
CURRICULUM VITAE

MICHELLE L. FEARON

Postdoctoral Research Fellow

Ecology and Evolutionary Biology • University of Michigan
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EDUCATION

University of Michigan, Ann Arbor, MI

Ph.D., Ecology and Evolutionary Biology 2020

M.S. Ecology and Evolutionary Biology 2017

Advisor: Dr. Elizabeth A. Tibbetts

Thesis title: *Virus Prevalence in Pollinator Communities: The role of communities, environments, and host interactions on multi-host–multi-pathogen dynamics*

Degree Conferral: August 21st, 2020

University of California, Davis, CA 2013

B.S. Biological Sciences, Evolution and Ecology Emphasis, *High Honors*

Minor Wildlife, Fisheries, and Conservation

RESEARCH INTERESTS

Ecology of multi-host—multi-pathogen dynamics, effects of environmental change on host-pathogen dynamics, community ecology, biodiversity, species interactions, co-infections

HONORS AND AWARDS

2021 **Best Student Paper Award**, Ecological Society of America Disease Ecology Section for Fearon & Tibbetts 2021. *Ecology* paper

2021 **Justice, Equity, Diversity and Inclusion Award** for BioBlitz Planning Committee, Ecology and Evolutionary Biology, University of Michigan

2019 **Teaching Excellence Award**, Program in Biology, University of Michigan

2015 **Honorable Mention**, National Science Foundation Graduate Research Fellowship

2013 **Departmental Citation for Academic Achievement**, University of California, Davis

2009 – 2013 **Dean’s List**, University of California, Davis

GRANTS AND FELLOWSHIPS

Total = \$56,744

2019 **Rackham One-Term Fellowship**, University of Michigan, (\$10,200)

2019 **Dow Sustainability Doctoral Fellowship**, Graham Sustainability Institute, University of Michigan (\$15,000)

2018-2019 **Dr. Nancy Williams Walls Award for Field Research**, University of Michigan (2019: \$1,925; 2018: \$2,201)

- 2017 **Barr-Bigelow Fund**, University of Michigan (\$2,699)
- 2017 **Centennial Pollinator Fellowship**, Garden Club of America (\$4,000)
- 2016 **Honey Bee Health Improvement Project Grant**, North American Pollinator Protection Campaign (NAPPC) (\$8,892)
- 2016 **Phi Kappa Phi Project Grant**, Chapter 39, University of Michigan (\$4,500)
- 2016 **Grants-in-Aid of Research**, Sigma Xi (\$1,000)
- 2015-2016 **Ecology and Evolutionary Biology (EEB) Block Grant**, University of Michigan (2016: \$2,980; 2015: \$1,347)
- 2015 **Rackham Graduate Student Research Grant**, University of Michigan (\$1,500)
- 2009 **Tracy and Ruth Storer Scholarship**, University of California, Davis (\$500)

PUBLICATIONS

5. **Fearon, M.L.**, C.L. Wood, E.A. Tibbetts. Habitat Quality Influences Pollinator Pathogen Prevalence Through Both Habitat–Disease and Biodiversity–Disease Pathways. *Ecology*. DOI: 10.1002/ecy.3933
4. Tibbetts, E., C. Cely Ortiz, G. Auteri, M. Simons, **M.L. Fearon**, L.L. Knowles. 2021. Individual recognition and individual identity signals in *Polistes* wasps vary geographically. *Animal Behavior*. 176: 87-98. DOI: 10.1016/j.anbehav.2021.03.018
3. **Fearon, M.L.** and E.A. Tibbetts. 2021. Pollinator community species richness dilutes prevalence of multiple viruses within multiple host species. *Ecology*. 102(5): e03305. DOI: 10.1002/ecy.3305
2. Tibbetts, E.A., **M.L. Fearon**, E. Wong, Z. Huang, R.M. Tinghitella. 2018. Rapid juvenile hormone downregulation in subordinate wasp queens facilitates stable cooperation. *Proc R Soc B*. 285: 20172645.
1. **Fearon, M.L.** and P.S. Coates. 2014. Interspecific Nest Parasitism by Chukar on Greater Sage-Grouse. *Western Birds*. 45(3) 224 – 227.

In preparation:

Fearon, M.L., C.D. Gowler, M.A. Duffy. Inconsistent dilution: Experimental but not field evidence for a dilution effect in *Daphnia*–bacteria interactions. *In prep for Oecologia*.

Penczykowski, R.M., **M.L. Fearon**, J.L. Hite, M.S. Shocket, S.R. Hall, M.A. Duffy. Pathways to parasitism: effects of nutrient enrichment and mixing on algae-zooplankton-parasite interactions. *In prep for Oecologia*.

Zbrozek, M.*‡, **M.L. Fearon***, E.A. Tibbetts. Honey bee visitation to flowers increases *Vairimorpha* prevalence in bumblebees, but not honeybees. *In prep*.

* indicates co-first authorship

‡ indicates undergraduate mentee co-author

TEACHING EXPERIENCE

University of Michigan, Department of Biology, *Graduate Student Instructor*

- Introduction to Animal Behavior (Biology 130), Fall 2014, Fall 2016
- General Biology Lab (Biology 173), Winter 2015, Winter 2016, Winter 2017

M.L. Fearon

- Introduction to Research (Applied Liberal Arts 104), Fall 2018
- General Ecology (Biology/Environment 281), Winter 2018, Winter 2019

Guest Lectures

- **Spatial Distribution of Zooplankton Field Lab**, Introduction to EEB Research (EEB 500), UM, Summer 2021
- **Ecology Underlying Pollinator Declines**, General Ecology (BIO 281), UM, Winter 2018 and Winter 2019
- **Skills Workshop: Excel**, Introduction to Research (ALA 104), UM, Fall 2018
- **Research Ethics**, Introduction to Research (ALA 104), UM, Fall 2018
- **How to Read Research Papers**, Introduction to Research (ALA 104), UM, Fall 2018

RESEARCH EXPERIENCE AND WORK HISTORY

University of Michigan, Duffy Laboratory

June 2020 – Present

Postdoctoral Research Fellow

Mentor: Meghan A. Duffy, duffymeg@umich.edu

Studying multi-host–multi-parasite dynamics through paired field studies and experiments to explore how multiple environmental stressors impact disease dynamics and the underlying mechanisms within hosts and at the community-level that drive *Daphnia* hosts to be healthier in some lakes compared to others.

University of Michigan, Tibbetts Laboratory

Graduate Researcher

Sept 2014 – May 2020

Advisor: Elizabeth A. Tibbetts, tibbetts@umich.edu

Studied the spread of multi-host pathogens in pollinator communities in agricultural ecosystems that rely on insect pollination. Focusing primarily on how pollinator communities and the surrounding habitat quality mediates the prevalence of three RNA viruses, Deformed wing virus (DWV), Black queen cell virus (BQCV) and Sacbrood virus (SBV), in European Honey Bees (*Apis mellifera*) and native bee species.

Western Ecological Research Center, United States Geological Survey

Biological Science Technician (GG-0404-05)

Apr 2014 – Aug 2014

Wildlife Research Technician (Funded by Idaho State University)

Apr 2013 – Mar 2014

Research Intern (Funded by Univ. of California, Davis)

Feb 2012 – Mar 2013

Supervisor: Dr. Peter S. Coates

- Led a project on the biotic and abiotic factors affecting nesting and incubation behavior of Greater Sage-Grouse (*Centrocercus urophasianus*) hens. Co-led fieldwork studying population dynamics and demography of Ring-Necked Pheasants, Snowy Egrets, and Black-Crowned Night-Herons.
- I established an internship program between USGS and UC Davis to train students in ecological research. For this program, I independently hired, trained, and managed 10 undergraduate students in their first research experiences. At least 5 of the 10 students were hired by USGS as research technicians, and all the students have either continued graduate education or found jobs in science.

University of California Davis, Stanton Laboratory

Laboratory Research Manager

Oct 2010 – Sep 2011

Advisors: Dr. Maureen Stanton, Dr. Ann Marie Panetta

Independently managed laboratory and common garden greenhouse experiments studying adaptation of *Androsace septentrionalis*, pygmy-flower rock-jasmine, to climate change. I trained and supervised four undergraduate interns while working on the project.

INVITED PRESENTATIONS

- 2022 **EcoLunch Seminar Series, Purdue University**. Virtual Seminar: *Resource quality differentially impacts Daphnia host interactions with two parasites.*
- 2021 **Pau Hana Pū Kākou Seminar Series, Bishop Museum, Hawai'i**. Virtual Seminar: *Comparing the relative effects of bee diversity and habitat on prevalence of viruses infecting honey bees and native bees.*
- 2016 **16th Annual North American Pollinator Protection Campaign (NAPPC) International Conference**, Riverdale, MD. *Changing perspectives: How pollinator community context influences honey bee virus prevalence.*

CONTRIBUTED PRESENTATIONS

- 2021 **Ecological Society of America Annual Meeting**, Virtual Meeting. Oral Presentation: *Habitat, Not Biodiversity, Drives Some Apparent Dilution Effects: Comparing the Relative Effects of Biodiversity and Habitat on Pollinator Pathogen Prevalence*
- 2021 **19th Annual Ecology and Evolution of Infectious Disease Conference**, Virtual Meeting. Poster presentation: *Inconsistent evidence for a dilution effect in Daphnia communities infected by a bacterial parasite.*
- 2019 **International Pollinator Conference**, Davis, CA. Poster presentation: *Does habitat quality 'dilute' disease risk instead of biodiversity? 'Habitat health', an alternate explanation for reduced pathogen prevalence in species-rich communities.*
- 2019 **17th Annual Ecology and Evolution of Infectious Disease Conference**, Princeton, NJ. Poster presentation: *Does habitat quality 'dilute' disease risk instead of biodiversity? 'Habitat health', an alternate explanation for reduced pathogen prevalence in species-rich communities.*
- 2018 **14th Annual Early Career Scientists Symposium**, Ann Arbor, MI. Poster presentation: *Pollinator community context influences virus prevalence in honey bees and native bees.*
- 2017 **Ecological Society of America Annual Meeting**, Portland, OR. Oral Presentation: *Dilution or Amplification? Community diversity influences virus prevalence in honey bees and native bees.*
- 2017 **15th Annual Ecology and Evolution of Infectious Disease Conference**, Santa Barbara, CA. Poster presentation: *Pollinator community context influences virus prevalence in honey bees and native bees.*
- 2016 **International Conference on Pollinator Biology, Health, and Policy**, State College, PA. Oral Presentation: *Pollinator community composition influences virus prevalence in honey bees and native bees.*

UNDERGRADUATE STUDENT MENTORING

Note: Unfortunately, mentoring undergraduate students in lab was not possible due to COVID-19 restrictions on personnel in the laboratory at UM from March 2020 to April 2021.

Student Role	Dates	Student Name	Topic	Student affiliation	Status
Undergrad Independent Research; Research Experience for Undergraduates (REU)	Jun 2021– Apr 2022	Varun Ravichandran	Role of <i>Daphnia pulicaria</i> host age and genotype on fungal infections	University of Michigan	completed
Undergrad Honors Thesis	Sept 2018– Apr 2020	Chloe Weise	Face coloration varies among Michigan and Pennsylvania populations of paper wasp	University of Michigan	completed
Undergrad Independent Research	Sept 2018– May 2019	Hannah Zonneville	Are flowers bee disease hotspots? Examining the relationship between virus prevalence in pollinators and on flowers	University of Michigan	completed
Undergrad Independent Research	Sept 2018– Apr 2019	Natalie Gratsch	Pollinator visitation rates to flowers influence virus prevalence in multiple bee species	University of Michigan	completed
Undergraduate Research Opportunity Program	Oct 2018– Apr 2019	Justice Martin-Johnston	Role of bee interaction networks on flowers and landscape on virus prevalence	University of Michigan	completed
Undergrad Independent Research; Michigan Research and Discovery Scholars	Oct 2017– July 2019	Madeleine Frank	Are flowers bee disease hotspots? Examining the relationship between virus prevalence in pollinators and on flowers	University of Michigan	completed
Summer Biomedical & Life Sciences Summer Fellow; Michigan Research and Discovery Scholars	Oct 2017– Aug 2018	Gabrielle Flint	Pollinator visitation rates to flowers influence virus prevalence in multiple bee species	University of Michigan	completed
Undergraduate Research Opportunity Program	Oct 2017– Apr 2018	Leah Davis	Impacts of human land management on pollinator community composition and flower visitation rates	University of Michigan	completed

Undergrad Honors Thesis; Undergraduate Research Opportunity Program	Oct 2016– Apr 2019	Maryellen Zbrozek	Shared flowers, shared parasites? Honey bee floral visitation is most important community factor correlated with <i>Nosema ceranae</i> prevalence in bumblebees	University of Michigan	completed
Undergraduate Research Opportunity Program	Oct 2016– Apr 2017	Eva Collins-Carey	Influences of pollinator visitation to crop flowers	University of Michigan	completed
Doris Duke Conservation Scholar Program	Summer 2016	Kelly Lam	Effect of field management and surrounding landscapes of pumpkin and squash farms on the species richness of bees	Wesleyan University	completed
Doris Duke Conservation Scholar Program	Summer 2016	Yorick Oden-Plants	Proliferation of pathogens in pollinators: Using spatial analysis to map the trends in the health of bees in southeastern Michigan	College of William and Mary	completed
Undergraduate Research Opportunity Program	Summer 2016	Joshua Peters	The effect of local landscape on pollinator communities in southeastern Michigan	Mott Community College, Michigan State University	completed
Undergraduate Research Opportunity Program	Oct 2015– Apr 2016	Cara Fleming	The impact of natural habitat on pollinator diversity in southeastern Michigan	University of Michigan	completed

* UROP = Undergraduate Research Opportunity Program

Mentored Student Grants, Fellowships, and Awards

- **Chloe Weise**, 2020, Received Honors on her Honor's Thesis
- **Maryellen Zbrozek**, 2019, Received Highest Honors on her Honor's Thesis
- **Maryellen Zbrozek**, 2018 EEB Summer Research and Travel Award (\$1,000)
- **Gabrielle Flint**, 2018 EEB Summer Research and Travel Award (\$1,000)
- **Gabrielle Flint**, 2018 Summer Biomedical & Life Sciences Summer Fellowship (\$4,000)
- **Leah Davis**, 2018 University of Michigan UROP Symposium Best Poster Award

Student Presentations and Posters

- **Zbrozek MC**, Fearon ML, Tibbetts EA. *Shared flowers, shared parasites? Honey bee floral visitation is most important community factor correlated with Nosema ceranae prevalence in bumblebees*. Poster presentation, 2019 International Pollinator Conference, Davis, CA.
- **Zbrozek MC**, Fearon ML, Tibbetts EA. *Shared flowers, shared parasites? Honey bee floral visitation is most important community factor correlated with Nosema ceranae prevalence in bumblebees*. Poster presentation, 2019 Neuroscience & Biological Sciences Undergraduate Poster Session, Ann Arbor, MI.
- **Martin-Johnston J**, Fearon ML, Tibbetts EA. *Role of bee interaction networks on flowers and landscape on virus prevalence*. Poster presentation, 2019 University of Michigan UROP Symposium, Ann Arbor, MI.
- **Flint G**, Fearon ML, Tibbetts EA. *Uncovering how viruses are transmitted among multiple bee species on flowers*. Poster presentation, 2018 University of Michigan UROP Summer Symposium, Ann Arbor, MI.
- **Flint G**, Fearon ML, Tibbetts EA. *Pollinator visitation rates to flowers influence virus prevalence in multiple bee species*. Poster presentation, 2018 Michigan Research and Discovery Scholars Research Symposium, Ann Arbor, MI.
- **Frank M**, Fearon ML, Tibbetts EA. *Are flowers bee disease hotspots? Examining the relationship between virus prevalence in pollinators and on flowers*. Poster presentation, 2018 Michigan Research and Discovery Scholars Research Symposium, Ann Arbor, MI.
- **Davis L**, Fearon ML, Tibbetts EA. *Impacts of human land management on pollinator community composition and flower visitation rates*. Poster presentation, 2018 University of Michigan UROP Symposium, Ann Arbor, MI.
- **Zbrozek M**, Fearon ML, Tibbetts EA. *Disease in Honey Bees and Bumble Bees: Effect of landscape composition on Black Queen Cell Virus prevalence*. Poster presentation, 2017 University of Michigan UROP Symposium, Ann Arbor, MI.
- **Collins-Carey E**, Fearon ML, Tibbetts EA. *Influences on pollinator visitation to squash flowers*. Poster presentation, 2017 University of Michigan UROP Symposium, Ann Arbor.
- **Oden-Plants Y**, and Fearon ML. *Proliferation of pathogens in pollinators: Using spatial analysis to map the trends in the health of bees in southeastern Michigan*. Poster presentation, 2016 Diversity in Environmental Organizations Symposium, Ann Arbor, MI.
- **Lam K**, and Fearon ML. *Effect of field management and surrounding landscapes of pumpkin and squash farms on the species richness of bees*. Poster presentation, 2016 Diversity in Environmental Organizations Symposium, Ann Arbor, MI.

- **Peters J**, and Fearon ML. *The effect of local landscape on pollinator communities in southeastern Michigan*. Poster presentation, 2016 University of Michigan UROP Summer Symposium, Ann Arbor, MI.
- **Fleming C**, and Fearon ML. *The impact of natural habitat on pollinator diversity in southeastern Michigan*. Poster presentation, 2016 University of Michigan UROP Symposium, Ann Arbor, MI.

PROFESSIONAL AND HONOR SOCIETIES

- 2016 **The Honor Society of Phi Kappa Phi**, University of Michigan
- 2015 **Sigma Xi**
- 2015 **Ecological Society of America**
- 2015 **The Xerces Society**, Invertebrate Conservation
- 2010 **National Society of Collegiate Scholars**, University of California, Davis
- 2010 **Golden Key International Honour Society**, University of California, Davis
- 2010 **Chi Omega Fraternity**, University of California, Davis

SCIENCE COMMUNICATION

Presentations

- Michigan State University Extension Pollination Initiative Webinar, Apr 2021
 - <https://www.youtube.com/watch?v=WEIGS5eG6Jc>
- Michigan EEB Undergraduate Club, Oct 2017
- Michigan EEB Undergraduate Club, Sept 2016

Press and Radio Interviews

- University of Michigan press release, Dec 2022, [Link](#)
- The Wildlife Society, Dec 2022, [Link](#)
- Michigan Radio (NPR), Dec 2022, [Link](#)
- University of Michigan press release, Feb 2021, [Link](#)
- Wildlife Society article, March 2021, [Link](#)
- The Western Producer article, April 2021, [Link](#)
- Interlochen Public Radio (NPR), May 2021, [Link](#)
- It's Hot in Here Podcast, WCBN-FM Ann Arbor, "Buzzfeed: Wild Bees Meet Urban Farming", June 2016 [Link](#)

OUTREACH

Facilitator for Academic Carers

July 2022 - Present

Assist the facilitation of meetings and group interactions for Academic Carers, a Slack-based support group for academics at all career stages that care for dependents or family members. Currently 137 members and growing!

Planning Committee Member, BioBlitz at D-Town Farm

May 2015 – Jun 2019

An event with the Detroit Black Community Food Security Network and a children's organization called Food Warriors to engage inner city children from Detroit in ecology and science on an urban farm in Detroit, MI. Since 2015, we have raised over \$10,000 to provide transportation, food, and all materials for the event so that children can attend at no cost. We recruit students and faculty from University of

Michigan and local community leaders that share similar racial and/or cultural identities to the children to provide role models in science.

FEMMES Capstone Activity Leader, University of Michigan Nov 2016, Mar 2017

An outreach event for 250 fourth- to sixth-grade girls from underserved communities across Michigan. Our science activity called “Survival of the Fittest,” taught the girls about how birds feed on different types of foods, and how that is influenced by natural selection and adaptation through active learning, class discussion, and graphing the results.

PROFESSIONAL SERVICE

Journal Reviewer

- Ecology
- Journal of Animal Ecology
- Southeastern Naturalist

University/Departmental Service

Outstanding Graduate Student Publication Committee, EEB University of Michigan Apr 2021

Served on the postdoc committee to review graduate student publications to receive the Outstanding Publication Award in the EEB department.

Admissions Committee Member, EEB University of Michigan Sept 2016 – Aug 2018

Student representative on department committee to select the incoming PhD students. Review applications and plan logistics of the recruitment weekend for highly qualified applicants. The 2017 and 2018 incoming cohorts were some of the most diverse in the department to date.

Student Vice President, Phi Kappa Phi Chapter 39 April 2016 – April 2017

Provided a student voice at the Phi Kappa Phi Board meetings and plan activities for the chapter. Aid with 2017 recruitment into UM Phi Kappa Phi chapter.

Retreat Committee Member, EEB University of Michigan Sept 2015 – Aug 2016

Student representative on department committee to plan the annual departmental retreat. Organize activities, transportation, and run programs during the retreat.

WORKSHOPS, TRAININGS, AND COURSES

Diversity, Equity, and Inclusion Training

- Change it up! Bystander Intervention Training
- Doris Duke Conservation Scholars Program DEI Workshop
- Understanding Implicit Bias: The Largest Roadblock to a Global STEM Workforce
- Implicit bias in evaluation and best practices to mitigate its impacts
- Numerous UM EEB department workshops and internal discussion on improving DEI within our department

Professional Development

- NextProf Science Workshop: Diversifying Academia, University of Michigan
- MORE Mentoring Workshop

Statistics Courses

- Structural Equation Modeling for Ecologists and Evolutionary Biologists, PR Statistics
- Bayesian Data Analysis, PR Statistics