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# NOTES FROM THE FIELD

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The Biannual Newsletter of the Intercollege Graduate Degree Program in Ecology



*The Pennsylvania State University*

## Table of Contents:

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<i>The Rules of Community Ecology to Build a Diverse, Inclusive, and Cohesive Environment..</i>	<b>2</b>
By: Luana Bresciani .....	<b>2</b>
<i>Meet the 2024 Graduate Student Cohort .....</i>	<b>4</b>
<i>Reflection about the 2024 Ecology Retreat.....</i>	<b>10</b>
By: Laura Schuck .....	<b>10</b>
<i>Adventures in Ecology: My First Field Season in the Channel Islands .....</i>	<b>11</b>
By: Di’Carlo Jackson Jr.....	<b>11</b>
<i>Reflection from Andersen Award Recipients.....</i>	<b>13</b>
By: Caleb Butler (he/they) .....	<b>13</b>
By: Sam Albee.....	<b>15</b>
<i>Reflection from the 3rd Annual Biology and Ecology Student Research Showcase .....</i>	<b>16</b>
By: Emma van der Heide (with help from Katie Yan, BioGSA president).....	<b>16</b>
<i>Awards and Publications .....</i>	<b>19</b>

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# The Rules of Community Ecology to Build a Diverse, Inclusive, and Cohesive Environment

By: Luana Bresciani

Studying community ecology is my passion. While reflecting on how communities' function in natural environments—microbial communities, in my case—I often draw parallels with humans and how we function as a society. In ecological terms, a community can be defined as a group of different species that interact and coexist in the same space, whereas in social sciences, it refers to a group of people living or working together.

The first concept from community ecology that translates well to our human "ecological" community is diversity. Diverse communities in natural systems are crucial for promoting ecosystem functioning and stability. Different species bring different capabilities, and functional efficiency in varied ways, and together create a resilient environment, enhancing the genetic resources needed to cope with stresses and disturbances. This concept applies to our social and professional groups too—an inclusive environment fosters innovation, creativity, and our capacity to solve problems. Moreover, inclusive spaces help us as a society work toward a fairer, more equal, and more secure world.

A diverse environment is often shaped by the introduction of new species. Invasion is a natural phenomenon where a non-native species enters a new ecosystem, often increasing biodiversity. We tend to think of invasions as negative events, particularly when invasive species disrupt ecosystem function and balance. However, natural systems evolve through the interplay of resident and alien species, and dispersal is often a key trait for survival. Similarly, people from different backgrounds contribute to the evolution and productivity of our groups. They bring new perspectives, and broader experiences, and enrich our communities, helping us evolve both personally and collectively. In fact, in diverse environments, bad "invaders" or bad ideas are less likely to succeed—the best way to counter a bad idea is with a multitude of good ones.

We live in a highly competitive world, and competition is a fundamental interaction in ecology as well. Species compete for food, water, space, and other resources. Processes like differentiation and speciation help species coexist in natural systems. In competitive environments, it is the coexistence of multiple species that promotes stability and functionality. In ecology, coexistence is driven by differences in species' fitness and their interactions, such as mutualism and predator-prey dynamics. These interactions form complex networks that can be measured by



*Luana Bresciani at Arboretum at Penn State*



*Luana Bresciani at Holmes Foster Park – Sample Collections.*

cohesiveness. A more cohesive community is more stable, interdependent, and efficient. In human terms, strong connections among people, combined with a balanced and inclusive environment, foster more cohesive communities, which are also more productive and sustainable.

Learning about community ecology and applying its principles to my professional and personal relationships has greatly enriched my understanding of how connecting with diverse individuals can enhance both my environment and my science.

Natural systems have a lot to teach us and help us evolve as better human beings!

## Meet the 2024 Graduate Student Cohort



**Paula Rocio Blanco Ortiz** (Advisors: Molly Bletz and David Miller): I am a PhD student in the Bletz and Miller labs at Penn State. I recently graduated from Cornell University, earning a BS with research distinction in Environment and Sustainability. I am interested in exploring the social and public health aspects of human-wildlife interactions, particularly within a disease ecology context. While at Cornell, I worked on creating non-invasive detection methods for the *Ambystoma* species complex, a group of special concern New York salamanders. At Penn State, I will be studying temperature-dependent host-pathogen dynamics in amphibians. When I am not in the lab, you can find me curled up reading a book, enjoying an episode of *Bones*, or dancing.



**Isaac Carachilo** he/him/his (Advisors: Jason Keagy and Tyler Wagner): My name is Isaac Carachilo (he/him/his) and I am an M.S. Graduate Research Assistant studying Ecology. I received a B.S. in Environmental Science from Juniata College in May 2024, with my program of emphasis being Fisheries and Aquatic Sciences. As an undergraduate research student, I worked on a variety of projects pertaining to stream ecology, restoration, and aquatic contamination. Such projects include quantifying/classifying microplastic contamination across aquatic organisms in central Pennsylvania and assessing the impacts of a culvert replacement on stream physiochemistry/fish community dynamics. I am broadly interested in fisheries biology, in particular conducting research aimed at directing aquatic restoration and management efforts. Co-advised by Drs. Jason Keagy and Tyler Wagner, I am studying the use of riparian buffer best management practices to reduce thermal stress on brown trout populations. In my free time, I enjoy fly fishing, biking, swimming, hiking, and spending time with friends/family.

**Matthew Chotlos** (Advisors: Ty Wagner and Dr. Jason Keagy): In 2020 I completed my BS in Biology at the University of Wisconsin - Madison. For my undergraduate summers, I worked on a whole lake manipulation project to study the shifting fish communities of northern Wisconsin with the Center for Limnology. After graduating, I took a job at Exact as a clinical lab scientist working in cancer screening. The clinical lab industry wasn't my cup of tea, so I returned to UW Madison to study coevolutionary genetics with Dr. Jesse Weber as a lab tech. I'm now co-advised by Dr. Ty Wagner and Dr. Jason Keagy with the goal of studying PFAS exposure in Northern Snakehead fish. I have a lot of appreciation for fish, even the big slimy ones.





**Alicia Costello** she/her (Advisor: Armen Kemanian): Alicia is a first-year master's student in Armen Kemanian's lab. She is interested in agroecology and nutrient cycling within agricultural systems. Specifically, she will be investigating the stabilization of carbon from biofuel byproducts known as digestate. Alicia enjoys reading, hiking, skiing, and spending time with friends and family.



**Rosella Cuomo** (Advisor: Molly Bletz): I earned my BS in Biology from Ursinus College in 2022. My research focuses on studying disease dynamics through the amphibian wildlife trade network. In my free time, you can find me going on long walks outside, curled up on the couch reading or baking something delicious!



**Fagbohun Ibrahim** (Advisors: Daniel Allen and Jon Sweetman): My name is Fagbohun Ibrahim, a first year PhD Ecology student co-advised by Drs Daniel Allen and Jon Sweetman. I am mostly interested in freshwater ecology and conservation. In the past I have worked on the conservation of endangered dragonfly species in Nigeria. Here at Penn State, I am working on "human-assisted translocation of macroinvertebrates in restored streams in Maryland". I am originally from Lagos, Nigeria and I had my bachelors and master's degree in Zoology from Nigeria in 2020 and 2022. When I am not working, I love playing soccer, chess, or video games. I love watching soccer and binge-watching comedy and horror movies too.



**Natalie Ford** she/hers (Advisor: Francisco Dini Andreote): I received my B.S. in Microbiology from the University of Kansas, where I wrote an honors thesis on the microbial effects on heterosis across maize development. After graduating, I worked as a research technician for the New Roots for Restoration Biology Integration Institute. Now I'm a Ph.D. student in Francisco Dini Andreote's lab and I'm interested in exploring the impacts of multiple stressors on plant root exudates and how that mediates plant-associated microbiome community structure! When I'm not in the lab I enjoy reading, crocheting, kayaking, and giving an excessive number of treats to my cat, Elio (he deserves it).



**Maya Hofmann** she/her (Advisors: Carolyn Lowry and Jason Kaye): I am an MS student in the Ecology program studying the impact of cover crop seeding rate on ecosystem service provisioning in agricultural systems! I am originally from Springfield, Illinois, but did my undergrad at Carleton College in Minnesota. While I became interested in ecology studying marine mussel physiology under thermal and oxidative stress, I switched to researching nutrient cycling in prairies and regenerative agricultural systems. Now, I am mainly interested in the ecology behind sustainable agriculture techniques and how we can manage agrosystems to reduce negative environmental impacts. Outside of research, my hobbies include playing tennis, reading, listening to music, thrifting, and hiking/being in nature!



**Talon Jost** (Advisor: Molly Bletz): I studied biology and mathematics during my undergraduate degree at a small Oklahoma university. After that I obtained my master's degree in biology studying the effects of an amphibian host-associated neurotoxin on skin microbiome structure and pathogen infection. I have served on a diversity grant initiative, been awarded graduating honors in both physical science and biology departments, and was a GAANN fellow for my master's degree. In my free time I enjoys reading, hiking, and going to exploring new areas.



hobbies include quilting, hiking/backpacking, fiction writing, and hanging out with her cat (Maggie).

**Katie Kull** she/they (Advisors: Franny Buderman and Autumn Sabo) is a Master's student co-advised by Franny Buderman and Autumn Sabo (PSU Beaver). They graduated with their B.S. in Ecology & Biodiversity from Sewanee: The University of the South in 2017. After graduating, she served AmeriCorps terms with the National Park Service (NPS) in Vermont and Missouri before joining the forest health management team at New River Gorge National Park & Preserve in 2020. Katie's M.Sc. research corresponds with her current role as the crew lead and botanist for the NPS Eastern Rivers & Mountains Network (based at Penn State) by examining understory vegetation dynamics over 16 years of forest monitoring in NPS units of WV, PA, and NJ. Their academic interests include science-based management of public lands and quantitative ecology; non-academic interests and



**Melissa Marquez** (Advisors: David Miller and Molly Blez): I earned my BS in Biology from the University of Maryland in 2018 and gained experience through a few seasonal field and lab jobs before completing my master's in Geography and Environmental Sustainability at the University of Oklahoma. For my PhD, I'm focusing on *Batrachochytrium dendrobatidis* (Bd) infection, investigating how temperature fluctuations affect Bd growth, infection intensity, and the immune response in newts. Outside of research and in my free time, I enjoy *anything* outdoorsy, traveling, building community, dancing, cooking, and even cleaning—there's something oddly satisfying about bringing a sense of calm and order to my space with a good tidy-up.



photography.

**Gabrielle Pezich** she/hers (Advisor: Jon Duncan): I'm Gabrielle Pezich (she/her), a first-year master's student in Penn State's Ecology program. Before coming to Penn State, I earned a B.S. in Environmental Studies & Sustainability from Slippery Rock University and a M.S. in Environmental Science from the University of Rhode Island. I also worked for CT-DEEP as a research assistant, monitoring water quality in the Long Island Sound on a research vessel over the summer. My research interests lie in nitrogen and carbon biogeochemistry and greenhouse gas emissions in urban landscapes, particularly in Baltimore, Maryland. I love being outdoors, whether it's collecting samples in the field or capturing the beauty of nature through



**Gabriella Proleika** (Advisor: Erika Machtinger): I am a Master's student with a focus on arthropod pests affecting animals, with a particular emphasis on tick ecology, vector-borne pathogens, and disease vectors. I earned my undergraduate degree at Penn State this past spring in Pre-Veterinary and Biomedical Sciences, with a minor in Wildlife and Fisheries Science, but my passion for wildlife and ecological research led me to pursue my graduate degree in Ecology. My research investigates the role of northern short-tailed shrews in disease transmission and their impact on small mammal community dynamics. When I'm not in the field or exploring the outdoors, I love spending my free time crafting, painting, sculpting, and playing video games!



**Alanna Richman** she/her (Advisor: Deah Lieurance): Hey, I'm Alanna (she/her)! I study invasive insects and their impact on forest ecosystems in Dr. Deah Lieurance's lab. My main interests are in invasive species ecology, behavioral ecology, and GIS applications in ecology. I am originally from Long Island, NY. I received a B.S. in Biology from SUNY Geneseo and a M.S. in Biodiversity, Conservation, and Policy and a Graduate Certificate in GIS and Spatial Analysis from SUNY Albany. I worked as an assistant horticultural inspector for the NYS Dept of Agriculture and Markets on the Asian Longhorned Beetle and Spotted Lanternfly programs. I also have experience working with sea turtles and shore birds on Long Island and in North Carolina. When I am not studying invasive species, I enjoy

traveling, boxing/martial arts, tennis, drawing, and spending time with my cat Aurora. I am a big Harry Potter fan (I'm a Ravenclaw!) and enjoy watching and reading other fantasy series.



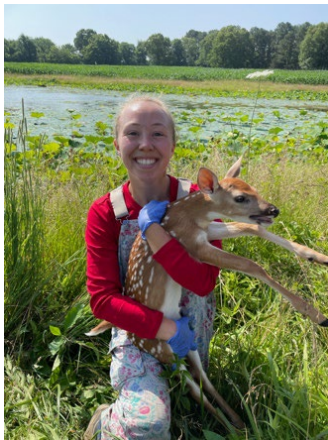
**Shannon Ryan** (Advisor: John Tooker): I am a first year Ecology PhD student interested in studying plant-herbivore interactions at a molecular level. Before coming to Penn State, I worked as a freelance gardener, flower farm farmhand and finally a research assistant at Bard College and Cary Institute of Ecosystem Studies. Though my background is in soil microbiomes, I am currently housed in the Entomology department, and I am excited to begin something new. In the Tooker lab I hope to produce research that addresses pest issues local farmers experience, specifically slug damage. In my free time I enjoy gardening, knitting, painting and foraging for mushrooms.



**Jane Venezia** (Advisor: Molly Bletz): My name is Jane Venezia, I'm a first year PhD student in Molly Bletz's lab investigating the role of protists and other micro-eukaryotes in the amphibian skin microbiome and its response to disease. Prior to coming to Penn State, I've worked with tadpoles, freshwater turtles, sea lamprey, and unisexual *Ambystoma* salamanders. Outside of ecology, I am a runner, writer, and rock climber. I also love to cook, read, and wander off into the woods.



**Will Vuyk** (Advisors: Isabelle Holland-Lulewicz and Laura Weyrich): I aim to explore the long-term ecological legacies of human habitation on a place, bringing modern ecological, paleoecological, and genomic techniques into conversation with history and anthropology. Since growing up in post-industrial Milwaukee, WI, the ecological succession and restoration of human-altered landscapes has been a continual source of inspiration for me. Off campus, you may find me on a run in Walnut Springs Park, out biking in Rothrock State Forest, or looking for critters in and around the area's many streams and wetlands.



**Abby Weber** (Advisors: Franny Buderman and David Walter): Abby graduated with her B.Sc. in Biology from Indiana University in 2020 and her M.Sc. in Zoology from Southern Illinois University Carbondale in 2024. Her M.Sc. focused on decoupling actual spatial risk from the predator and prey responses to spatial risk and on quantifying individual variation in coyote movement and resource specialization across varying degrees of urbanization. For her Ph.D., Abby will be working with the Pennsylvania Game Commission to estimate black bear population density, space-use/movement behavior, and survival across the state of Pennsylvania. In her free time, she enjoys hiking with her two dogs, rock climbing, or having a drink with friends at one of the many breweries around State College.

## Reflection about the 2024 Ecology Retreat

By: Laura Schuck

Our ecology graduate program embarked on an unforgettable camping trip to the Black Moshannon State Park. It was an amazing opportunity to bond with the new cohort, make new friends, and strengthen the connections with those we already knew. Surrounded by nature, the trip was the perfect escape from our busy academic lives.

We spent most of our time exploring the park's stunning trails, and the bog trail stood out as a favorite. It wasn't just the scenery that captured our attention, but the wildlife, too—especially when we lifted a few logs to discover several salamanders!

In addition to our own group, we had the pleasure of hosting visiting scholars from Brazil, which made for great conversations about ecology in different parts of the world. It was wonderful to exchange experiences, share knowledge, and foster new professional connections that will no doubt enrich our academic community.

Of course, no trip is complete without a bit of fun, and trying (and hilariously failing) to raise a kite brought endless laughter to our day. But the real stars of the weekend were Jack Boyette and his fiancée, Anna Claire, who not only organized everything but also prepared some absolutely delicious food. We all owe them a huge thank you!

Though the night was cold, the warmth of friendship and laughter around the campfire made the chilly air much more bearable. While it was a short trip, the memories and connections we made will last a long time.

Looking forward to more adventures like this in the future!



# Adventures in Ecology: My First Field Season in the Channel Islands

By: Di'Carlo Jackson Jr

This summer, I embarked on my first field season for my Master's research project—a season full of discoveries, challenges, and unforgettable moments. My research focuses on a fascinating topic: the life-history consequences of *insular dwarfism* in reptiles on the Channel Islands of California. Insular dwarfism refers to the process where animals that live on islands evolve smaller body sizes over time. But beyond the science, one of the most exciting parts of this project was the chance to explore California's diverse outdoor spaces, filled with incredible plants and wildlife I had only dreamed of seeing.

Growing up in the Kansas City Metropolitan area, my exposure to nature was limited. This project gave me my first real experience of being immersed in the wild. I encountered wildlife I had only read about, and many I had never heard of before. A highlight was seeing the elusive San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), which some call the most beautiful snake in the world. Witnessing rare species like this in their natural habitat was a dream come true for me. It reminded me how privileged I am to experience the very things that first sparked my love for wildlife as a kid.

## Exploring Big Questions Through Fieldwork

My research looks at how changes in body size due to island life impact reptile reproduction. Specifically, I'm asking: **How do the number and size of eggs differ between mainland and island populations?** These populations include both dwarf and non-dwarf reptiles, giving me a unique opportunity to explore evolutionary changes up close. The Channel Island reptiles include the Western-yellowbellied racer, Gopher snake, Southern alligator lizard, Common side-blotched lizard, and Western fence lizard.

To answer these questions, I get to use a really cool tool—a **portable field ultrasound machine**. It allows me to measure egg size and count the number of eggs inside a female reptile without causing her any harm. Whenever I come across a gravid (pregnant) snake or lizard, I feel like a field doctor checking on my "patients." These moments are some of my favorites because they allow me to collect crucial data while ensuring the well-being of the animals.



Figure 7j. Sunset behind Santa Cruz Island from Santa Rosa Island



Figure 8j. Jm. holding a Gopher snake. (Pituophis catenifer) one of five study species

## Part of Something Bigger: The SMAL Project

My work is part of a larger, collaborative research effort called the **SMAL Project** ([smalproject.org](http://smalproject.org)), which is funded by the National Science Foundation. The goal of the project is to explore the shared mechanisms underlying insular dwarfism and how it affects life-history strategies and physiological traits. Researchers from Westmont College, Auburn University, and Penn State University—along with graduate students like myself—are all contributing to this effort by tackling different aspects of the same big question.

Being part of this team has been one of the most rewarding aspects of the project. In the field, I worked side-by-side with other researchers from different backgrounds, each bringing unique experiences to the table. We shared long days of hard work, gathered data, and built lasting friendships. There's something special about spending time in the wild, doing meaningful research, and bonding with people who share the same passion for science and conservation.



Figure.9;Field.Crew.8680

### A Summer to Remember

This field season has been full of moments I'll carry with me forever. I traveled to places I'd never been before, saw breathtaking landscapes and animals, and connected with incredible people. Every day in the field felt like a new adventure, from early mornings setting out for data collection to evenings spent reflecting on the day's work. I never imagined that one field season could be so transformative.

Now, I can't wait to dive into the next chapter of this research. This first taste of fieldwork has only made me more excited to return to the Channel Islands, continue exploring, and contribute further to the understanding of these amazing reptiles.

# Reflection from Andersen Award Recipients

By: Caleb Butler (he/they)

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*Caleb Butler, presenting their work on Octocoral-Symbiodiniaceae patterns of mutualisms.*

This past spring, I was granted the Andersen Award to attend the Phycological Society of America (PSA) annual meeting in Seattle, WA. This was my second year to attend this conference, and it did not disappoint in the diverse, polyphyletic topics that is entailed with a conference on algae. One may expect whiplash, jumping from kelp, to cyanobacteria, to photosynthetic protists, and then to other multicellular, photosynthetic clades that some phycologists may argue deserve their own kingdom, outside of Kingdom Plantae (looking at you red algae). Yet, the variety is certainly refreshing and fascinating. Here I learned much about diverse organisms but was also able to network and socialize with students and faculty from other universities, institutes, and representatives from private

sectors. I met with friends from the previous year, and made some new ones from other institutions, and even got to catch up with my “academic older sister” that graduated from Penn State with her Ph.D. just as I started in 2019.

At this conference, my presentation spanned two projects I had begun working on these last few years of my Ph.D., focusing on endosymbiotic microalgae of family Symbiodiniaceae in association with soft corals in the Indo-Pacific. While much research has been conducted into hard corals due to their structural importance in reef ecosystems these previous decades, soft coral research has lagged considerably. Yet, they are doing one thing hard corals are not: soft corals are thriving and growing in abundance in reefs globally.

My projects focused on better understanding the diversity of the algal symbionts these corals rely upon for most of their nutritional needs, and laying the groundwork to investigate if their unique endosymbionts contribute and influence their thermal resilience, as they do in hard corals. Ultimately there is much to learn about soft coral-Symbiodiniaceae associations, but this project represented a major steppingstone for future, further research on these marine organisms. Presenting this research at this conference, I was able to speak with many other marine ecologists about my work, areas to take it in the future, and of course, things I need to go back and check to make the science better. Furthermore, as someone getting ready to defend and graduate, I was able to query postdocs and faculty members from diverse institutions on advice on moving forwarding, hunting postdoctoral positions, and general advice for changing institutions.

As many conferences tend to do, there was a closing banquet with awards and wishes of attending future meetings. During this part, I was humbled and graced with the Harold C. Bold award for best graduate student presentation, among many other incredible students. While

certainly a highlight, this would be nothing without the burgeoning community of wonderful phycologists from diverse backgrounds that made this conference an unforgettable one.

I would like to thank Frank A. Andersen and the Andersen award committee for selecting me to be one of the recipients of this award to attend this year's Phycological Society of America meeting, and further, helping me renew my vigor for my research as I enter my final year of my doctoral program.



*A picture of a Palauan reef taken by Todd C. LaJeunesse covered with soft corals and a few hard corals.*



I am deeply honored and grateful to have been selected as a recipient of the Andersen Award, which granted me the chance to present my work at the 2024 Frugivory and Seed Dispersal (FSD) Symposium in Ilhéus, Brazil. The international symposium was first held in Mexico in 1985 and since then, the meetings have been organized in different regions around the globe at roughly five-year intervals. This year, there were around 300 participants from 22 countries, which made attending the symposium an incredible experience.

Specifically, during the symposium, I had the opportunity to connect with an exceptional cohort of graduate students, post-doctoral researchers, and professors from all over the world, who were engaged in new research on frugivory and seed dispersal. Additionally, I was fortunate to be able to connect and meet with prominent figures in the field whose work I have often cited and influenced my own studies.

Presenting my work as an oral presentation was also a great exercise to practice my science communication skills which involved preparation, answering questions, and engaging in discussions afterward. I presented work from my MS thesis which focuses on the role soil seed banks play in tropical forest regeneration and emphasized that frugivore effects (animals that consume fruit and disperse their seeds) can be mirrored in the seed bank. The FSD symposium was important to share my work with people from different areas studying forest regeneration because the soil seed bank is often overlooked in its role in the regeneration process.

Overall, this was my first experience attending and presenting at a conference in person, and it has been invaluable for my academic and professional development. I would like to express my sincere gratitude to Frank A. Andersen and the Ecology program for supporting this opportunity.



## Reflection from the 3rd Annual Biology and Ecology Student Research Showcase

**By: Emma van der Heide (with help from Katie Yan, BioGSA president)**

The Biology and Ecology Student Research Showcase, originally established by the Biology Graduate Student Association (BioGSA), is a day-long event celebrating the original research by graduate and undergraduate students in the biology and ecology fields. This year, the Ecology Graduate Student Organization (EGSO) joined forces with BioGSA for showcase. The event on November 1<sup>st</sup> featured poster and podium presentation from nearly thirty graduate and undergraduate students, including eight from the Ecology program.

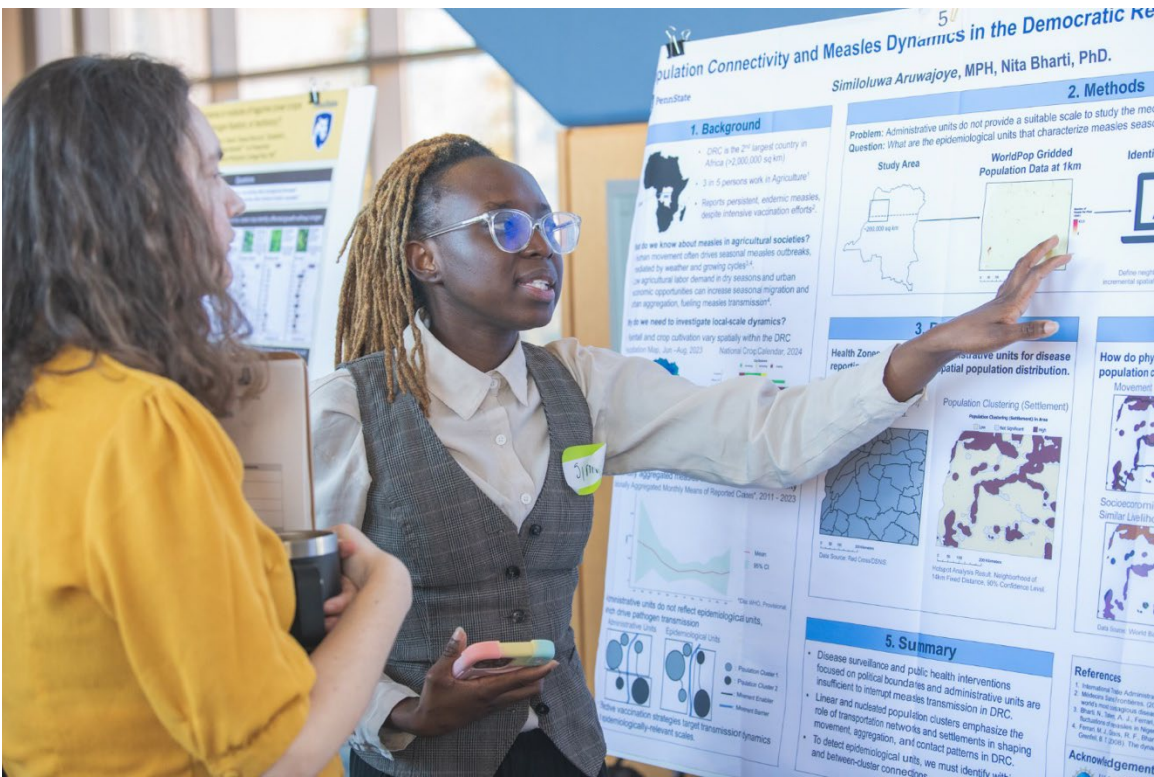
During her welcome address, Beth McGraw, professor and department head of biology, praised the collaboration, saying, “The Biology and Ecology Student Research Showcase is a fantastic opportunity for graduate and undergraduate biologists and ecologists to come together and share their research and practice communicating their science, all while building their networks.”

While research ranging from medical to landscape architectural to biological was presented, Ecology students were responsible for some of the most engaging and well-presented research. Edward Amoah, a graduate student in ecology, presented “Leveraging automated monitoring of solitary bee foraging and nesting behavior to inform population models,” at the showcase. Amoah was awarded the first-place prize for best graduate podium presentation. Another graduate student in ecology, João Vitor Messeder, was awarded second place in the same category for “Phylogenomic insights into the evolution of fleshy-fruit traits”. Ecology students Amanda Zak and Nina Gropp tied for second place in the graduate poster category, with “Hare Today, Gone Tomorrow: Snowshoe Hare Range Contraction in Pennsylvania” and “Experimental heat waves alter floral display for pollinators”, respectively. Jason Kaye, Chair of the Intercollege Graduate Degree Program in Ecology, was on site to help present awards.

All told, the showcase reached an estimated seventy graduate and undergraduate students and faculty. The success of the showcase is due, in large part, to the collaborative research spirit at Penn State. Support from on-campus administrators and organizations was also crucial, however: thanks to funding from the University Park Allocation Committee, the showcase was able to cover printing costs for several poster attendees, while co-sponsorship from the Graduate and Professional Student Association allowed for a catered lunch. The Office of Science Engagement also provided support in the form of poster boards.



*Ecology student João Vitor Messeder presenting on the evolution of fleshy fruit traits.*



*Ecology student Simi Aruwajoye presents her poster, "Population Connectivity and Measles Dynamics in the Democratic Republic of the Congo (DRC)."*



*In total, the showcase reached an estimated 70 graduate and undergraduate students and faculty with podium presentations and a poster session.*

## Awards and Publications

### Congratulations to:

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Alicia Teresa who received the Edwards Prize from the Wilson Journal of Ornithology for the best manuscript in a volume.

Caleb Butler who received Harold C. Bold award for best graduate student presentation at Phycological Society of America (PSA) annual meeting.

Isabella Petitta who received 1st place in the graduate student poster competition at the 2024 Natural Areas Conference in Manhattan Kansas.

Veronica Winter who received the 2024 David R. Anderson Outstanding Student Paper Award from the Biometric Working Group at the Wildlife Society Conference

### Ecology Graduate Student Publications (as of May 2024):

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**Gonçalves Lazzaro, L.**, Alexander, H.D., Cannon, J.B. Michael J. Aspinwall, M. J. (2024). Overstory and fuel traits drive moisture dynamics of mesophytic and pyrophytic leaf litter and 10-h woody debris fuels in a mixed longleaf pine-hardwood woodland. *FIRE ECOLOGY* **20**, 63 <https://doi.org/10.1186/s42408-024-00294-8>

Custer, G. F., **Bresciani, L.**, **Dini-Andreote, F.** (2024). Toward an integrative framework for microbial community coalescence, *TRENDS IN MICROBIOLOGY*, Volume 32, Issue 3, 2024, Pages 241-251, ISSN 0966-842X, <https://doi.org/10.1016/j.tim.2023.09.001>.

**Boyette J.L.**, R.C. Bell, M.K. Fujita, K.N. Thomas, J.W. Streicher, D.J. Gower, R.K. Schott. (2024). Molecular evolution of non-visual opsin genes across environmental, developmental, and morphological transitions in frogs. *MOLECULAR BIOLOGY AND EVOLUTION* 41(6) <https://doi.org/10.1093/molbev/msae090>

**Tuschhoff, B. M.**, & **Kennedy, D. A.** (2024). Detecting and quantifying heterogeneity in susceptibility using contact tracing data. *PLOS COMPUTATIONAL BIOLOGY*, 20(7). <https://doi.org/10.1371/journal.pcbi.1012310>

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