

## ALISON E. FOWLER

Ph.D. Candidate, Department of Biology  
University of Massachusetts Amherst

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### EDUCATION

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Ph.D., Organismic and Evolutionary Biology	2017-Present
Advisor: Lynn Adler, Ph.D.	
B.S., Plant Biology	2016
B.S., Biological Oceanography	2016
Minor: Applied Ecology	
North Carolina State University, <i>summa cum laude</i>	

### PUBLICATIONS

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- Fowler AE**, Stone E, Irwin RE, Adler LS. 2020. Sunflower pollen reduces a gut pathogen in worker and queen, but not male bumble bees. *Ecological Entomology*.  
<https://doi.org/10.1111/een.12915>
- Adler LS, **Fowler AE**, Malfi RL, Anderson PR, Coppinger LM, Deneen PM, Lopez S, Irwin RE, Stevenson PC. 2020. Assessing chemical mechanisms underlying effects of sunflower pollen on a gut pathogen in bumble bees. *Journal of Chemical Ecology*. <https://doi.org/10.1007/s10886-020-01168-4>
- Fowler AE**, Irwin RE, Adler LS. 2019. Parasite defense mechanisms in bees: behavior, immunity, antimicrobials, and symbionts. *Emerging Topics in Life Sciences*.  
<https://doi.org/10.1042/ETLS20190069>
- Beasley DE, Fitzgerald J, **Fowler A**, Keleher K, Lopez-Urbe MM, Dunn RR. 2019. Do Bee Wings Adapt for Flight in Urban Environments? *Southeastern Naturalist*. 18(2):183-191
- Fowler AE**, Lor D, Farrell C, Bauman M, Peterson MN, Langerhans RB. 2018. Predator loss leads to reduced antipredator behaviors in Bahamas Mosquitofish. *Evolutionary Ecology Research*. 19:378-405.
- Youngsteadt E, Irwin RE, **Fowler AE**, Kunz M, Suiter D, Connon SJ, Bertone M, Sorenson C. 2018. Venus Flytrap rarely traps its pollinators. *American Naturalist*. 191:539-546.

#### *Manuscripts in preparation:*

- Fowler AE**, Giacomini JJ, Connon SJ, Irwin RE, Adler LS. The effect sunflower pollen on parasite loads and fitness in wild bumble bees.

### RESEARCH EXPERIENCE

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Graduate Student Researcher, UMass Amherst	Sept '17-Present
▪ PI: Lynn Adler, Ph.D.	
▪ Plant-pollinator and host-parasite ecology and evolution	
▪ Diet-mediated pathogen resistance in bees	
Visiting Student Researcher, Illinois State University	Jan-Mar '20
▪ PI: Ben Sadd, Ph.D.	
▪ Effect of diet on bumble bee immune function	
Research Technician, North Carolina State University	May '17-Aug '17
▪ PI: Rebecca Irwin, Ph.D	
▪ Pollination ecology, host-parasite ecology, community ecology	
▪ Effects of pollen and nectar diets on pathogen infections in bees	

Undergraduate Researcher, North Carolina State University	
▪ <i>PI: Brian Langerhans, Ph.D.</i>	May '15-May '16
Honors thesis: Evolution of prey behavior in Bahamas Mosquitofish	
▪ <i>PIs: DeAnna Beasley, Ph.D., Margarita Lopez-Urbe, Ph.D.</i>	Jan-May '16
Native bee morphology in urban and rural environments	
▪ <i>PI: Astrid Schnetzer, Ph.D.</i>	Sept '13-May '16
Marine and estuarine plankton community ecology and toxicology	

## GRANTS, FELLOWSHIPS, AND AWARDS

UMass Office of Professional Development Travel Award, \$750	Fall 2019
Northeast Sustainable Agriculture Research & Education, Graduate Student Grant, \$14,932	2020-2022
UMass OEB Travel Award, \$800	Summer 2019
Irwin Martin Research Award, UMass OEB, \$2,500	2019
NSF Graduate Research Fellowship	2019-2022
Lotta Crabtree Fellowship, UMass College of Natural Sciences	Summer 2019
Lotta Crabtree Fellowship, UMass College of Natural Sciences	Spring 2019
Lotta Crabtree Fellowship, UMass College of Natural Sciences	Fall 2018
Pre-Dissertation Research Grant, UMass Graduate School, \$1,000	Fall 2018
UMass OEB Travel Award, \$450	Fall 2018
Life Science Graduate Research Symposium, UMass: 1 <sup>st</sup> Place for Best Talk	November 2018
Distinguished Graduate Student Summer Research Fellowship, UMass Biology Department	Summer 2018
Lotta Crabtree Fellowship, UMass College of Natural Sciences	Spring 2018
Outstanding Senior in Research, NCSU Department of Marine, Earth, and Atmospheric Sciences	Spring 2016
NSF Research Experience for Undergraduates, NCSU Schnetzer Lab	Spring 2016
Undergraduate Research Grant, NCSU Schnetzer Lab, \$750	Spring 2016
Undergraduate Research Grant, NCSU Langerhans Lab, \$1,250	Spring 2016
Frank S. Smith Marine Science Scholarship, NCSU, \$12,000	2012-2016
University Honors Program, NCSU	2012-2016

## TALKS AND PRESENTATIONS

Fowler AE. 2020. Diet mediates interactions between bumble bee host and gut parasite. Gave 35-minute seminar for Integrative Biology Department at Illinois State University, Normal, IL	
Fowler AE, Giacomini JJ, Giacomini SJ, Stone E, Irwin RE, Adler LS. 2019. Diet mediates interactions between bumble bee host and gut parasite. Presented poster at Animal-Microbe Symbioses Gordon Research Seminar, West Dover, VT	
Fowler AE. 2018. Diet-mediated pathogen resistance in bumble bees. 3-minute lightning talk at the Social Insects in the North East Regions Conference, Philadelphia, PA	
Fowler AE. 2018. Diet-mediated pathogen resistance in bumble bees. 12-minute talk at the Life Science Graduate Research Symposium, University of Massachusetts Amherst, Amherst MA	
Fowler AE, Lor D, Farrell C, Bauman M, Peterson MN, Langerhans RB. 2016. Predator loss leads to reduced antipredator behaviors in Bahamas Mosquitofish. Presented poster at Keck Center for Behavioral Biology Symposium, Raleigh, NC	
Fowler AE, Lichti D, Kimmel D, Schnetzer A. 2016. Shifts in protist community structure along the freshwater salinity interface. Presented poster at NCSU Undergraduate Research Symposium, Raleigh, NC	

Fowler AE, Jefferson T, Gilmartin J, Schnetzer A. 2014. Seasonal plankton abundance and community composition in Bogue Sound, NC. Presented poster at State of North Carolina Symposium for Research and Creativity, Raleigh, NC

## OUTREACH

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### *Organizations:*

**Fernald Club** President, UMass Entomology Outreach Group Sept '17-Present  
We have hosted 12+ events in the last three years, reaching 300+ people and maintain live and pinned insect collections.

**Life Science Café**, Organizer and MC, UMass Outreach Group Sept '17-Present  
We host monthly talks for the public by facilitating conversations with researchers; I have MC'ed three talks:

- "Soy, sake, and stouts: how we tamed microbes to make tasty foods and drinks" with Dr. John Gibbons July 2019
- "Perilous pests and our forests' future" with Dr. Hannah Broadley March 2019
- "The battle of the sexes – exploring arms races in marine mammal mating strategies" with Dr. Dara Orbach Feb 2018

**That's Life [Science]**, UMass Outreach Group and Blog Sept '17-Present

**Evolution and Behavior Research Lab**, NC Museum of Nat. Sci. Nov '15-May '16

### *Events I have organized, co-organized, or participated in:*

3-day program for Eureka! middle school girls, UMass July '18, '19  
Hitchcock Center Pollinator Fest, Amherst, MA Sept 2019  
Eno River Festival, Durham, NC July 2017  
BeeMore REU Program, NCSU June 2017  
Gnome and Fairy Day hosted by NC Museum of Nat. Sci. May 2017  
BugFest hosted by NC Museum of Natural Sciences Sept 2016  
Science PenPal with 5<sup>th</sup> grade class in New Haven Public Schools Sept 2016  
College of Sciences Museum Takeover, NC Museum of Nat. Sci. April 2016

## MENTORSHIP

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### *Undergraduate Senior Theses:*

Stephanie Lopez, UMass: "Effects of sunflower pollen consumption and morphology on reducing a gut pathogen infection in bumble bees" 2019-2020

Lily Coppinger, UMass: "The role of fatty acids in the medicinal properties of sunflower pollen for *Bombus impatiens* infected with the gut parasite *Crithidia bombi*" 2018-2019

Elly Stone, Smith College: "Sunflower pollen reduces a parasite in worker and queen, but not male bumble bees" 2017-2018

### *UMass Undergraduate Research Assistants:*

Elisa Kola Fall 2020  
Cristina Echevarria Fall 2020  
Stephanie Lopez Fall 2018  
Justin Roch Fall 2018  
Zari Henry Fall 2018

### *High School Research Assistants:*

Jude Cook Summer '18 and '19  
Nava Chevan Summer 2018  
Jaida Buchanan Spring 2018

Eureka! Girls Inc. High School Interns  
Haley Giguere  
Gabriela Santiago  
NSF GRFP mentor to 8 UMass graduate students

Summer 2018  
Summer 2018  
Fall 2019

### **RELEVANT COURSEWORK**

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As a graduate student: Evolution, Ecology, Analysis of Environmental Data, Applied Biostatistics, Evolutionary Genomics and Bioinformatics, Writing for Graduate Students in Science

### **SERVICE**

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Peer reviewer for *PeerJ* and *Insects*  
Co-president of OEB Coding Club