LSA ECOLOGY AND EVOLUTIONARY BIOLOGY
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# Natural Selections

Fall 2023

*Photo by Chris Davis*

## *Local Gem Hosts Researchers Throughout the Decades*

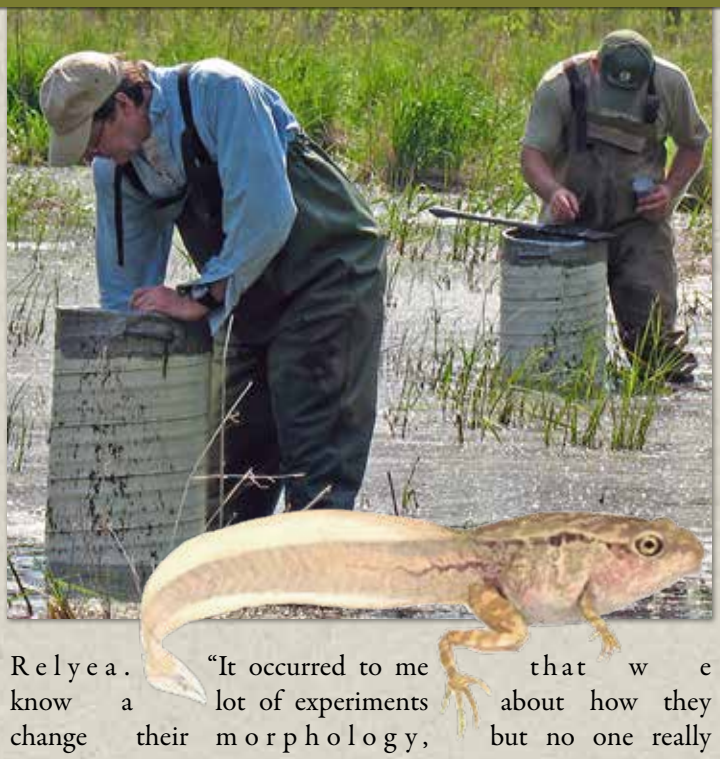
Since 1930, the University of Michigan has maintained the Edwin S. George Reserve (ESGR) to provide research and educational opportunities, as well as preserve native flora and fauna. The 525-hectare fenced ESGR is located in Livingston County, Michigan (about 25 miles northwest of Ann Arbor) and hosts EEB students, postdocs and faculty as well as biologists from other universities throughout the year.

The ESGR is a unique site for ecological research, offering opportunities for both long-term and shorter-term studies. ESGR's topography and biodiversity make it an ideal site for studying ecological and evolutionary processes, an essential resource for the University of Michigan, and it is an asset to the scientific community as a whole. The research work at the ESGR has provided new insights into ecology, evolution, toxicology, and conservation, highlighting the importance of long-term research to understand the complex interactions between organisms and their environment.

Rick Relyea (Ph.D. '99), Ecology and Evolutionary Biology alum, completed his Ph.D. at the University of Michigan. During his time in EEB, Relyea worked with Earl Werner, now professor emeritus of Ecology and Evolutionary Biology, and fellow scientists at ESGR (including Keith Wittkopp, now an advisor in the Program in Biology). Reylea and his colleagues even spent a few years living at the ESGR while doing their research.

One main reason for living and working at the ESGR is to support ongoing projects to which multiple generations of students and scientists have contributed.

One ongoing project, led by Relyea and funded by the National Science Foundation, focuses on tadpoles tails and their responses to different environments and conditions. "Since I was a graduate student, one major area that I've worked on is understanding how animals respond to environmental change by changing their morphology, their behavior, their life history, which is when they breed and how often they breed," said Relyea. "It occurred to me that we know a lot of experiments about how they change their morphology, but no one really knows how much of that is happening in nature. We have 17 years of preserved specimens, in this case, tadpoles. We could actually look and ask that question."



Relyea's project is based on work that began seventeen years ago by Werner. Werner's lab collectively made the decision that they wanted to survey all of the wetlands on the Reserve. The wetlands encompass nearly 40 bodies of water, including ponds, swamps, and marshes, some man-made and others naturally occurring. Werner's lab then decided they wanted to understand how the aquatic communities were assembled, where biodiversity was highest, how abundance changes over time, and how biodiversity and abundance change over space. This work led Relyea and others to conduct dozens of experiments on their own. Relyea also revisited those samples this past summer.

"Everything that we've been finding, over three decades of experiments, do we see all of those things showing up in nature? Do we see things that we've never thought about as affecting the shape-shifting of these animals? The tadpoles are shifting how big their tail is, how big their body is, how big their mouth parts are, all in very adaptive ways," said Relyea.

**To read the full article, scan the QR code on this page or go to https://myumi.ch/gRe5b.**

# *Letter from the Chair*

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I'm writing this on a sunny November Saturday in Ann Arbor while contemplating riding my bike over to The Big House to watch the Wolverines take on the Purdue Boilermakers. I love the James Earl Jones-narrated hype video that plays just before the game. I also love when the public address announcer thanks the crowd for coming to watch the game and announce that game's attendance. The games I've been to (including the 2021 win over the team down south) have always had crowds of more than 110,000. That's a HUGE number. But the University of Michigan is all about huge numbers. For instance, a few weeks ago I learned that the University of Michigan became the largest university in the state, with more than 52,000 students. The University of Michigan received almost 94,000 applications and admitted its largest-ever incoming class of 7,466 first-year students and 1,414 transfer students.

And EEB is also seeing some big numbers. We admitted a record class of graduate students this fall, with 27 incoming Ph.D. and Master's students. As of right now, we have 103 EEB majors. And, the relatively new major, Biology, Health, and Society that we contribute to, in partnership with MCDB, has almost 500 majors. EEB has advertised for two faculty positions in the last couple of years; in total, almost 600 people applied for those two positions. Our Halloween-themed lunch-time seminar on October 31 was the most packed seminar I've seen in my three years here.

Why do I share those numbers with you? I guess it's because it's clear to me that there are a lot of people who want to be at the University of Michigan, and in EEB – undergrads, graduate students, postdocs, football fans, and faculty (yes, I think there are some football fans who want to be in EEB). We clearly are doing something that is attracting folks here. But what? And if we can identify the "what," how can we do more of it? That's what I've spent my first few months as the new Chair of EEB trying to figure out. I've been focusing on what we do well, and just as importantly, what we need to be doing better. What you'll see in this newsletter are some of the things that I think we're doing really well, like recruiting and retaining exceptional graduate students and faculty. And you'll also see some things that I think we're getting better at, like connecting with alumni and forging bridges among the ES George Reserve, the Herbarium, the Museum of Zoology, and students. In future newsletters, I hope to share with you more of the things that we are actively working on improving in our EEB community.

Until then –

Nathan Sanders

*Nathan Sanders, Professor and Chair*

# *Faculty Awards*

**Regina Baucom** won the 2023 Imes and Moore Mentorship Award. This award is presented to faculty members who have made exceptional contributions toward recruiting and mentoring graduate students in the sciences from disadvantaged and non-traditional backgrounds.

Baucom also received the Sarah Goddard Power Award for work contributing to the betterment of current challenges faced by women in academia and being a strong advocate for women and other systematically marginalized scientists in ecology and evolution.

**Alison Davis Rabosky** received the 2024 Henry Russel Award.The Henry Russel Award is the University's highest honor for faculty at the early to mid-career stages of their career and is given to faculty members who have demonstrated an extraordinary record of accomplishment in scholarly research and/or creativity, as well as an excellent record of contributions as a teacher.

Davis Rabosky also received the 2023 Rackham Master's Mentoring Award. The Rackham Master's Mentoring Awards recognize faculty from any discipline who are outstanding mentors to master's students, particularly for those in programs for which the master's is the terminal degree.

**Meghan Duffy** was elected as a Fellow of the Ecological Society of America.

**Laura Eidietis** was recognized with the title of Teaching Professor after many years of excellent and dedicated teaching in the classroom.

**Timothy James** won a University Faculty Recognition Award. These awards are for mid-career faculty who have demonstrated remarkable contributions to the University through outstanding achievements in scholarly research and/or creative endeavors; excellence as a teacher, advisor and mentor; and distinguished participation in the service activities of the university and elsewhere.

**Jo Kurdziel** received the title of Teaching Professor for her many years of excellent and outsized impact on the teaching mission of our department and PiB. Jo is also the Beverly Rathcke Collegiate Lecturer.

**Hernán López-Fernández** received the Margaret M. Stewart Achievement award for Excellence in Ichthyology or Herpetology from the American Society of Ichthyologists and Herpetologists.

**Patricia Wittkopp** has been named the Deborah E. Goldberg Distinguished University Professor of Ecology and Evolutionary Biology and Molecular, Cellular, and Developmental Biology. Distinguished University Professorships recognize senior faculty who have exceptional scholarly or creative achievements, national and international reputations for academic excellence and superior records of teaching, mentoring, and service. Each honoree names the professorship after a person of distinction in their field.

**Natalia Umaña** was elected as an Early Career Fellow of the Ecological Society of America.

**George Zhang** received the 2023 Rackham Distinguished Graduate Mentor Award. The Rackham Distinguished Graduate Mentoring Awards recognize tenured faculty from any discipline who are outstanding mentors of doctoral students, who support their intellectual, creative, scholarly, and professional growth, and foster a culture of intellectual engagement in which they thrive.

# *Welcome to EEB* / Record breaking class of 27 of students

**Darene Assadia, Ph.D. Student**
Advisor: D. André Green
Research interests: sensory biology, insect behavior, migration, functional genetics

**Nepsis García, Ph.D. Student**
Advisor: Jacob Allgeier
Research Interest: human-derived coral reef ecological changes

**Ivana Barnes, M.S. Student**
Advisor: L. Lacey Knowles
Research Interests: phylogenomics, population genetics, speciation

**Madeleine Gellinger, Ph.D. Student**
Advisor: Aimée Classen
Research Interests: plant-microbe interactions, maternal effects

**Katherine Dami, Ph.D. Student**
Advisors: Liliana Cortés Ortiz and Tom Schmidt
Research Interests: ecology, conservation, microbiology

**Cheyenne Graham, Ph.D. Student**
Advisor: Kelly Speer
Research Interests: symbiosis, disease, microbial ecology

**Ayushi Dasgupta, Ph.D. Student**
Advisor: Trisha Wittkopp
Research Interests: evo-devo, sexual selection, gene regulation

**G Harrison, Ph.D. Student**
Advisor: D. André Green
Research Interests: evolution, trait development, entomology

**Emma Dawson-Glass, Ph.D. Student**
Advisor: Nate Sanders
Research Interests: community ecology, interactions, global change

**Skyler Har, Ph.D. Student**
Advisor: Melissa Duhaime
Research Interests:
plastic, interactions, evolution, communities

**Tomás Fuentes-Rohwer, Ph.D. Student**
Advisor: María Natalia Umaña
Research Interests: botany, functional ecology, tropical ecology

**Lena Heinrich, Ph.D. Student**
Advisor: Thais Vasconcelos
Research Interest: species interactions, phylogeny, behavior

**Paulo Henrique Gaem, Ph.D. Student**
Advisor: Thais Vasconcelos
Research Interest: plant systematics, ecology, and evolution

**Justin Lee, Ph.D. Student**
Advisor: Daniel Rabosky
Research Interest:
macroevolution, herpetology, systematics, ecology

# 2023 Ph.D. and Master's Cohort

**Frances Li, Ph.D. Student**
Advisor: George Kling
Research Interests: limnology; nutrient cycling in freshwater

**Yamile Sandoval, Frontiers M.S. Student**
Advisor: George Kling
Research Interests: global change, nutrient cycling, microbial ecology

**Yu-Cheng Lin, Ph.D. Student**
Advisor: Vincent Denef
Research Interests: host microbiome relationship, microbial ecology, quantitative genetics

**Kathryn Schmidt, Ph.D. Student**
Advisor: Vincent Denef
Research Interests: community ecology, disturbance ecology, microbe

**Jacob Longmeyer, Ph.D. Student**
Advisor: John Vandermeer
Research Interests: agroecology, restoration ecology

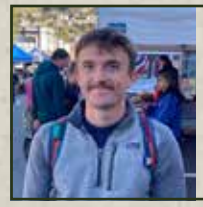
**Gayathri Venkatraman, Ph.D. Student**
Advisor: Timothy James
Research Interests: evolutionary genetics, intragenomic conflict

**Riley Manuel, Ph.D. Student**
Advisor: Meghan Duffy
Research Interests: host microbiomes, host-parasite interactions, microbial ecology

**David Wilkerson-Lindsey, Frontiers M.S. Student,** Advisors: Catherine Badgley & John Vandermeer
Research Interests: agroforestry, agro-ecology, restoration ecology, education

**Denise Meier, Frontiers M.S. Student**
Advisor: Liliana Cortés Ortiz
Research Interests: speciation, genomics, behavior, mammals

**Max Witynski, Ph.D. Student**
Advisor: Ben Winger
Research Interests: ornithology, global change, migration, evolution



**Quinn Moon, Ph.D. Student**
Advisor: Timothy James
Research Interests: mycology, symbiotic fungi, genetics, systematics

**Angela Zhu, M.S. Student**
Advisor: Meghan Duffy
Research Interests: aquatic, nutrients, community ecology, food webs, host-parasite interactions

**Aadia Moseley-McCloud, Frontiers M.S. Student**
Advisor: Aimée Classen
Research Interests: plant-fungal interactions, global change, plant biodiversity

## *Current EEB Students & Assistant Professor Weber talk with Alumna, Judith L. Bronstein*

*Questions were written and asked by current EEB graduate students, Rosemary Glos, Carolyn Graham, Abrianna Soule, two Michigan State University students, Sylvie Martin-Eberhardt and Bruce Martin, and one EEB postdoc, Ash Zemenick in coordination with Marjorie Weber, assistant professor of Ecology and Evolutionary Biology.*

Judie Bronstein (Ph.D., '86) is perhaps the world's expert on mutualisms. In fact, she wrote the book "Mutualism" in 2016. Judie is currently an University Distinguished Professor at the University of Arizona. She has won numerous teaching and service awards and is a Fellow of the Ecological Society of America.

**When were you a graduate student at Michigan? Who was your advisor? What building were you in?**

"Oh gosh. I was there 1979-1986, which to me feels like yesterday and wasn't. My advisor was Beverly Rathke who passed away a few years ago. Also on my committee was Deborah Goldberg who ultimately became department head of your department, but at the time was a brand new professor.

Then two other professors, Herb Wagner, who was a great plant systematist of the age, and then George Estabrook, who was a theoretical ecologist.

The building was Kraus, In fact, all of biology was in Kraus, except for the museum and the people who had their offices over in the museum. But I spent almost all my time in Kraus.

I loved Kraus. I would walk into those steps and I would get this odor of old, decrepit biology building. And it was just like "science, man". This is the smell of it happening."

**What did you do for fun as a graduate student? What were your favorite places to go in Ann Arbor?**

"I used to love on Sunday mornings going and getting the New York Times and going into my office at like nine in the morning. All of my whole cohort would be there. We'd all be working, but not very hard. We'd take breaks and we'd read the newspaper and just hang out and be working at a very low power. But we were a real social unit. I really liked that. We laughed at the faculty and we made fun of the faculty.

I loved Ann Arbor! Whenever things got too much, I'd go over to the Borders, which was the original Borders bookstore. It was right across from Kraus, that was its original location.

I also played music with George Estabrook, who was on my committee. That was later in grad school. We got a group together of several graduate students and George and we would go over to his house once a week and play Baroque music.

Zingerman's started when I was a graduate student, so it was just like this hole in the wall that nobody knew about. I spent a lot of time at Zingerman's and Borders, and The Blind Pig. The Ark was in the basement of a church and you would go and everybody would sit around on the floor. And then this nationally famous group would be there. I would go. What was involved in ushering is you made the popcorn to serve at the break. I saw every show."

**Could you tell us a little bit about your dissertation?**

"This was a time when there was a huge upheaval in community ecology going on with the advent of statistical techniques that made it obvious that a lot of the weaker conclusions about how communities are structured were deeply flawed. And there was the need for null models. It was a very tense and controversial time. Community ecology was getting ultra quantitative, and that didn't honestly appeal to me very much. I started to think more and more about pairwise interactions. But, I had absolutely no idea what I was going to do my dissertation on. At the time the qualifying exams, comprehensives, whatever you call them, were detached from the proposal. I passed my comps, but I didn't yet have a dissertation proposal. I didn't know what I was going to do. One thing led to another, and I ended up finding my dissertation."

**What about your graduate training at UM do you try to carry forward in your own training of graduate students?**

"My advisor had an open door policy. She gave us whatever it was we wanted. She was our scientific advisor, but if and when we wanted it, she was also a real mentor. And one thing I've learned over the years is your advisor doesn't have to be both your science advisor and your mentor. Some are good at both and others really just want to advise your science and that can be okay as long as you have other people to go to. Beverly did both. I would say that the approach I've adopted is knowing that I'm always there for my grad students if they want to come talk to me about anything."

**Anything else you want readers to know?**

"I loved Michigan. I loved it. I'm very, very devoted to it. And if they had ever offered me a job, I would have come right back because I love Ann Arbor and I love the Department. I love the philosophy, particularly under Deborah, but also earlier. The desire to just foster really brilliant science and to help people get the resources they need. I think you guys have been on the forefront in addressing diversity, equity, and inclusion in creative and impactful ways, and hiring spouses and finding solutions to problems that have been festering for a very long time. I always see Michigan out doing something interesting about things. I don't think that's an illusion. I don't know, maybe I'm idealizing. But conversely, maybe you're too close to realize that Michigan has always had a very special role. It is very exceptional. I really love that. I love seeing your job ads and see what you guys have thought really hard about the next way that ecology and evolution will evolve. When I was an undergrad, one of my professors, and I won't say he was a mentor, but he was a professor, had gotten his Ph.D. at Michigan. When I first started looking at grad schools, he looked at me and said, "if you're any good, you'll go to Michigan." When I applied to grad schools and got into Michigan, I said, "I'm going to Michigan because maybe I'm good!" That's cool. There is a legacy of Michigan because it's great. Yeah. You guys are lucky to be there!" **To read the full article, scan the QR code on this page or visit https://myumi.ch/rr95x.**


*Above: Jillian Myers, Research Lab Specialist*

# *New Program Aims to Close the Gap Between Scientists and Community*

Jillian Myers, a committed and driven scientist and Research Lab Specialist in the Department of Ecology and Evolutionary Biology, dedicates her professional pursuits to promoting EEB's Biodiversity Lab Partnership and working with students. Her efforts focus on identifying and addressing the barriers that hinder individuals from accessing and engaging with scientific concepts.

Myers, along with Kira Berman and Jade Marks of the University of Michigan Natural History Museum (UMMNH), have developed an initiative called the Biodiversity Lab Partnership (BLP). The program is specifically designed to provide graduate students with extensive training and opportunities to interact with the public.

This initiative trains graduate student researchers in science communication while promoting diversity and equity in STEM fields. The program is hosted in a laboratory that allows visitors at the UMMNH to interact with the researchers through a glass window and microphone. Often times visitors can watch science happening right before their eyes and they are invited to have a dialogue with the BLP students about their work. The program is proud to offer a stipend to students to reduce financial barriers that may hinder participation.

Inspired by former lab interactions, Myers had big ideas! "When I started this position in late 2020, I knew I wanted to revitalize the lab culture around public interactions. The Biodiversity Lab interface is a very special thing and a great concept. Still, there were, and continue to be, some pretty substantial hurdles to address for it to be used effectively," said Myers.

BLP aims to educate the next generation of scientists on the best ways to connect with the public and to create engaging shared experiences for scientists and museum visitors.

"Some of these [barrriers] are logistical; the busiest times for the museum are weekends, when there is little/no activity in the lab. Often, scientists really need to focus on their work and can't afford the distraction of onlookers," said Myers.

*The Biodiversity Lab featuring Gayathri Venkatraman, EEB Student, behind the glass*

"Other challenges are cultural; we needed to reframe how we experience being observed from a nuisance to a means of inspiring the next generation and demystifying science generally. I thought a formalized program that included training and paid weekend experience could help."

The overarching goal of BLP is to create a level playing field for all individuals to participate in science communication training and to promote diversity within the field. Through a range of initiatives such as "Lab Chats," hands-on demonstrations, and a full docket of projects being planned, BLP has successfully engaged with the community and received overwhelmingly positive feedback from both students and visitors.

"'Lab Chats' are hosted from inside the Biodiversity Lab, facilitated by a two-way audio system. This way, our scientists can move around the lab and show various equipment or specimens or demonstrate methods," said Myers. "Sometimes BLPers choose to step out from behind the glass and interact with the public in front of the lab. Our training curriculum includes the development of hands-on demonstrations about the scientist's own research, so coming out from behind the glass is important for these demos." However, despite the remarkable success of BLP, the program requires funding to continue its valuable work.

Myers urges faculty members to incorporate BLP into their grant proposals and hopes that donors will lend their support. BLP is a significant step towards creating a more equitable and inclusive society where individuals from all backgrounds can benefit from engaging with science and scientists. Museum visitors appreciate speaking with scientists from backgrounds similar to their own, and frequently BLP participants are thanked for being role models. Myers is committed to ensuring that this important work continues for many years to come.

The program was awarded the EEB JEDI Award in Spring of 2023 for the teams incredible work! The EEB JEDI Award was started during the 2020-21 academic year and has been supported by funding from the EEB department and the Rackham Allies program. It recognizes either individuals or projects that have made significant contributions to Justice, Equity, Diversity, and Inclusion and the winner was chosen by the 22/23 EEB JEDI committee (Tom Duda, Melissa Duhaime, Susanna Gutierrez, Justin Hopper, Jo Kurdziel, Dan Rabosky, John Vandermeer, and Grace Zhang).

Help us keep BLP alive by contributing to the EEB Biodiversity Lab Partnership (339375) fund and be sure to visit us the next time you are at the Museum of Natural History!

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# This Year's photo contest had us taking flight!

## First Place

*Peep* by Teresa Pegan
Magee Marsh, OH
Prothonotary Warbler in spring migration

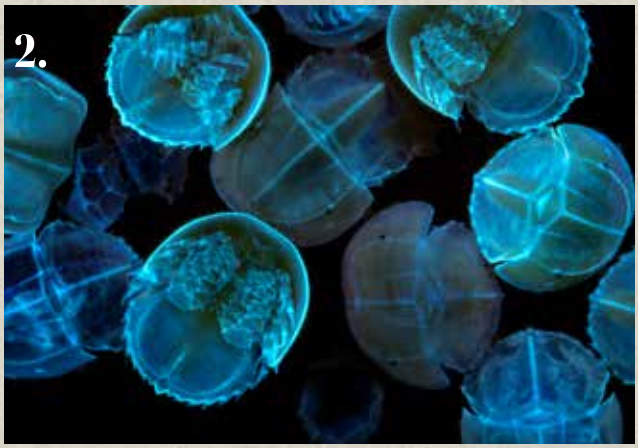
## Second Place

*Modern Trilobites* by Yu Kai Tan
Long Island Sound, West Haven, CT
This view is only <2 cm across. A crazy whim to turn our UV lights on young "trilobite stage" horseshoe crabs hatchlings brought a huge surprise. Their translucent bodies, their ten tiny helplessly twiddling legs, glowing a brilliant electric blue, are one of the most inspiring things I've seen through a macro lens –and then there's that conspicuously absent tail.

## Third Place

*Fluff on Stilts* by Eric Gulson
Cabo Rojo, Puerto Rico
Black-necked Stilt chick



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