

ROSEMARY L. MALFI, Ph.D.

CURRICULUM VITAE

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EDUCATION

- 2015 **Ph.D.**, Environmental Sciences (Ecology), University of Virginia
Dissertation Title: “Bumblebee Population Dynamics: Understanding Risks Associated with Floral Resource Availability and Parasitism.”
- 2007 **B.A.**, Biology, Bryn Mawr College
Magna cum Laude Distinction, Departmental Honors in Biology, Tropical Biology Semester Abroad with Organization for Tropical Studies (Costa Rica)

EMPLOYMENT HISTORY

- 2019 – Pres. **Postdoctoral Researcher**, Dept. Biology (Adler Lab), Univ. of Massachusetts Amherst
Designed and executed large field study to investigate the potential for cultivated sunflower plantings to mitigate pathogenic parasite infections in bumble bees, a vital crop pollinator. Responsibilities include supervising and mentoring student researchers in the field and lab, coordinating all field and lab work, analyzing data, and generating research products.
- 2015 - 2018 **Postdoctoral Researcher**, Dept. Entomology (Williams Lab), Univ. of California Davis
Designed and executed multi-year field experiment to determine how temporal patterns of food resource availability influence the demography of bumble bees. Responsibilities included managing grant budget and hiring, coordinating all field and lab work, overseeing a team of technicians and students, analyzing data, and generating research products.
- 2007 – 2009 **Staff Scientist**, Academy of Natural Sciences of Drexel University, Philadelphia, PA
Managed diatom preparation laboratory for the Patrick Center for Environmental Research. Tracked and processed water quality samples, managed department database and supply orders, corresponded with clients and collaborators, supervised laboratory technicians, and developed lab protocols. Served as project manager on freshwater mussel restoration project. Coordinated the NSF-funded REU site program.

SELECT HONORS AND AWARDS

- 2014-15 **Dissertation Year Fellowship**, *Awarded to one graduate student annually*
Jefferson Scholars Foundation, University of Virginia (Graduate School of Arts & Sciences)
- 2014 **Fred Holmsley Moore Teaching Award**
Environmental Sciences Department, University of Virginia
- 2014 **Outstanding Graduate Teaching Assistant Award**
Teaching Resource Center, University of Virginia
- 2013 **Outstanding Oral Presentation** (Biological and Biomedical Sciences Session)
Annual Huskey Graduate Research Exhibition, University of Virginia
- 2013 **Best Graduate Oral Presentation**
Annual Environmental Sciences Student Research Symposium, University of Virginia
- 2012 **Graduate Student Association Award**, *Awarded for outstanding service to the graduate student body.* Department of Environmental Sciences, University of Virginia
- 2011 **Raven Society**, *Honorary society that recognizes scholarship and service at the University.* University of Virginia
- 2011 **Honorable Mention**, Graduate Research Fellowship Program, National Science Foundation

CLASSROOM TEACHING EXPERIENCE

- 2019 **Instructor**, “Saving the Bees: Exploring Topics in Pollinator Health”, First-Year Seminar Course (2 sections), College of Natural Sciences, University of Massachusetts Amherst.
- 2019 **Guest Lecture**, “Reliable Sources and Using a Reference Manager”, Junior Writing Class, Biology Dept., University of Massachusetts Amherst.
- 2018 **Guest Lecture**, “Bees and their parasites.” Urban Bees: Conserving pollinators in human-dominated lands, First-Year Seminar, University of California Davis.
- 2009 – 2014 **Teaching Assistant**, Department of Environmental Sciences, University of Virginia
- **Applied Statistics for Environmental Scientists, EVSC-5030** [2013, 2014]
Mixed undergraduate and graduate level. Led and designed curricular material for laboratory component of course in which students integrated their knowledge of statistics from the lecture with statistical software through analysis of real datasets and application of statistical concepts presented in the course lectures.
 - **Introduction to Climatological Analysis, EVSC-4470** [2011, 2013]
Undergraduate level. Led and created substantial curricular material for laboratory instructing students on the use of fundamental statistical tests and models to analyze and interpret climatological datasets. Designed lab handouts to serve as lasting reference material, in-lab individual and group exercises, and take-home assignments.
 - **Fundamentals of Geology, EVSC-2800** [2010, 2011]
Undergraduate level. Instructed laboratory section on the fundamentals of geology. Lab activities included: rock and mineral identification based on physical properties, topographic and geologic map interpretation and generation, surface processes, mass wasting events, and Factor of Safety calculations. Led field trips each semester taught.
 - **Introduction to Environmental Policy, EVSC-2030** [2009]
Undergraduate level. Facilitated weekly discussion sections based on assigned readings that coincided with the weekly lecture. Graded exams and final papers. Course examined a wide array of environmental problems to see how political processes and scientific evidence affect how those problems are confronted in the policy-making arena.
- 2013-2014 **Workshop Facilitator**, “Teaching the First Days of Class and Troubleshooting Classroom Challenges,” August Teaching Workshop, Teaching Resource Center, University of Virginia
Co-facilitated orientation workshop for incoming teaching assistants. This two-part interactive workshop focused on laying out fears about teaching, delivering information on commonly-encountered scenarios in the classroom, and providing strategies for overcoming typical classroom challenges. Instruction on key school resources (e.g., counseling services) were also discussed.
- 2010-2014 **Workshop Facilitator**, “Research Ethics for Field Ecologists,” NSF Research Experience for Undergraduates (REU) Program, Blandy Experimental Farm, University of Virginia
Developed and co-facilitated annual research ethics training module for REU students. Workshop introduces information on scientific codes of conduct, including how to obtain permissions and permits, and instructs students on locating research guidelines, rules, and regulations. Students work through case studies highlighting issues that can arise when conducting research.

MENTORSHIP PROGRAMS

- 2009 – Pres. **Research Practicum Instructor**, Biology Dept. (Adler Lab), University of Mass. Amherst
Train students in laboratory research. Guide students in reading and reflecting on scientific literature. Course performance is assessed based on performance in the lab and on the depth and quality of written reflection assignments. (Spring 2019: 2 students; Spring 2020: 5 students).
- 2015 – 2017 **Research Mentor**, University of California Davis
- *Jessica Drost* (2015-2017, senior thesis), Identification and nutritional assessment of pollen resources collected by bumblebee colonies in an agricultural setting.
- 2011 – 2015 **Research Mentor**, Undergraduate Research Mentoring Program, Department of Environmental Sciences, University of Virginia
- *Staige Davis* (2011-2014), Immune response of bumble bees to parasites (senior thesis).
 - *Lorena Gutierrez* (2014-15, high school student)
 - *Courtney Beach* (2013- 2014), Characterizing seasonal variation in flowering resources, and development of science classroom activities involving a community garden.
 - *Christopher Goslin* (2012-2013), Relationship between bumblebee body size and parasitism.
- 2011 – 2015 **Research Mentor**, NSF Research Experience for Undergraduates (REU) Program, Blandy Experimental Farm (University of Virginia), Boyce, VA
- *Sarah McIntosh* (2014), Changes in the foraging behavior of parasitized bumble bees
 - *Clara Stuligross*, Earlham College (2013), Assessing parasitism in bumble bees using RFID
 - *Amber Slatosky*, Idaho State University (2013), Parasite manipulation of host behavior
 - *Staige Davis*, University of Virginia (2012), Parasite manipulation of host behavior
 - *Jessica Orozco*, San Francisco State University (2011), Bumble bee community response to flowering diversity in Virginia meadows.
- 2007 – 2009 **Program Coordinator**, NSF Research Experience for Undergraduates (REU) Program, Academy of Natural Sciences, Philadelphia, PA
Coordinated admissions process. Organized program activities and workshop series; instructed skills seminars. Served as primary resource to REU students. Evaluated program progress and developed program features for future years.

COMMUNITY OUTREACH

- 2020 **Guest Speaker**, [“What’s Bugging the Bees?”](#), Life Sciences Café, UMass Amherst.
- 2019 **Workshop Instructor**, Bee Physiology and Parasites, [Eureka! Program](#) at UMass Amherst
Developed workshop on host-parasite relationships and basic laboratory skills (microscopy, dissection, slide mounts) for summer STEM enrichment program for middle school girls from Holyoke, MA.
- 2014 – 2015 **Co-Founder**, Training Environmental Scientists through Research Mentoring, Univ. of VA
Acquired Science Outreach Grant from UVa Dean’s Office to launch research mentoring program at the local high school. Supervised pairs of undergraduate mentors and high school mentees in pursuing research questions centered on the high school’s community garden.
- 2013 – 2014 **Instructor**, “Dissection Club”, Charlottesville High School (CHS), Charlottesville, VA.
Acquired supplemental funding (NSF-RET) that supported collaboration with special education teacher to provide project-based learning experience aimed at developing basic laboratory skills. All participating students were recruited through the AVID program, which serves high-achieving students from underrepresented backgrounds.

2011 – 2014 **Volunteer Tutor**, Westhaven After School Program (K-4), Charlottesville, VA.
Reading and math remediation tutor for elementary school students from low-income families residing in a local subsidized housing neighborhood; coordinated enrichment activities.

PROFESSIONAL DEVELOPMENT IN TEACHING

- 2019 **Teaching Fellows Program**, College of Natural Sciences, Univ. of Massachusetts Amherst
Trained in pedagogical techniques and campus resources with CIRTL staff. Developing and instructing a first-year seminar course (two sections) through the fellowship program.
- 2019 **Mentor Training**, Graduate School, University of Massachusetts Amherst
Participated in training on effective mentoring developed by the National Research Mentoring Network.
- 2012 – 2014 **Tomorrow's Professor Today Program**, Teaching Resource Center, Univ. of Virginia
Completed professional development program for graduate students and postdoctoral fellows to enhance teaching skills and to improve preparedness for a university career.
- 2013 **Introduction to Process-Oriented Guided Inquiry Learning (POGIL)** with guest facilitator Susan Shadle of the National POGIL Project via UVa Teaching Resource Center.
- 2013 **Research Ethics for Undergraduate Research Programs**, Center for Undergraduate Learning and National Center for Professional and Research Ethics. Trained in delivering instruction to undergraduate audiences on responsible conduct in research (RCR).

PUBLICATIONS (* = co-principal authors, † = mentored student)

- Malfi, R.L., Williams, N.W., Rundlöf, M., and E. Crone. Early resources lead to persistent benefits for bumble bee colony dynamics. *Ecology* (Accepted)
- Kerr, N., Malfi, R.L., Williams, N., and Crone, E. Novel application of functional linear models for exploring trait-based roles in social organisms: Size polymorphism effects on worker production under different resource environments. *Functional Ecology*
- Adler, L.S., Fowler, A., Malfi, R.L., Anderson, P.R., Coppinger, L.M., Deneen, P.H., Lopez, S. †, Irwin, R.E., Farrell, I.W., & Stevenson, P.C. Assessing chemical mechanisms underlying the effects of sunflower pollen on a gut pathogen in bumble bees. *Journal of Chemical Ecology*
- Malfi, R.L., Crone, E.C., & Williams, N.M. (2019) Demographic benefits of early-season resources for bumble bee (*B. vosnesenskii*) colonies. *Oecologia*, 377-388.
- Malfi, R.L.*, Walter, J.A.*, Roulston, T.H., Stuligross, C. †, McIntosh, S. †, & Bauer, L. (2018) The influence of a prevalent natural enemy on bumblebee colony productivity under different food resource conditions. *Ecological Monographs* 88(4): 653-671.
- Davis, S.E.*†, Malfi, R.L.*, & Roulston, T.H. (2015) Species differences in bumblebee immune response predict developmental success of a parasitoid fly. *Oecologia*, 178(4), 1017-1032.
- Gibson, J.F., Slatosky, A.D.†, Malfi, R.L., Roulston, T.H., & Davis, S.E.† (2015) Video of eclosion of Conopidae (Diptera) from a *Bombus* (Apidae: Hymenoptera) host demonstrates the added informative value of rearing parasitoid Diptera from bees. *Journal of the Entomological Society of Ontario (JESO)*, 145: 51-60.
- Malfi, R.L., Davis, S.E.†, & Roulston, T.H. (2015) Parasitoid fly induces manipulative grave-digging behavior differentially across its bumblebee hosts. *Animal Behaviour*, 92: 213-220.
- Malfi, R.L. & Roulston, T.H. (2014) Patterns of parasitism in bumblebees (*Bombus* spp.) of northern Virginia. *Ecological Entomology*, 39(1): 17-29.

- Roulston, T.H. & Malfi, R.L. (2012) Aggressive eviction of the eastern carpenter bee (*Xylocopa virginica* (Linnaeus)) from its nest by the giant resin bee (*Megachile sculpturalis* Smith). *Journal of the Kansas Entomological Society* 85(4): 387-388.

SELECT PRESENTATIONS

Invited Lectures and Presentations

- 2019 Malfi, R. (March) Manipulation, Resistance, and Co-Existence in a Host-Parasitoid System. Guest Lecture in Pollinators: Ecology and Conservation (NRC-390P), University of Massachusetts Amherst.
- 2018 Malfi, R. (May) Timing is everything: Bumblebee colony performance in response to seasonal variation in resources. Department of Entomology Seminar Series, University of California, Davis.
- 2018 Malfi, R. (May) Understanding the influence of seasonal resource dynamics on bumblebee colony performance and a brief lesson in bumblebee rearing. Symposium for Cochran Fellowship Program, University of California, Davis.
- 2018 Malfi, R. (April) Getting a head start: Early resources essential for bumblebee colony growth. 4th Annual Bee Symposium, University of California, Davis.
- 2017 Malfi, R. (January) The influence of a prominent natural enemy and seasonal variation in food resources on bumblebee (*Bombus* spp.) colony performance. Department of Entomology Seminar Series, University of California, Riverside.
- 2016 Malfi, R., Walter, J., & T.H. Roulston. (September) Seasonal patterns of food availability and parasitism influence bumblebee colony success. International Congress of Entomology, Insights into the Biology of Wild and Managed Native Bees Symposium, Orlando, Florida.
- 2016 Malfi, R.* (January) The Conopid Fly and its Bumblebee Hosts. "[Parasitoid Palooza](#)" Open House at the Bohart Museum of Entomology, University of California, Davis.
- 2014 Malfi, R. (October) The Conopid Fly: Natural Enemy Number One? A tale of resistance and manipulation, risk and radio frequency chips. Research Seminar Series, Jefferson Scholars Foundation, University of Virginia.

Seminars

- 2016 Malfi, R. (February) Manipulation and Resistance in a Host-Parasitoid System. Insect Ecology Meeting, Department of Entomology, University of California Davis.
- 2015 Malfi, R. (April) Bumblebee Population Dynamics: Understanding Risks Associated with Seasonal Patterns of Food Availability and Parasitism. Department of Environmental Sciences Seminar Series, University of Virginia.
- 2012 Malfi, R. & T.H. Roulston (March) Bumblebee Population Dynamics: Assessing Risks Associated with Resource Availability and Parasites. Ecology and Evolutionary Biology Seminar, Department of Biology, University of Virginia.
- 2010 Malfi, R. (November) North American Bumblebee Decline. Ecology and Evolutionary Biology Seminar, Department of Biology, University of Virginia.

Conferences and Symposia, [O] = Oral, [P] = Poster, [^] = Outstanding Presentation Award

- 2018 Williams, N.M., Malfi, R., Crone, E., & Rundlöf, M. (November) Early season resource pulses and carry-over effects impact bumble bee colony growth and reproduction. Annual Entomology Society of America Meeting, Vancouver, BC, Canada.

- 2017 Malfi, R., Williams, N.M., & E. Crone. (August) Resource exposure early in the colony cycle has implications for bumblebee demography. 102nd Ecological Society of America Annual Meeting, Portland, OR. [O]
- 2015 Roulston, T.H., R. Malfi, C. Stuligross, S. McIntosh, & A. Slatosky (August) Camping in the flowers: Why do so many bumblebees stay out at night? 100th Ecological Society of America Annual Meeting, Baltimore, MD. [O]
- 2014 Stuligross, C., R. Malfi, T.H. Roulston, & L.D. Bauer (August) Assessing risk of conopid parasitism in foraging bumblebees using radio frequency technology. 99th Ecological Society of America Annual Meeting, Pollination Session, Sacramento, CA. [O]
 R. Malfi, S.E. Davis, & T.H. Roulston (August) Host suitability in a conopid fly – bumblebee system: A tale of resistance and manipulation. 28th Annual University of Virginia Blandy Experimental Farm Research Symposium, Boyce, VA. [O]
 Davis, S.E., R. Malfi, & T.H. Roulston (January) The enemy within: Differential resistance to internal parasites among common bumblebee hosts. 30th Annual Environmental Sciences Student Research Symposium, University of Virginia, Charlottesville, VA. [O, ^]
- 2013 R. Malfi & S.E. Davis (August) Gravediggers: Parasitoid manipulation of bumblebee host behavior and selection for host body Size. 98th Ecological Society of America Annual Meeting, Pollination Session, Minneapolis, MN. [O]
 Malfi, R. & T.H. Roulston (March) Patterns of parasite infection in bumblebees of the northern Virginia. Huskey Graduate Research Exhibition, University of Virginia, Charlottesville, VA. [O, ^]
- 2012 Malfi, R. & T.H. Roulston (August) Patterns of parasite infection in bumblebees (*Bombus* spp.) of the northern Shenandoah Valley. 97th Ecological Society of America Annual Meeting, Host-Parasite Interactions Session, Portland, OR. [O]
- 2011 Orozco, J. & R. Malfi (October) Diet and Diversity: Bumblebee (*Bombus* spp.) community response to flowering plant diversity In Virginia grassland meadows. Society for Advancement of Chicanos and Native Americans in Science (SACNAS) National Conference, San Jose, CA. [P]
 Malfi, R. & T.H. Roulston (August) Niche overlap and diet breadth: Can bumblebee foraging preferences reveal species vulnerabilities? 96th Ecological Society of America Annual Meeting, Behavior Session, Austin, TX [P]
- 2010 Padeletti, A., D. Kreeger, M. Grey, S.G. Hughes, C.M. Gatenby, H. Tucker-Wood, R.L. Thomas, R. Malfi (March) Before reintroduction: Assessing stream readiness for freshwater mussel restoration in the Delaware Estuary Watershed. Proceedings of World Aquaculture Society Meeting, San Diego, CA. [P]
- 2009 Padeletti, A., D. Kreeger, C.M. Gatenby, S.G. Hughes, R.L. Thomas, **R. Malfi**, H. Tucker-Wood (March) Restoring our past with mussel power in the freshwater portion of the Delaware Estuary Watershed. 101st Annual Meeting of the National Shellfisheries Association, Savannah, GA. [O]

ACADEMIC LEADERSHIP & SERVICE

- 2015 – Pres. **Peer Reviewer** for *Ecology*, *Ecosphere*, *Journal of Applied Ecology*, *Global Ecology and Biogeography*, *Integrative and Comparative Biology* (publons.com/a/1280153/).
- 2018, 2019 **Panel Reviewer**, Science Subcommittee, Jefferson Fellowship (Graduate School of Arts and Sciences), Jefferson Scholars Foundation, University of Virginia.

- 2018, 2019 **Panel Reviewer**, Dissertation Year Fellowship, Jefferson Scholars Foundation (Graduate School of Arts and Sciences), Jefferson Scholars Foundation, University of Virginia.
- 2018, 2016 **Reviewer**, Graduate Women in Science ([GWIS](#)) Fellowship, Sigma Delta Epsilon
- 2017 **Panel Reviewer**, Foundation for Food and Agricultural Research (FFAR), Pollinator Health Fund Special Initiative.
- 2011 – 2015 **Volunteer Alumna Interviewer** (Virginia/D.C.), Bryn Mawr College Admissions Office
- 2011 – 2014 **Coordinator**, Plant-Animal Interactions Discussion Group, University of Virginia
- 2011 – 2012 **Chair**, 28th Annual Environmental Sciences Student Research Symposium, University of Virginia. *Organized research symposium showcasing graduate and undergraduate research. Recruited acclaimed climatologist Michael Mann for keynote address.*
- 2010 – 2011 **Treasurer**, Graduate Student Association (Environmental Sciences), University of Virginia *Managed department and student-contributed funds; maintained financial records; developed and set budgets; fundraised for departmental events.*

RESEARCH MEDIA COVERAGE

- "[UC Davis Buzzing about Bumblebee Scale](#)" by Bob Moffitt, Capital Public Radio News (July 11, 2016)
- "[Secrets of the Hive](#)" by Dennis Wells, a Smithsonian Channel documentary film (2015).
- "[Hommelhorror](#)" ("Bumblebee horror") by Willy van Strien, *Het was so envoudig begonnen* (May 31, 2014)
- "[Rude house guests have nothing on these parasitic insects](#)" by Richard Conniff, *Strange Behaviors* Blog, TakePart (May 23, 2014)
- "[Parasite forces host to dig its own grave](#)" by Ed Yong, *Not Exactly Rocket Science* Blog, National Geographic (May 20, 2014)
- "[Meet the Conopid Fly: A bumblebee horror story](#)" by Carolyn Beans, *Roadside Science* Blog (November 7, 2013)

SKILLS

- Project and budget management
- Microscopy (including phase-contrast)
- Radio Frequency Identification (RFID) Technology
- Statistical Software: SAS, SPSS
- R Programming Environment
- ArcGIS / QGIS

PROFESSIONAL ASSOCIATIONS

Ecological Society of America, Entomological Society of America, American Association for the Advancement of Science (AAAS), Sigma Xi, American Association of University Women (AAUW)