to invite to participate, given limits of risk, funding, time, and our team's capacity to keep track of how things are going? Are we paying our team members and farmer field work helpers enough? Are we collaborative enough in grant applications? How do we balance credit and confidentiality when farmers help collect data and samples in the field but are also interviewees? Are we giving something back to students at UDOM? What kind of power dynamics does unequal access to resources and colonial legacies create, and are we able to fully mitigate that?

There are other challenges, like research clearances, language barriers, time zones, access to lab equipment and particular reagents, finishing work in limited windows of time, extensive time commitment, team members moving away, etc. But funding and ethics are the main ones that keep me up at night.



Working with farmers has pushed me to do better science – because getting the answers right has human implications.



The Rewards: It's the relationships, and a sense that all of us are working together towards goals that matter. I love visiting farms, talking with farmers, learning from them, and collaboratively exploring how we can get agricultural practices and nitrogen fixation to work better for everyone. It's exciting when our participating farmers ask questions about nodules and microbes, explain the benefits of cover crops and soil health to other farmers, indicate that the data collection and monitoring they do as part of MKARUN has helped them in their management, or let us know that their MKARUN fields yielded higher than their typical fields. In addition to the general roles of all MKARUN participants, we pay a smaller number of farmers to help us with data and sample collection during field assessments, which has been really fun. There's nothing like digging up root nodules or waiting out a rainstorm together to build

connection, despite the language and cultural barriers. My collaborators at CDEO and UDOM are also amazing - this project wouldn't go anywhere without them. On the days when I'm working on less exciting things like data analysis, writing, or PCR that just won't work, MKARUN is what keeps me going. I know that what I'm working on has a purpose, and there are real people who care about the answers to the questions. Working with farmers has pushed me to do better science – because getting the answers right has human implications.

The Future Goals: Expand MKARUN to more farmers and communities. Develop local seed banks for legumes, cover crops, and plants that can be used for insect control. Understand how nodule microbiomes relate to plant performance, and involve farmers in shaping microbiome-oriented questions. Involve local students from Nghumbi Secondary School, as well as undergraduates and grad students from UDOM in ongoing research.

If you are interested in learning more, supporting us, collaborating, or becoming a part of this work, check out the [CDEO website](#) or [email Kelsey](#). MKARUN has needs for expertise in a variety of areas, so if you or someone you know has an interest or skill that might be relevant, please reach out!



Kelsey Mercurio is a third year PhD student in the Burghardt Lab.

Making the field SAFER: Scientist Adverse Field Experiences Research

An NSF-funded project led by **Dr. Katharine Thompson**, a Presidential Postdoctoral Fellow and environmental anthropologist who studies how people adapt to climate change and make decisions to find safety and stability within socioecological systems.

What is the SAFER Project?

Our intention is to build a large-scale, cross-disciplinary database of incidents experienced while conducting fieldwork by a scientists in a range of disciplines. We want to understand the type of incidents that occur and to whom, while also identifying the main causal and protective factors in those incidents.

We're also collecting data to build fieldwork safety plans that can effectively support the scientific community, including researchers from socially stigmatized backgrounds who are at elevated risk of experiencing traumas in fieldwork. Our interdisciplinary team uses a combination of questionnaires, focus group discussions, and in-depth interviews with scientists who conduct fieldwork. This information will help field scientists identify patterns of risk and inform best practices for safety management.

Why is this project necessary?

Fieldwork is a vital but often traumatizing part of academic career advancement, and certain groups are disproportionately likely to have traumatic experiences in the field which adversely affect their career paths. Academic fieldwork has one of the highest rates of sexual harassment across disciplines, including ecology (Clancy et al, 2014; Primack et al, 2023), and beyond harassment, other serious safety incidents like physical injury, vehicular accidents,



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The stories that we hear show that there's a broad spectrum of traumatic events beyond what we currently study – and that all of them can not only ruin a field season, but make someone not want to be a scientist anymore.

————— “ —————

environmental hazards, and mental health crises remain largely undocumented. The lack of data inhibits our ability to create effective safety guidelines to reduce incidents and post-incident response plans and support systems that protect field researchers.

What inspired you to propose SAFER?

Midway through grad school, I went to work for REI and I was really impressed by REI's safety standards and policies. In their guiding practices, they were doing some of the same activities that scientists do to collect data – like caving, rafting, or hiking in dangerous environments, but they had policies to make sure that everyone involved was safe. And those policies didn't get in the way of doing fun stuff; in fact, it made everything more accessible.

I really loved those policies: they increased my respect for myself, and the safety standards that I'm entitled to as a human being, and I couldn't understand why we didn't have them in science – especially with the power hierarchies of academia. So one day I was talking with my boss at REI about it and he said, "Sounds like you should be the person to do that!" and that's literally how the grant started.

I was going to do it for free – but thankfully a lovely postdoc told me about the NSF Ethics directorate, which I had no idea existed. It was submitted and funded on the first round! But it truly would not have happened without people seeing value in it and helping me push it forward.

What have you learned so far?

First off, that there's actually a lot more foreword momentum and places for this conversation than I thought. And some of those places have evolved within just the last few years, which is very encouraging. I've also learned that this effort is just one – a unique one, but still just one of many going on. A lot of people are trying to tackle this problem from different sides – whether it's people who are interested in more LGBTQIA+ representation and safety in the field, or people more interested in formalizing policy guidelines – I'm excited that I'm not alone.

Another thing I've learned is that there's still a lot of hesitancy towards this, especially from people higher up in the hierarchy who don't want their field sites to be seen as too dangerous to be funded and therefore don't feel incentivized to participate, so there's still that pushback. But I think more and more we'll find good examples from non-academic fieldwork – geology does a lot of fieldwork for the government and private companies, for example, or models from wilderness recreation that we can continue to adapt into safety science approaches for academia, so long as people keep being open to it.



Photo courtesy of the SCAPES project.

At a broad scale, from our qualitative surveys and focus groups, we've learned that harm is widespread and there are so many different types of harm people experience – from anecdotes of getting an acacia thorn stuck through your foot, all the way up to witnessing and experiencing interpersonal harm, like the murder of a field team member. The stories that we hear show that there's a broad spectrum of traumatic events beyond what we currently study – and that all of them can not only ruin a field season, but make someone not want to be a scientist anymore. We just wrapped up our quantitative survey, and analyzing those responses is our objective for the upcoming year.

We recently led a workshop at the American Association of Biological Anthropologists, it's one of four that we've done now, where we talk about how to identify risks in the field and think about the things that make them more likely. Risk identification and mitigation happens on a spectrum: how likely events are and how serious they are likely to be – but we don't often think about things that can also make something more likely to be consequential or severe. So, for example, malaria in an area close to a clinic is not ideal, but also not that big of a problem. But malaria in an area with limited access to treatment and poor service and communication for evacuation suddenly becomes a much more serious situation. Our workshop helps people identify not just the risk itself – which is often where policy stops, but also things that will make it far worse.

The SAFER project is funded jointly by the Directorate for Biological Sciences and the Directorate for Geosciences, and is managed by the ER2 Program of the Directorate for Social, Behavioral and Economic Sciences. [Award 2314594](#). Check out [our website](#) to get more information on the project!

“
Even though you can't perfectly baby-proof fieldwork, there's a lot that can be done to both prevent some of these issues and improve the way we respond to them.
”

What do you hope this project will accomplish?

Through this project, we hope to spark a real movement toward safer field science by better understanding the factors that put scientists at risk. Even though you can't perfectly baby-proof fieldwork, there's a lot that can be done to both prevent some of these issues and improve the way we respond to them. By identifying common drivers of incidents in fieldwork, we can pinpoint the specific areas most in need of change. Central to this work are open, honest conversations that allow us to explore how incidents affect the careers and lives of those involved – including their long-term effects on well-being and career trajectories. Ultimately, we hope this project serves as a catalyst for a field-wide cultural shift that makes safe field science the norm, not the exception.



Graduate Student Publications

- Buttimer S., Neely W. J., **Boyette J. M.**, Lambertini C., Martins R., Paniagua Torres K. A., Rodriguez D., Becker C.G. (2026). Host genus and habitat use shape the distribution of *Batrachochytrium dendrobatidis* lineages in a hyper-diverse tropical amphibian community. *Ecology and Evolution*. doi: [10.1002/ece3.73250](https://doi.org/10.1002/ece3.73250)
- Carachilo I.**, Starr C., Foster R., Arienzo M. M., Grant C. J. (2025). Quantifying and classifying microplastics and microparticles across aquatic heterotrophs from headwater streams in central Pennsylvania. *Journal of Freshwater Ecology*. doi: [10.1080/02705060.2025.2579096](https://doi.org/10.1080/02705060.2025.2579096)
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