

LAUREN M. SMITH-RAMESH

National Institute for Mathematical and
Biological Synthesis (NIMBioS)
1122 Volunteer Boulevard
Knoxville, TN 37996

Contact:
laurensmithramesh@gmail.com
Phone: (317) 681-4570
Fax: (865) 974-9300

PROFESSIONAL APPOINTMENTS

NIMBioS Postdoctoral Fellow (Current)
National Institute for Mathematical and Biological Synthesis, Knoxville, TN
Fall 2016-Spring 2019
Mentors: Susan Kalisz and Daniel Simberloff

Gaylord Donnelley Postdoctoral Environmental Fellow
Yale Institute for Biospheric Studies
Yale School of Forestry and Environmental Studies
Fall 2014-Fall 2016
Sponsor: Oswald Schmitz

Lecturer, Yale School of Forestry and Environmental Studies
Spring 2016

EDUCATION

Indiana University

PhD 2009-2014

Major: Ecology; Minor: Genetics. Advisor: Heather L. Reynolds.
Department of Biology: Evolution, Ecology, and Behavior Program

Washington University in St. Louis

Bachelor of Arts, 2005-2009

Major: Biology

PUBLICATIONS

16. **Smith-Ramesh L M**. 2018. Predators in the plant-soil feedback loop: Aboveground plant-associated predators may alter the outcome of plant-soil interactions. *Ecology Letters*. 21(5):646-654.

15. **Smith-Ramesh L M**, A E Rosenblatt, and O J Schmitz. 2018. Multivariate climate change may favor large herbivore body size in food webs. *The American Naturalist*. 191(3):333-342.

14. Delavaux C S*, **L M Smith-Ramesh**, and S E Kuebbing. 2017. Beyond nutrients: A meta-analysis of the diverse effects of arbuscular mycorrhizal fungi on plants and soils. *Ecology*. 98(8):2111-2119.

*Masters' Student Author

13. **Smith-Ramesh L M** and H L Reynolds. 2017. The next frontier of plant-soil feedback research: unraveling context dependence across biotic and abiotic gradients. *Journal of Vegetation Science*. 28(3):484-494.

12. **Smith-Ramesh L M.** 2017. Invasive plant alters community and ecosystem dynamics by promoting native predators. *Ecology*. 98(3):751-761.
11. **Smith-Ramesh L M**, A C Moore, and O J Schmitz. 2017. Global synthesis suggests that food web connectance correlates to invasion resistance. *Global Change Biology*. 23(2):465-473.
10. Rosenblatt A E*, **L M Smith-Ramesh***, and O J Schmitz. 2017. Interactive effects of multiple climate change variables on food web dynamics: modeling the effects of warming, CO₂, and water availability on a tri-trophic food web. *Food Webs*. 13:98-108. *Equal contributions. Invited special feature.
9. **Smith L M** and S R Hall. 2016. Extended leaf phenology may drive plant invasion through direct and apparent competition. *Oikos*. 125(6):839-848.
8. **Smith L M** and H L Reynolds. 2015. *Euonymus fortunei* dominance over native species may be facilitated by plant-soil feedback. *Plant Ecology* 216(10):1401-1406.
7. **Smith L M** and H L Reynolds. 2015. Plant-soil feedbacks shift from negative to positive with decreasing light in forest understory species. *Ecology* 96:2523–2532.
6. **Smith L M** and O J Schmitz. 2015. Invasive plants may promote predator-mediated feedback that inhibits further invasion. *Ecology and Evolution* 5(12): 2411-2419.
5. **Smith L M** and H L Reynolds. 2015. Extended leaf phenology, allelopathy, and inter-population variation influence garlic mustard (*Alliaria petiolata*) invasion success. *Biological Invasions* 17(8): 2299-2313.
4. **Smith L M.** 2015. Garlic mustard (*Alliaria petiolata*) glucosinolate content varies across a natural light gradient. *Journal of Chemical Ecology* 41: 486-492.
3. **Smith L M** and H L Reynolds. 2014. Light, allelopathy, and post-mortem invasive impact of garlic mustard on native forest understory species. *Biological Invasions* 16:1131-1144.
2. **Smith L M.** 2013. Extended leaf phenology in deciduous forest invaders: mechanisms of impact on native communities. *Journal of Vegetation Science* 24: 979-987.
1. **Smith L M** and H L Reynolds. 2012. Positive plant-soil feedback may drive dominance of a woodland invader, *Euonymus fortunei*. *Plant Ecology* 213: 853-860.

INVITED ARTICLES

2. **Smith-Ramesh, LM.** 2018. A new resource on the mathematics of invasion. Review of Invasion Dynamics, by Cang Hui and David M. Richardson. *Biological Invasions*. 20(6):1641-1642. Invited by editor-in-chief.
1. **Smith-Ramesh, LM.** 2017. Book Review: Leslie Anthony, *The Aliens Among Us: How Invasive Species Are Transforming the Planet - and Ourselves* *Biological Invasions*. 19(10):3071-3072. Invited by editor-in-chief.

PUBLISHED DATASETS

Smith-Ramesh LM (2018) Data from: Predators in the plant-soil feedback loop: Aboveground plant-associated predators may alter the outcome of plant-soil interactions. *Ecology Letters*. doi: 10.5061/dryad.g34gs

Smith LM, Reynolds HL (2015) Data from: Plant-soil feedbacks shift from negative to positive with decreasing light in forest understory species. *Ecology*. doi:10.5061/dryad.ns7bv

RESEARCH GRANTS AND FELLOWSHIPS

National Institute for Mathematical and Biological Synthesis Postdoctoral Fellowship, 2016-2018 – Invasive plants in a food web context: indirect effects on native communities and ecosystems. \$108,000

Yale Institute for Biospheric Studies Donnelley Environmental Postdoctoral Fellowship, 2014-2016 – Do invasive plants that promote predators fundamentally alter ecosystem function? \$104,000

National Science Foundation Doctoral Dissertation Improvement Grant, 2013 - Do extended leaf phenology and allelopathy act synergistically to drive garlic mustard invasion? \$14,192

Indiana Academy of Sciences, 2013 – Does light interact with plant-soil feedback to drive invasion by *Euonymus fortunei*? \$1,827

Indiana Native Plant and Wildflower Society, 2013 - Grant to measure glucosinolate content of garlic mustard plants in varying light environments. \$300

SERDP ESA Travel Grant, 2012 - Grant to support participation in the 2012 Ecological Society of America meeting, from the Department of Defense's Strategic Environmental Research and Development program. \$500

Sigma Xi, 2011 - Grant in Aid of Research to study the roles of extended leaf phenology and allelopathy in garlic mustard invasion. \$400

Indiana Academy of Sciences, 2010 - Senior Research Grant to identify biogeographic trends in garlic mustard allelochemical production. \$1,458

Indiana Audubon Society, 2010 - Research Grant to determine plant invasions' effects on higher trophic levels. \$200

INVITED SEMINARS

2018

Harvard University, Department of Organismic and Evolutionary Biology
Illinois State University, School of Biological Sciences
North Carolina State University, Applied Ecology Department

2017

Marquette University, Biology Department
Duke University, Biology Department
National Institute for Mathematical and Biological Synthesis, University of Tennessee, Knoxville,
(video available online at nimbios.org)

2016

DePaul University, Environmental Science and Studies Department
Yale Institute for Biospheric Studies, Yale University

INVITED CONFERENCE TALKS

Smith-Ramesh, LM 2017: Native predators and invasive plants interact to alter the role of plant-soil feedback as an invasion driver. Invited for Organized Oral Session at Ecological Society of America 102nd Annual Meeting: Plant-Soil Interactions in a Changing World: Exploring the interface between global change drivers and plant-soil feedbacks.

Smith-Ramesh, LM 2017: Food web properties and the causes and consequences of species invasions. Invited for Special Session on Network Theory at American Mathematical Society Central Sectional Meeting, Bloomington Indiana.

Smith, LM 2016: Placing invasion in a food web context: A new twist on old invasion hypotheses. Symposium at Ecological Society of America 101st Annual Meeting, 2016: “Invaders in food webs: Using trophic structure to predict invasibility and invader impact.”

Smith, LM and HL Reynolds, 2015: Context-dependence of plant-soil feedback: Environment matters. Invited for Organized Oral Session at Ecological Society of America 100th Annual Meeting, 2015: “Plant-Soil Feedbacks and Plant Coexistence: Integrating Theoretical Models and Empirical Approaches”

SESSION ORGANIZER

Symposium Organizer, ESA 2016

“Invaders in food webs: Using trophic structure to predict invasibility and invader impact.” Organized for Ecological Society of America’s 101st Annual Meeting in 2016.

CONTRIBUTED CONFERENCE PRESENTATIONS (FIRST AUTHOR)

Indiana Academy of Sciences Annual Meeting, 2014: Strength of negative plant-soil feedback weakens with decreasing light in forest understory species (with Heather Reynolds)

Ecological Society of America 98th Annual Meeting, 2013: Inter-population variation in garlic mustard response to light (with Heather Reynolds)

International EcoSummit, 2012: Canopy gaps may exacerbate the negative impact of invasive *Alliaria petiolata* (with Heather Reynolds)

Ecological Society of America 97th Annual Meeting, 2012: Extended leaf phenology as an invasion mechanism for *Alliaria petiolata* (with Heather Reynolds)

Indiana Academy of Sciences Annual Meeting, 2012: Endophyte-infected exotic grass *Lolium arundinaceum* has dramatic effects on vole herbivory patterns (with Keith Clay)

Ecological Society of America 96th Annual Meeting, 2011: Positive feedback may drive invasion by *Euonymus fortunei* (poster, with Heather Reynolds)

*Indiana Academy of Sciences Annual Meeting, 2011: Positive plant-soil feedback may drive invasion by *Euonymus fortunei* (with Heather Reynolds)*

TEACHING AND MENTORING EXPERIENCE

Lecturer, Yale University, Spring 2016

The Ecology, Economics, and Politics of Species Invasions (Yale FES 624)

Developed a graduate-level course designed to 1) provide students with a solid foundation in the science of invasion ecology, 2) empower future policy-makers and scientists to use basic science to inform policy. Co-instructor: Dr. Sara Kuebbing.

Graduate Independent Study (FES 1427)

Supervised independent study coursework for students in three professional programs (Yale FES Masters of Forestry, Yale FES Masters of Environmental Science, Yale FES Masters of Environmental Management). Co-instructor: Dr. Sara Kuebbing.

Guest Lectures

Mathematical Ecology of Species Invasions (Yale FES 740, Dynamics:Ecological Systems, instructor: Oswald Schmitz, 2015)

Invasive Plants and Pathogens: Apparent Competition (Yale FES 768, Pests, Pathogens and Parasites in Natural and Managed Systems, instructor: Liza Comita, 2015)

Models of Natural Selection (Indiana University L111, Foundations of Biology, instructor: Spencer Hall, 2013)

Invasion Ecology (Indiana University L473, Ecology, instructor: Rich Phillips, 2012-2013)

Molecular Evolution (Indiana University S318, Honors Evolution, instructor: Curt Lively, 2011)

Associate Instructor, Indiana University; Bloomington, IN 2009-2014

B300 Vascular Plants (spring 2012-2014, 2014 Lead Associate Instructor, trained and directed three other Associate Instructors)

L111 Foundations of Biology: Diversity, Evolution, and Ecology (fall 2013)

L473 Ecology (fall 2012)

S318 Honors Evolution (fall 2011)

L113 Introductory Biology Lab (fall 2009 - fall 2010)

Mentor, Women in Science at Yale (WISAY), 2015-2016

Mentor female graduate students (Masters and PhD) interested in pursuing careers in academic Ecology through regular meetings to discuss career goals and strategies.

Mentor and Founding Member, Women Mentoring Women, University of Tennessee, 2017

Founded a small-group mentoring program that matches faculty mentors with postdoc mentees, and postdoc mentors with graduate student mentees, in order to provide support, encouragement, and guidance to women pursuing careers in academic science and math. This successful pilot program is currently being integrated into the University of Tennessee campus-wide women's science organization.

Mentor, Undergraduate Research and Senior Theses

Austin Frazier, 2012-2014: Independent project designed to test the influence of nitrogen deposition on glucosinolate production in garlic mustard. Resulted in poster presented at Indiana Academy of Sciences 2014 Annual Meeting: "Increased nitrogen supply promotes garlic mustard growth and invasion."

Rebecca Stoops, 2010-2011: Independent project designed to test the role of seed predators in apparent competition between invasive and native plants.

Curtis Pomilia, 2009-2010: Senior thesis designed to test the influence of herbicide Atrazine on soil ammonium oxidation.

OUTREACH AND SERVICE

Author: Connecticut Botanical Society Newsletter **2016**
How a native predator can undermine the success of an invasive plant.

Speaker and Panelist: New York Botanical Garden Invasive Species Summit **2015**
Presented on the management implications of predator-invasive plant relationships for a group of land managers, scientists, and interested members of the general public.

Branford Land Trust, Branford CT **2015**
Mentored high school interns in a citizen science project examining the impacts of mowing regime on plant diversity in old fields managed for wildlife.

Part-time Naturalist, Camp Co-Director; Zion Nature Center; Zionsville, IN, **2003-2014**
• Developed and taught ecological programs and designed educational exhibits to improve science literacy and instill an interest in nature and science in the general public.
• Co-directed 5 week-long science enrichment camps annually for students ages 5-13.
• Wrote over \$4700 in funded grants to purchase materials for science education and citizen science projects. Grants allowed the purchase of compound microscopes for school programs and summer camps, a video microscope, native plants for a citizen-science restoration project, flatscreen digital displays, a demonstration rain barrel and worm composting system, and chairs to equip classroom space for educational programming.

Indiana University Department of Biology **2010-2012**
Graduate Survival 101: Developed and led an orientation program to advise incoming PhD students on success in graduate school.

#SciFund Challenge **2012**
Created accessible video and project description to inform members of the general public about dissertation research and raised over \$1700 through online crowdfunding.

Lilly Scholars Program **2011**
Mentored two high school students from underrepresented STEM minorities in a summer research project. Students conducted a field experiment to measure the impact of invasive *Euonymus fortunei* on small mammal foraging behavior.

PROFESSIONAL SERVICE

Peer review: 26 manuscripts* for *Ecology Letters*, *Ecology*, *Ecological Applications*, *Journal of Ecology*, *Ecology and Evolution*, *Evolutionary Applications*, *Biodiversity and Conservation*, *New Phytologist*,

PLOS One, Biological Invasions, Ecological Entomology, Plant and Soil, Plant Ecology, PeerJ, AoB Plants, CAB Reviews, Proceedings of the Indiana Academy of Science

*All but two of these reviews are verified at <https://publons.com/author/1265833>

Grant review:

National Science Foundation (Ad-hoc for DEB, PCE) 2016, 2017

National Science Centre of Poland 2015

Yale Institute for Biospheric Studies Doctoral Dissertation Grants 2016

Graduate Women in Science (GWIS) National Fellowship Program 2017

Book review:

Yale University Press 2016

Presentation Judge:

Yale School of Forestry and Environmental Studies Master's Colloquium 2016

Lotka-Volterra Student Presentation Award, Theoretical Ecology Section, ESA 2016

Society Memberships: I have been a member of the Ecological Society of America (section memberships: Early Career Ecology, Theoretical Ecology, Plant Population Ecology, Invasion Ecology), The American Society of Naturalists, Sigma Xi, and Graduate Women in Science.