# JANE M. LUCAS, PhD

Cary Institute of Ecosystem Studies
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***Research Interests:***

*Microbial ecology, Ecology of antibiotics, Agricultural ecosystems and soil health, Global change ecology, Ecology of microbiomes, Plant-insect-microbe interactions, Bioinformatics and multi-omics techniques*

## Professional Appointments

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|---|---|
| 2021-Present | Assistant Scientist, Cary Institute of Ecosystem Studies, Millbrook, New York |
| 2020-2021 | USDA Postdoctoral Fellow, University of Idaho, Department of Soil and Water Systems, Moscow, Idaho |
| 2020-2021 | COVID-19 Diagnostic Lab Technician and Competency Officer at Gritman Medical Center, Moscow, Idaho |
| 2018-2020 | Postdoctoral Fellow, Advisor: Dr. Michael Strickland, University of Idaho, Department of Soil and Water Systems, Moscow, Idaho |
| 2013-2018 | Graduate Researcher, Advisor: Dr. Michael Kaspari, University of Oklahoma, Department of Biology, Norman, OK |
| 2017 | Graduate Researcher, Advisor: Dr. Tomas Roslin, University of Helsinki, Spatial Food Web Ecology, Helsinki, Finland. |
| 2016 | Graduate Researcher, Advisor: Dr. Alfonso Alonso, Smithsonian Center for Conservation and Sustainability, Washington D.C. |
| 2015 | Smithsonian Tropical Research Institute Fellow, Advisor: Dr. William Wcislo, Barro Colorado Island, Panama |
| 2011 | Undergraduate Researcher, Global Health Course by the Organization for Tropical Studies, Costa Rica |
| 2009-2018 | Field Researcher, Barro Colorado Island, Panama |
| 2008-2013 | Research Assistant, Advisor: Dr. Adam Kay, University of St. Thomas, Department of Biology, St. Paul, MN |

## Education

**University of Oklahoma,** Norman, OK
Doctorate of Philosophy in Ecology and Evolutionary Biology, May 2018
Dissertation: From Cooperation to Competition: How microbes and invertebrates interact in a tropical forest, Advisor: Dr. Michael Kaspari

**University of St. Thomas,** St. Paul, MN
Bachelor of Arts in Biology, Minor in Justice and Peace Studies, May 2012

**Organization for Tropical Studies**, Costa Rica
Global Health: Tropical Medicine and Public Health, Undergraduate Program, Spring 2011

## Fellowships, Scholarships, Awards, and Grants

**Awarded:**

2025 NSF Population and Community Ecology ($1,157,216) *Collaborative Research: Using the vertical dimension of forests to test tradeoffs and principles of community ecology*. PI

2024 NSF BIORETS Proposal ($588,101) *Engaging Teachers in Ecosystem Science for a Changing World*. PI.

2024 New York State Energy Research and Development Authority ($50,000) *Measuring soil health and carbon storage on New York solar PV developments*. PI.

2024 Yale Center for Natural Carbon Capture workshop funds ($37,686) *Capturing carbon in tropical forests: Unraveling the productivity-mortality paradox to maximize carbon sequestration.* Co-PI.

2023 Ida and Robert Gordon Family Foundation, Inc. Grant ($25,000) *Examining microbial community and functional responses to multiple global stressors* Principal Investigator

2023 Lang Assael Family Scientific Innovation Fund ($19,805.83) *Mosquito microbiota reflects human socio-economic conditions of juvenile habitat.* Co-PI.

2023 Lang Assael Family Scientific Innovation Fund ($97,624.11) *Filters of postfire tree regeneration; a carbon-cycle linchpin in the boreal biome.* Co-PI.

2022 Northeastern Sustainable Agriculture Research and Education Partnership Grant Program ($29,057) *Pairing agricultural soil's antibiotic resistance genes and microbial community structure with antibiotic residues in surface waters to understand off farm transport and impact of antibiotic use on dairy farms.* Senior Personnel

2021 Best Postdoctoral Presentation, SoilCon: Washington Soil Health Week

2020 USDA AFRI Postdoctoral Fellowship ($160,000) *How agricultural antibiotics and manure interact to shape soil communities, ecosystem function and environmental antibiotic resistance* Principal Investigator

2019 Best Postdoctoral Poster Presentation, Center for Health and Human Systems

2019 Ecological Society of America Microbial Ecology Travel Grant, $500

2017 National Science Foundation Doctoral Dissertation Improvement Grant (DDIG), $16,138

2017 National Science Foundation Graduate Research Opportunities Worldwide (GROW), $5000

2017 University of Oklahoma Bullard Research Grant, $1000

2016 National Science Foundation Graduate Research Internship Program (GRIP), $5000

2015 Smithsonian Tropical Research Institute Short Term Fellowship, $2500

2014 University of Oklahoma Hill Research Grant, $500

2014 National Science Foundation Graduate Research Fellowship Program (GRFP), $138,000

2014 University of Oklahoma Adams Graduate Scholarship, $2,500

2013 Graduate Assistance in Areas of National Need Fellowship (GAANN), $102,000

2012 University of St. Thomas Travel Grant, $500

2012 Best Talk in Session Minnesota Academy of Science Undergraduate Research Symposium

2012 Presidential prize best undergraduate talk, The Entomological Society of America meeting

**Not Funded:**

2023 NSF CAREER Proposal ($1,079,034) *Stressed Out Soils: How interacting global change factors shape soil organic carbon and belowground communities*. PI.

2023 New York Farm Viability Institute Specialty Crop Grant ($58,476.60) *Using a Vermicomposting and Organic Fungicide System to Remove Botrytis Tulipae from Crate Soil*. PI

2023 Tauck Family Foundation ($25,000) *Developing a science-based framework for payment for ecosystem services in the Roe-Jan watershed*

2023 The Story Exchange award for Women Scientists Working to Improve Soil Health ($5,000) *Stressed Out Soils: Examining how soil communities and their functions respond in the face of multiple global change factors*. PI.

2023 Foundation for Farming and Agricultural Research ($407,360) *Stressed Out Soils: Examining how soil communities and their functions respond in the face of multiple global change factors*. PI.

2023 NSF Biodiversity on a Changing Planet ($2,457,000) *Collaborative Research: BoCP-Implementation: Characterizing soil functional and compositional responses to disturbance, fertilization and climatic change across a global network*. PI.

2022 USDA NIFA Soil Health Proposal ($682,894) *Understanding how the interactions of multiple concurrent global change factors influence soil health*. PI.

2022 NSF CAREER Proposal ($792,487) *Stressed Out Soils: Examining how soil communities and their functions respond in the face of multiple global change factors*. PI.

2022 DOE Department of Biological and Environmental Research ($2,365,555) *Predicting competitiveness, tolerance, and carbon storage capacities of microbial communities in a changing world*. PI

2022 NSF Biodiversity on a Changing Plant ($1,527,001) *Collaborative Research: BoCP Implementation: Exploring the vertical dimension of forests to understand microbial taxonomic and functional diversity on a changing planet*. PI

2022 Burroughs Wellcome Fund Climate and Health Interdisciplinary Fund ($50,000) *How do the direct and indirect effects of climate change aid in the expansion of ticks and their associated diseases, and can we harness natural soil pathogen to stop this spread?* Co-PI

2022 Burroughs Wellcome Fund ($350,000) *Can natural soil pathogens stop the spread of ticks and tick-borne diseases in a changing climate?* PI

2020 NSF Ecosystem Science Cluster Proposal ($963,747) Collaborative Proposal *Do hurricane-derived micronutrients and flooding interact to affect ecosystem processes a at the plant-soil interface? A test in coastal grasslands.* Lead Author and Co-PI

2020 Western SARE Research & Education Full Proposal ($17,272) *One or many? Impacts of single- versus multi-species rotational grazing strategies on forage production, soil health, and microbiome dynamics*. Co-PI

2019 DOE Department of Biological and Environmental Research ($963,747) *Do hurricane-derived micronutrients and flooding interact to affect ecosystem processes a at the plant-soil interface? A test in coastal grasslands.* Lead Author, Invited for full proposal

2018 L'Oreal Women in Science Fellowship ($60,000) *The Influence of Antibiotic Compounds on Soil Microbial and Invertebrate Communities.* PI.

**Under Review**

2024 Collaborative Research: BoCP- Implementation: How grassland soil food webs, carbon and functional diversity respond to physical disturbance and climatic change at a global scale. *NSF Biodiversity on a Changing Planet.* PI.

2024 Carbon Below the Horizon: A Global Exploration of Grassland Community and Carbon Dynamics. *Schmidt Sciences Virtual Institute for the Carbon Cycle.* PI.

**Publications**

22. Ramoneda, J, K. Fan, J.M. Lucas, H. Chu, A. Bissett, M.S. Strickland, N. Fierer. (2024) Ecological relevance of flagellar motility in soil bacterial communities. The IMSE Journal. https://doi.org/10.1093/ismejo/wrae067
21. N.P. Lemoine, M.L. Budny, E. Rose, **J.M. Lucas**, C.W. Marshall. (2023) Diffusion limitation, not change in community structure, inhibits bacterial activity and decomposition during drought in a tallgrass prairie. *Oikos.*
20. Barrera, A., **J.M. Lucas,** E.M. Gora. (2023) Elevation within downed wood reduces moisture, changes decomposer communities, and slows decomposition. *Ecosystems*
19. S.G. McBride, E.D. Osburn, **J.M. Lucas,** JS Simpson, T. Brown, J.E. Barrett, M.S. Strickland. (2023). Volatile and dissolved organic carbon sources have distinct effects on microbial activity, nitrogen content, and bacterial communities in soil. *Microbial Ecology*
18. E.D. Osburn, P.J. Hoch[†], **J.M. Lucas,** S.G. McBride, M.S. Strickland. (2022) Evaluating the roles of microbial functional breadth and home-field advantage in leaf litter decomposition. *Functional Ecology.*
17. **Lucas, J.M.,** B.S. Bronte[†], D. Whitmore[†], M.S. Strickland. (2021). Antibiotics and temperature interact to disrupt soil communities and their function. *Soil Biology and Biogeochemistry.*
16. Naveen J., **J.M. Lucas**, N. Vishwanath, R. Findlay, J. Sprinkle, M.S. Strickland, E. Winford. (2021) Investigation of relationships between fecal contamination, cattle grazing, human recreation, and microbial source tracking markers in a mixed-land-use rangeland watershed. *Water Research.*
15. **Lucas, J.M.**, J. Jonas-Bratten, A.N. Laws, D.H. Branson, S.C. Pennings, C.M. Prather, and M.S. Strickland. (2021) Herbivore functional groups, not species, shape belowground communities, but not their function. *Functional Ecology.*
14. **Lucas, J.M.***, McBride, S.[*], M. Strickland. (2020) Trophic structure mediates soil microbial community composition and function. *Soil Biology and Biochemistry. *Author's contributed equally*
13. Wepking, C., B. Badgley, J. Barrett, K. Knowlton, K. Minick, P. Ray, **J.M. Lucas**, S. Shawver, M. Strickland. (2019) Exposure to antibiotics alters microbial communities and terrestrial elemental cycling. *Ecology Letters.*
12. Danielsson, R.J., **J.M. Lucas**, J. Dahlberg, M. Ramin, S. Agenas, I. Tapio, A. Bayat, T. Hammer and T. Roslin. (2019) Context-dependence of antibiotic effects on methane emissions from livestock. *Royal Society Open Science.*
11. **Lucas, J.M.**, E.M. Gora, A. Salzberg[†], and M. Kaspari. (2019) Antibiotics as chemical warfare across multiple taxonomic domains and trophic levels. *Proc R Soc B.*
10. Gora, E.M. and **J.M. Lucas**. (2019) Dispersal and nutrient limitations of canopy-level decomposition: evidence from experimental manipulations of epiphytes and macronutrients. *Functional ecology.*
9. **Lucas, J.M.**, A.A. Madden, C.A. Penick, M.J. Epps, P.R. Marting, J.L. Stevens, D.J. Fergus, R.R. Dunn, E.K. Meineke. (2019) Ants control insect pathogens, but not plant pathogens, inside their nests in a model ant-plant mutualism. *Proc. R. Soc. B.*
8. Gora, E.M., **J.M. Lucas**, and S.P. Yanoviak. (2019) Microbial composition and decomposition rates vary with environmental conditions from the ground to the canopy in a tropical forest. *Ecosystems.*
7. **Lucas, J.M.**, N.A. Clay, and M. Kaspari. (2018) External myrmecotrophy benefits host plants

of dominant canopy ant, *Azteca trigona. Ecological Entomology.*

6. **Lucas, J.M.**, E.M. Gora, and A. Alonso. (2017) A view of the global conservation job market and how to succeed in it. *Conservation Biology. *Top 20 downloaded of 2017-18*
5. **Lucas, J.M.**, B. Bill, B. Stevenson, M. Kaspari. (2016) The microbiome of the ant-built home: the microbial communities of a tropical arboreal ant and its nest. *Ecosphere.*
4. Kaspari M., N.A. Clay, **J.M. Lucas**, S. Revzen, A.D. Kay, and S.P. Yanoviak. (2015) Thermal adaptation and phosphorus shape thermal performance in an assemblage of rainforest ants. *Ecology.*
3. Kaspari M., N.A. Clay, **J.M. Lucas,** S.P. Yanoviak, and A.D. Kay. (2014) Thermal adaptation generates a diversity of thermal limits in a rainforest ant community. *Global Change Biology*.
2. Clay, N.A., **J.M. Lucas**, M. Kaspari and A.D. Kay. (2013) Manna from heaven: Refuse from an arboreal ant connects aboveground and belowground processes in a lowland tropical forest. *Ecosphere.*
1. Kaspari M., D. Donoso, **J.M. Lucas**, T. Zumbusch and A.D. Kay. (2013) Using nutritional ecology to predict community structure: field test in Neotropical ants. *Ecosphere*.

†*Denotes Student Mentee Co-Author*

*In Revision or Review*

Carl Wepking, Jane M. Lucas, Virginia S. Boulos and Michael S. Strickland. Antibiotic legacies shape the temperature response of soil microbial communities. *In revision, Frontiers in Microbiology.*

Arielle Biro†, Michelle Y. Wong, Jane M. Lucas, Sarah A. Batterman, Carla Staver. Native soil microbes buffer savanna trees against nutrient limitation but are drought sensitive*. In revision.*

Laurel R. Humphreys†, Jane M. Lucas, Michelle E. Spicer. Canopy height and epiphytic bryophytes shape fungal communities in a temperate rainforest. *Under review.*

Lucas, Jane M.; Budny, Michelle; Lemoine, Nathan. Insect herbivores stabilize grassland ecosystem functions by destabilizing belowground communities under abiotic stress. *Under review.*

## Invited and Select Presentations

**Lucas J.M.** 2024. Multifactor environmental change and its influence on soil communities and their functions. City University of New York, New York, NY.

**Lucas J.M.** 2024. Stressed Out Soils: Understanding soil health and function in the era of global change. Vassar Department Seminar, Poughkeepsie, NY.

**Lucas J.M.** 2024. Stressed Out Soils: Understanding soil health and function in the era of global change. Yale Ecology and Evolutionary Biology Department Seminar, New Haven, CT.

**Lucas J.M.** 2024. Stressed Out Soils: Understanding soil health and function in the era of global change. Soil Ecology Society Meeting, Grand Rapids, MI.

**Lucas J.M.** 2024. Stressed Out Soils: Understanding soil health and function in the era of global change. Ecology Society of America Meeting. Portland, OR.

**Lucas, J.M.*** 2024. What do we mean when we say soil fertility? Yale Center for Natural Carbon Capture. New Haven, CT.

**Lucas, J.M.*** 2024. What role does microbial life play in rangeland SOC management? Society for Rangeland Management Meeting, Reno, NV.

**Lucas, J.M.*** 2024. Stressed Out Soils: Understanding soil health and function in the era of global change. Marquette University. Milwaukee, WI.

**Lucas, J.M.*** 2023. Stressed Out Soils: Understanding soil health and function in the era of global change. Cary Institutional Seminar. Millbrook, NY.

**Lucas, J.M.*** 2023. Rangeland carbon storage in the face of multiple global change factors. Society for Rangeland Management Meeting, Boise, ID.

**Lucas, J.M.*** 2023. Stressed Out Soils: Understanding soil ecosystems in an era of Global Change. University of Illinois, Urbana-Champaign, IL.

**Lucas, J.M.*** 2023. Soil Health in the Age of Antibiotics. Dutchess Land Conservancy, NY.

**Lucas, J.M.*** 2023. Soil Health in the Age of Antibiotics. UConn, Storrs, CT.

**Lucas, J.M.** 2022. Understanding the biogeographic and environmental controls of antibiotic resistance in soils, Ecological Society of America Meeting, Montreal, Canada.

**Lucas, J.M.** 2022. Tiny things under our feet. Soil Ecology Society Meeting, Richland, WA.

**Lucas, J.M.** B. Sone†, D. Whitmore, M. Strickland. 2022. Examining the influence of interacting global change factors on microbial communities and antibiotic resistance in soil ecosystems. Soil Ecology Society Meeting, Richland, WA

**Lucas, J.M.*** 2021. Soil Health in the Age of Antibiotics. Microbial Centers Consortium Virtual Seminar Series.

**Lucas, J.M.*** 2021. Soil Health in the Age of Antibiotics. Biology department seminar. Bard College, NY.

**Lucas, J.M.**, B. Sone†, D. Whitmore. M.S. Strickland. 2021. Antibiotics and temperature interact to disrupt soil communities and their function. Ecological Society of America Meeting,

**Lucas, J.M.*** and E. Gora. 2021. How to deliver successful online presentations. 2-Day presentation and workshop, Smithsonian Tropical Research Institute. Panama.

**Lucas, J.M.**, B. Sone†, D. Whitmore. M.S. Strickland. 2021. Antibiotics and temperature interact to disrupt soil communities and their function. Canadian Soil Science Society Meeting.

**Lucas, J.M.** and M. Strickland. 2021. Novel molecular techniques for understanding soil health. SoilCon: Washington State Soil Health Week, Pullman, WA.

**Lucas, J.M.** 2020. Exploring the ecology of antibiotics. Inspire session, Ecological Society of America Meeting, Virtual.

**Lucas, J.M.*** 2020. Superbugs to superorganisms: the ecology of microbes, invertebrates and antibiotics. Iowa State University, Ames, IA.

**Lucas, J.M.*** 2020. Superbugs to superorganisms: the ecology of microbes, invertebrates and antibiotics. University of Massachusetts, Amherst, MA.

**Lucas, J.M.*** 2020. Superbugs to superorganisms: the ecology of microbes, invertebrates and antibiotics. University of Illinois, Urbana-Champaign, IL.

**Lucas, J.M.*** 2020. Social media training for scientists. Institute for Modeling Complex Interactions. University of Idaho, Moscow, ID.

**Lucas, J.M.** and M. Strickland. 2019. Antibiotics and temperature disrupt soil communities and their function. British Ecological Society Meeting, Belfast, Ireland.

**Lucas, J.M.*** 2019. Superbugs to superorganisms: the ecology of microbes, invertebrates and antibiotics. The Cary Institute, Millbrook, NY.

**Lucas, J.M.** and M. Strickland. 2019. Antibiotics and temperature disrupt soil communities and their function. Poster presentation at the EPSCoR Annual Meeting, Columbia, SC.

**Lucas, J.M.** and M. Strickland. 2019. Antibiotics and temperature disrupt soil communities and

their function. Poster Presentation at the University of Idaho's Center for Health in Humans Systems Symposia, Moscow, ID.

**Lucas, J.M.*** 2019. Ecosystem Health in the age of antibiotics. Invited lecture for Science on the Palouse Series. Colfax County Library, Colfax, WA.

**Lucas, J.M.** and M. Kaspari. 2019. Competition inside and out: Examining the relationship between microbiomes and free-living microbes. Invited talk in Organized Oral Session: Inside Inverts: Using Microbiomes of Non-Model Invertebrates to Test Ecological Theory. Ecology Society of American, Louisville, KY.

**Lucas, J.M.** and M. Strickland. 2019. Antibiotics and temperature disrupt native Palouse soil communities and their function. Poster presentation at the Multi-Omics for Microbiomes Conference at PNNL, Richland, WA.

**Lucas, J.M.** and M. Strickland. 2019. Antibiotics and temperature disrupt soil food webs and their function. Soil Ecology Society Meeting, Toledo, OH.

**Lucas, J.M.**, A.A. Madden, C.A. Penick, M.J. Epps, P.R. Marting, J.L. Stevens, D.J. Fergus, R.R. Dunn, E.K. Meineke. 2019. The microbial ecology of ant nests. UI Research Computing and Data Science Symposium, Moscow, ID.

**Lucas, J.M.*** 2018. The little things that run the world: How microbes and invertebrates interact and shape our ecosystems. Institute for Bioinformatics and Evolutionary Studies Lightning Talk, Moscow, ID.

**Lucas, J.M.** 2018. From microbial communities to ecosystem processes: How antibiotics and herbivores shape soil and human health**.** Integrative Research and Innovation Center's Lunch and Learn presentation, Moscow, ID.

**Lucas, J.M.** and Kaspari, M. Antimicrobials as chemical warfare against detritivorous invertebrates. 2018 meeting of the Ecological Society of America, New Orleans, LA.

**Lucas, J.M.** From cooperation to competition: How microbes and invertebrates interact in a tropical forest. 2018. Dissertation Defense Seminar, University of Oklahoma.

**Lucas, J.M.** and Kaspari, M. The role of antibiotics in the decomposer food web. 2017 meeting of the Ecological Society of America, Portland, OR.

**Lucas, J.M.*** How anthropogenic introductions of antibiotic compounds impact our ecosystems. 2017. University of Helsinki, Helsinki, Finland.

**Lucas, J.M.*** Exploring the impact of *Azteca trigona* in a Neotropical Forest. 2017. University of Louisville: Biology Departmental Presentation, Louisville, KY.

Henderson, K.†, M. Kaspari, **J.M. Lucas.** *Azteca trigona* influence species distribution and ant behavior in a lowland tropical forest. 2017 National Conference for Undergraduate Research. University of Memphis, Memphis, Tennessee.

**Lucas, J.M.** The role of antibiotics in tropical forests. 2017. EEB Presentation. University of Oklahoma, Norman, Oklahoma.

**Lucas, J.M.** The impact of antibiotics in Panama's tropical forests. 2016. STRI Microbial Symposium Oral Presentation. Smithsonian Tropical Research Institute, Panama.

**Lucas, J.M.** Patterns of bacterial community composition and nutrient content across *Azteca trigona* ants, their nest, refuse and surrounding soil. 2016 meeting of the Ecological Society of America, Fort Lauderdale, Fl.

**Lucas, J.M***. The microbiome of the ant-built home. 2016. OTS Guest Lecture. Barro Colorado Island, Panama.

**Lucas, J.M**. The microbiome of the ant-built home. 2016. Bambi Presentation. Barro Colorado Island, Panama.

**Lucas, J.M*.** One ant's trash is another plant's treasure: How *Azteca trigona* connects above and belowground ecosystems. 2016. Smithsonian Center for Conservation and Sustainability Presentation, Washington, D.C.

**Lucas, J.M.** Bridging Science and Film: the scientific perspective. 2016. Guest Lecturer. American University Environmental Film Making Course, Washington, D.C. *Invited.*

**Lucas, J.M.**, M. Kaspari, The Power of Azteca: How the canopy ant *A. trigona* influences plant growth in a wet tropical forest. 2015 Entomological Society of America, Minneapolis, MN.

**Lucas, J.M.** One ant's trash is another plant's treasure: How *Azteca trigona* connects above and belowground ecosystems. 2015. Ecomunch Presentation. Norman, Oklahoma.

**Lucas, J.M.** One ant's trash is another plant's treasure: How *Azteca trigona* connects above and belowground ecosystems. 2015. OTS Guest Lecture. Barro Colorado Island, Panama.

Kaspari, M., N.A. Clay, S.P. Yanoviak, S. Revzen, J. Czekanski-Moir, **J.M. Lucas**, A.D. Kay. On the evolution of ant thermal performance: clues from a Neotropical forest. 2013 Society of Integrative and Comparative Biology meeting. San Francisco, CA.

**Lucas, J.M.**, N.A. Clay, M.E. Kaspari, A.D. Kay. Refuse from an arboreal ant connects aboveground and belowground processes in a lowland tropical forest. 2012 meeting of the Ecological Society of America, Austin, TX.

**Lucas, J.M.**, N.A. Clay, M.E. Kaspari, A.D. Kay. *Azteca* ants connect aboveground and belowground processes in a wet tropical forest. 2012 meeting of the Entomological Society of America, Knoxville, TN.

** Invited, † Undergraduate mentee*

## Teaching Experience

### Courses Taught

2025 **Lead Instructor**, Fundamentals of Ecosystem Ecology
Cary Institute of Ecosystem Studies, Millbrook, NY

2024 **Lead Instructor**, Fundamentals of Ecosystem Ecology
Cary Institute of Ecosystem Studies, Millbrook, NY

2023 **Co-Instructor,** Mid-Hudson Young Environmental Scientists
Cary Institute of Ecosystem Studies, Millbrook, NY

2022 **Co-Instructor,** Mid-Hudson Young Environmental Scientists
Cary Institute of Ecosystem Studies, Millbrook, NY

2021 **Co-Instructor,** Mid-Hudson Young Environmental Scientists
Cary Institute of Ecosystem Studies, Millbrook, NY

2019 **Co-Instructor**, Microbial Ecology
University of Idaho, Moscow, ID

2017 **Course Designer and Teaching Assistant**, Principles of Ecology
University of Oklahoma, Norman, OK

2015 **Teaching Assistant**, Molecular and Organismal Biology 1134
University of Oklahoma, Norman, OK

2012 **Invited CHANCE Instructor,** Barro Colorado Island
Penn State University

### Guest Lectures

2024 Guest Lecturer, Contaminants in the Environment
New York University, New York, NY

2023 Guest Lecturer, Contaminants in the Environment

New York University, New York, NY
2023 Guest Lecturer, Introduction to Environmental Problems
Marist College, Poughkeepsie, NY
2023 Guest Lecturer, Fundamentals of Ecosystem Ecology
Cary Institute of Ecosystem Studies, Millbrook, NY
2022 Guest Lecturer, Fundamentals of Ecosystem Ecology
Cary Institute of Ecosystem Studies, Millbrook, NY
2019 Invited Guest Lecturer, Soil Microbiology
Washington State University, Pullman, WA
2018 Regional Approaches to Climate Change (REACCH) Internship Guest Lecturer
University of Idaho, Moscow, ID
2016 Invited Guest Presenter, Barro Colorado Island
OTS Graduate Student Field Ecology Course
2015 Invited Guest Presenter, Barro Colorado Island
OTS Graduate Student Field Ecology Course

**Teacher Training**
2013-2014 Graduate Teaching Academy Level 1, Center for Teaching Excellence

*Program Description:* Graduate Teaching Academy (GTA) seeks to promote and maintain a standard of teaching excellence amongst graduate students at the University of Oklahoma. Through this program you will improve your teaching effectiveness and professional development through discussion-based interactions focused on the theory and philosophy of teaching. It will prepare you for your teaching career through outcome-based workshops and practice sessions focused on the application of teaching principles and professional development strategies. Finally, you will explore relevant teaching topics through learning communities examining in-depth, teaching-related topics.

Example Graduate Teaching Academy Seminars
*What to do About Negative Course Evaluations*
*Creating Collaborative Student Groups*
*Using Classroom Polling to Facilitate Student Interaction*
*Creating a Safe and Engaging Discussion Space*
*Teaching and Working with International Students*
*Building and Using Rubrics to Ensure Fairness in Subjective Grading*

## Mentoring Experience

2024 Mentor for the Millbrook High School Student, John Buchan
Cary Institute of Ecosystem Studies, Millbrook, NY
2024 Mentor for Graduate Student, Shelby Kucharski
Florida State University, FL
2024 Mentor for Graduate Student, Daniel Petticord
Cornell University, Ithaca, NY
2024 Mentor for Graduate Student, Hannah Monti
Cornell University, Ithaca, NY
2023-24 Mentor for Graduate Student Sarah Rothman

University of Maryland, College Park, MD

2023 Mentor for the Millbrook School High School Internship, James Patterson
Cary Institute of Ecosystem Studies, Millbrook, NY

2023-24 Mentor for Walter Parnas High School Student, Alexis Kelly
Cary Institute of Ecosystem Studies, Millbrook, NY

2022-24 Mentor for Raines Lucas, Department of Econometrics
University of Wisconsin, Madison, WI

2022-23 Project advisor for Arielle Biro at Yale University
Yale University, New Haven, CT

2022-23 Project advisor for Laurel Humphreys
Yale University, New Haven, CT

2022 Mentor for the Cary Institute of Ecosystem Studies REU program, Annemiek Morrison
Cary Institute of Ecosystem Studies, Millbrook, NY

2021 Mentor for the Cary Institute of Ecosystem Studies REU program, Susan Albor
Cary Institute of Ecosystem Studies, Millbrook, NY

2021 Mentor for the Cary Institute of Ecosystem Studies REU program, Roman Robledo
Cary Institute of Ecosystem Studies, Millbrook, NY

2020 Mentor for University of Idaho Lab Technician, Dana Whitmore
University of Idaho, Moscow, ID

2019-20 Mentor for University of Idaho Undergraduate Researcher, Katelyn Conery
University of Idaho, Moscow, ID

2019-24 Committee Member for University of Idaho Doctoral Student, Bronte Sone
University of Idaho, Moscow, ID

2019-20 Mentor for University of Idaho Doctoral Student, Dan Nu
University of Idaho, Moscow, ID

2019-20 Mentor for University of Idaho Undergraduate Researcher, Caitlin Mullaly
University of Idaho, Moscow, ID

2018-20 Mentor for Virginia Tech PhD Student, Steven McBride
Virginia Tech, Blacksburg, VA

2018-19 Mentor for University of Idaho Undergraduate Researcher, Luke Hester
University of Idaho, Moscow, ID

2018-19 Mentor for University of Idaho Undergraduate Researcher, Emi Smith
University of Idaho, Moscow, ID

2018-19 Mentor for University of Idaho Masters Student, Peter Hoch
University of Idaho, Moscow, ID

2018 Regional Approaches to Climate Change (REACCH) Internship Mentor, Lola Klam
University of Idaho, Moscow, ID

2017 REU Mentor, Barro Colorado Island, Riley Kneale
Smithsonian Tropical Research Institute, Panama

2016 REU Mentor, Barro Colorado Island, Kate Henderson
Smithsonian Tropical Research Institute, Panama

2016 REU Mentor, Barro Colorado Island, Annika Salzberg
Smithsonian Tropical Research Institute, Panama

2015 REU Mentor, Barro Colorado Island, Carolyn Gigot
Smithsonian Tropical Research Institute, Panama

2014 REU Mentor, Barro Colorado Island, Megan Silvers

Smithsonian Tropical Research Institute, Panama

## Scholarly Service and Outreach

2024 Soil Ecology Across Landscapes Field Walk
Cary Institute of Ecosystem Studies, Millbrook, New York

2024 The microbes under our feet, live podcast guest host for the Art Effect, a student led art gallery that focuses on art and science intersections and the betterment of Poughkeepsie, NY

2024 Soils in the Classroom Teacher Training Day
Cary Institute of Ecosystem Studies, Millbrook, New York

2024 Science Fair Judge
Alden Place Elementary School, Millbrook, New York

2023 Digging into soil invertebrates for Cary's Ecodiscovery Camp
Cary Institute of Ecosystem Studies, Millbrook, New York

2023 Panelist and composting demonstration head for the Great Big Day of Composting event
Cornwall Public Library, Cornwall, Conneticut

2023 Science Fair Judge
Dutchess County Regional Science Fair, Poughkeepsie, New York

2023 Science Fair Judge
Alden Place Elementary School, Millbrook, New York

2022 Introduction to Soil Health in the Hudson Valley
Cary Institute of Ecosystem Studies, Millbrook, New York

2022 Introduction to Composting
The Millbrook School, Millbrook, New York

2022 Scientific Representative for American Institute of Biological Field Stations
Congressional Talks, Virtual, New York

2022 Career Day Representative
Millbrook High School, Millbrook, New York

2022 Science Fair Judge
Dutchess County Regional Science Fair, Poughkeepsie, New York

2022 Science Fair Judge
Alden Place Elementary School, Millbrook, New York

2022 Cary Institute Data Jam Judge
Cary Institute of Ecosystem Studies, Millbrook, New York

2022 Cornell Cooperative Extension-Dutchess County Program Advisory Committee Member
Cornell Cooperative Extension-Dutchess County

2021 Cary Institute Data Jam Judge
Cary Institute of Ecosystem Studies, Millbrook, New York

2020 Postdoctoral Representative for Provost and Executive Vice President Search
University of Idaho, Moscow, Idaho

2019-20 Postdoctoral Representative for the R1 Research University Task Force Team
University of Idaho, Moscow, Idaho

2020 What do you do for work? Job Exposure Presentation to 3rd Grade Class
Moscow Charter School, Moscow, Idaho

2020 Science on Ice Outreach Scientist
Palouse Ice Rink, Moscow, Idaho

2019 Science on Ice Outreach Scientist
Palouse Ice Rink, Moscow, Idaho
2019 Module instructor & visiting scientist designing a middle school "Garden Classroom"
Palouse Prairie Charter School, Moscow, ID
2019 Rendezvous for Kids Introduction to Coding and Engineering
Rendezvous in the Park, Moscow, Idaho
2019 CALS Summer of Science Healthy Soils Exploration Day
Moscow Farmer's Market, Moscow, Idaho
2019 Fernwood Elementary soil erosion outreach experiment
University of Idaho, Moscow, Idaho
2019 Speeding Up Science hackathon for compiling reproducible bioinformatics workflows
University of California, Davis, California
2019 Science After Hours Guest Lecture on Ecosystems in the Age of Antibiotics
Palouse Clearwater Educational Institute, Moscow, Idaho
2019 Science on Ice Outreach Scientist
Palouse Ice Rink, Moscow, Idaho
2019 Guest on Musings on Microbial Management Podcast
University of Idaho, Moscow, Idaho
2018 Guide to navigating graduate school student workshop
University of Idaho, Moscow, Idaho
2018 Guide to gaining essential skills in graduate school round table
University of Pittsburgh
2017 Guest lecture on alternative careers in conservation biology
University of Oklahoma, Ecology and Evolutionary Biology
2017 Guide to grant writing in graduate school guest lecture
University of Oklahoma, Ecology and Evolutionary Biology
2016 Guided tour of Barro Colorado Island for OTS Course
Barro Colorado Island, Panama
2015 Guided tour of Barro Colorado Island for visiting researchers
Barro Colorado Island, Panama
2015 Madill High School field day at OUBS
University of Oklahoma Biological Station, OK
2014 Madill High School field day at OUBS
University of Oklahoma Biological Station, OK
2012 Cretin-Durham Introduction to Research Class
Cretin-Durham High School, St Paul, MN
2012 St Thomas Moore Insect Day
St Thomas More Catholic School, St Paul, MN
2012 Groveland Park Insect Day
Guest instructor, Groveland Park Academy, St Paul, MN
2012 Dowling Elementary School Insect Day
Guest instructor Dowling Elementary, St Paul, MN

***Selected Press***

*The Millerton News:* "Cornwall panel explores composting solutions"
*The Counter:* "Antibiotic used in livestock production could cause soil to release more carbon"
*Life on the Range:* "Mink Creek Water Quality: An E. Coli Mystery Solved with DNA"

*Progressive Forage:* "Soil altered by livestock antibiotics"
*Scientific America: "*Manure Problems: Antibiotic use in cows alters carbon cycling"
*Inland 360:* "What soil tells scientists about the rise of antibiotic resistant drugs"
*NCState News:"*For at least on species, ant nurseries are cleaner than human ones"
*SciNews:* "Nurseries of *Azteca* ants are cleaner than human ones"
*Mongabay*: "Not all doom and gloom': Q&A with conservation job market researchers"
*Smithsonian Channel:* "Secrets of the Rainforest" Video Segment
*Smithsonian Channel: "*Mysteries of the Rainforest" Video Segment
*Smithsonian Channel:"*10 Tons of Ant Poop Keeps This Rainforest Thriving" Video Segment

## Reviewer

*ISME Journal, PLoS One, Ecological Entomology, Ecology, Ecosphere, Science of the Total Environment, Journal of Animal Ecology, Pedobiologia, Biotropica, Frontiers in Ecology and the Environment, Journal of Ecology, Microbial Ecology, Forest Ecology and Management, Journal of Dairy Science, Geoderma, Biogeosciences, Basic and Applied Ecology, Animal Microbiomes, FEMS Microbiology, Ecology Letters, NSF DEB Panel, Applied Environmental Microbiology, Nature Microbiology, Soil Biology and Biogeochemistry*

## Professional Society Memberships

American Institute for Biological Sciences
Organization for Biological Field Stations
Soil Ecology Society
Ecological Society of America (ESA) -- Sections: *Microbial Ecology, Soil Ecology*
Entomological Society of America (ESA)
British Ecological Society (BES)
Graduate Women in Science (GWIS)
Randall Women in Science: Inclusion, Diversity, Equality Alliance
National Postdoctoral Association
500 Women Scientists
University of Idaho Postdoctoral Association

## Select Professional Training

2022 Scientific communication for policy makers, American Institute for Biological Sciences
2019 Teaching to a diverse audience, Project Biodiversify
2019 Improv-ing Your Life – Essential Skills for Any Career, National Postdoctoral Society
2019 NSF Postdoctoral Research Fellowships: Strategies for Success, Nat. Postdoc. Society
2018 Building an inclusive mentoring program, Randal Women in Science, Univ. of Idaho
2016 American University Environmental Film Making Course
2013 Graduate Teaching Academy Level 1, Center for Teaching Excellence