

LAURA FIGUEROA, PhD

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EDUCATION

Cornell University, Ithaca, NY

August 2020

Ph.D. Entomology Department

Thesis: Bee Pathogen Transmission in Plant-Pollinator Networks

Advisor: Dr. Scott McArt

University of Oklahoma

May 2015

B.S. Biology *Summa Cum Laude* (Honors)

Minor: Interdisciplinary Perspectives on the Environment

Thesis: Bumble Bees (Hymenoptera: Apidae) of Oklahoma: Past and Present Biodiversity

Advisor: Dr. Elizabeth Bergey

Areas of interest: conservation biology, community ecology, disease transmission dynamics

PEER-REVIEWED PUBLICATIONS

- 11) Figueroa LL^{*}, Maccaro JJ^{*}, Krichilsky E, Yanega D, and McFrederick QS (2021). Why did the bee eat the chicken?: symbiont gain, loss, and retention in the vulture bee microbiome. *MBio*, 12(6) e02317-21. (^{*}co-first authors). Media attention in [USA Today](#), [CNN](#), [Smithsonian Magazine](#), [Business Insider](#), [The Independent](#), [ars TECHNICA](#), [Phys.org](#), [SciTechDaily](#), [NewsAtlas](#), [Popular Science](#), [Yahoo News](#), [SciShow](#), [Entomology Today](#), and [The Bee Report's Top 10 Bee-Related Stories of 2021](#).
- 10) Figueroa LL, Maran A, and Pelini. Invertebrate communities influence decomposition under various climate change scenarios (2021). *PLOS One*, 16(11): e0259045.
- 9) *Vaca-Uribe JL, Figueroa LL, Santamaría M, and Poveda K. Plant richness and blooming cover affect abundance of flower visitors and network structure in Colombian orchards (2021). *Agriculture and Forest Entomology*, 23(4), 545-556.
- 8) Figueroa LL, *Compton S, Grab H, and McArt SH. Functional traits predict pathogen prevalence in wild bees (2021). *Scientific Reports*, 11, 7529. (*undergraduate co-author).
- 7) Figueroa LL, *Grincavitch C, and McArt SH (2021). *Crithidia bombi* can infect two solitary bee species while host survivorship depends on diet. *Parasitology*, 148(4), 435-442. (*undergraduate co-author).
- 6) Figueroa LL, Grab H, Ng WH, Myers CR, Graystock P, McFrederick QS, and McArt SH (2020). Landscape simplification shapes pathogen prevalence in plant-pollinator networks. *Ecology letters*, 23(8), 1212 – 1222. Media attention in the [Cornell Chronicle](#), [Phys.org](#), [EurekAlert](#), [the Bee Report Podcast](#), among [others](#).
- 5) Figueroa LL, *Blinder M, *Grincavitch C., *Jelinek A, *Mann EK, *Merva LA, *Metz LE, *Zhao AY, Irwin RE, McArt SH and Adler LS (2019). Bee pathogen transmission dynamics: deposition, persistence and acquisition on flowers. *Proceedings of the Royal Society B: Biological Sciences*, 286, 20190603. (*undergraduate co-authors).
- 4) Nelson AS, Scott T, Barczyk M, McGlynn TP, Avalos A, Clifton E, Das A, Figueiredo A, Figueroa LL, Janowiecki M, Pahlke S, Rana JD, and O'Donnell S (2018). Day/night upper thermal limits differ within *Ectatomma ruidum* ant colonies. *Insectes Sociaux*, 65(1), 183-189.
- 3) Bergey EA and Figueroa LL (2016). Residential yards as designer ecosystems: effects of yard management on land snail species composition. *Ecological Applications*, 26(8), 2538-2547.

- 2) Figueroa LL and Bergey EA (2015). Bumble bees (Hymenoptera: Apidae) of Oklahoma: past and present biodiversity. *Journal of the Kansas Entomological Society*, 88(4), 418–429. Media attention in [The Guardian](#).
- 1) Bergey EA, Figueroa LL, Mather, CM, Martin, RJ, Ray, EJ, Kurien, JT, Westrop DR, and Suriyawong P. (2014). Trading in snails: plant nurseries as transport hubs for non-native species. *Biological Invasions*, 16(7), 1441-1451.

NON-REFEREED PUBLICATIONS

Hinsley, C. A., LL Figueroa, TA Grout, J Mahoney, SH. McArt, and EK Walters. 2020. 2019 New York State Beekeeper Tech Team Report, 26 pp.

Scientific Subject Area Expert

- The Highlights Book of How (WonderLab Group)

RESEARCH GRANTS AND FUNDING

- National Science Foundation IntBIO: Collaborative Research: Integrating molecular, cellular, organismal and community scales to understand how plants structure pollinator-pathogen dynamics **\$2,456,096** (to UMass, Amherst **\$904,680**) 2022 – 2026
- National Science Foundation Postdoctoral Research in Biology: **\$138,000** 2020 – Present
- National Science Foundation Graduate Research: **\$138,000** 2016 – 2020
- Cornell Graduate Research Travel Grant: **\$2,000** 2019
- Cornell Rawlins Grant: **\$4000** 2016 – 2018
- Organization for Tropical Studies Research Fellowship: **\$2,025** 2017
- Cornell Griswold Fellowship: **\$2,000** 2016
- Cornell Sigma Xi Research Grant: **\$600** 2016
- Cornell College of Agriculture and Life Sciences Alumni Association Grant: **\$220** 2016
- Garden Club of America (GCA) and Pollinator Partnership: **\$4,000** 2016
- Deans Excellence Graduate Fellowship, Cornell University: **\$46,000** 2015
- Atkinson Center for a Sustainable Future’s Sustainable Biodiversity Fund: **\$6,418.50** 2015
- National Science Foundation Harvard Forest Summer Research Program **\$5,500** 2014
- Oklahoma Biological Survey Internal Grants Program: **\$2,000** 2013
- Honors College Undergraduate Research Opportunities Program, University of Oklahoma: **\$1,000** 2013

SELECTED AWARDS AND FELLOWSHIPS

- Ecology Letters Early Career Researcher Award 2021
- National Science Foundation Postdoctoral Research in Biology Fellow 2020 – Present
- Darwin Fellow Mentoring and Teaching Award 2020
- National Science Foundation Graduate Research Fellow 2016 – 2020
- Cornell University Partners in Sustainability Award 2019
- 1st place in the Entomological Society of America oral paper presentation competition 2017 – 2018
- National Science Foundation Travel Award for International Congress of Entomology 2016
- Phi Beta Kappa Roland Lehr Memorial Award 2015
- Outstanding Graduate in Biology Department, University of Oklahoma 2015
- Goldwater Scholar 2014

LEADERSHIP AND MENTORSHIP TRAINING

- Research Mentor Training** 2021
- 4 day course hosted by The Wisconsin Institute for Science Education and Community Engagement

- Trained on effective communication strategies, how to align expectations with mentees, addressing equity, inclusion and cultural awareness in research, and promoting independence and self-efficacy in our students

Leadership Program 2020 – 2021

- 10 day course for postdoctoral scholars hosted by Cornell University Postdoctoral Studies
- Trained on the importance of self-knowledge, individual and group dynamics, power, organizational structure and context, and the role of communication in conflict resolution, team function, and change

Inter-Dialogue group Project 2019

- 5 day course for graduate students and postdoctoral scholars. Cornell University.
- Trained on how to promote equity and inclusion in the workplace as well as conflict resolution

Colman Leadership Program 2018

- 4 day immersion program for PhD students in STEM
- Trained on effective communication, conflict resolution, and collaborative teamwork

Engaged Graduate Student Institute 2018

- 1 day workshop for PhD students
- Introduced to skills and theories related to ethical and effective community engagement

Student Advisory Committee Member 2014 – 2015

- Biology Department at the University of Oklahoma

MEDIA APPEARANCES

- Interviewed for [Inside UMass](#) discussing the Vulture Bee Microbiome (12/16/2021)
- Featured in [BBC's Science in Action Podcast](#) discussing the Vulture Bee Microbiome (12/02/2021)
- Featured in [BBC's Inside Science Podcast](#) discussing the Vulture Bee Microbiome (12/02/2021)
- Interviewed by [USA Today](#) discussing the Vulture Bee Microbiome (11/30/21)
- Interviewed Live for [New Zealand Radio](#) discussing the Vulture Bee Microbiome (11/29/2021)
- Interviewed for [The Bee Report Podcast](#) discussing bee pathogen transmission on flowers (6/20/2020)
- Interviewed for [Cornell Chronicle](#) discussing bee pathogen transmission on flowers (04/14/2020)

SELECTED ACADEMIC SERVICE

Ecology Letters Associate Editor Present

- Invited to join Editorial Board as part of the Ecology Letters Early Career Researcher Award

Diversity, Equity, Inclusion and Justice sub-committee member, Cornell Entomology 2021

- Helped re-design the Entomology department website's admission page under a DEIJ framework

Darwin Fellow Selection Committee, OEB, University of Massachusetts, Amherst: 2021

- Aided in selection criteria and announcement, reviewed applications, interviewed candidates, and selected Fellow, alongside two other members of the committee.

Research Fellow, Atkinson Center for Sustainability: 2016 – 2021

- Faculty Academic Venture Fund Grant reviewer (2021); Outreach Committee (2018 – 2020); Graduate Student and Postdoc Small Grants reviewer (2020); and Graduate Student Sustainable Biodiversity Fund reviewer (2016)

Sustainability Fellow, Cornell University's Graduate and Professional Student Center: 2019 – 2020

- Wrote weekly sustainability newsletter, initiated and maintained composting, coordinated team of volunteers, organized numerous sustainability-themed events for graduate students (e.g. clothing swaps and sustainability trivia nights), ran awareness campaigns for reducing single-use plastics, updated recycling signage, and reduced inefficient energy use

President, Tropical Biology and Conservation Graduate Student Association: 2019 – 2020

- Cornell University Chapter. Organized biweekly presentations on relevant conservation topics and organized day-long symposium (student, postdoc, and faculty speakers; Dr. Corrie Moreau as keynote).
- Hosted Dr. Thomas Lovejoy, including for a seminar with 100+ attendees and a discussion at the Cornell Lab of Ornithology

Professional Development Committee Chair: 2015 & 2017

- Entomology Department, Graduate Student Organization, Cornell University. Invited speakers from academia and beyond to present to students. Organized CV workshops.

TEACHING

Instructor

- *Professional development*: 8 students. Required course for incoming PhD students in the Ecology and Evolutionary Biology Graduate Program at the University of Massachusetts, Amherst. Developed curriculum, gave presentations, and provided mentorship to students. Virtually for University of Massachusetts, Amherst, Amherst, MA (Fall 2020)

Co-instructor

- *Práctica de Investigación (Research Practicum for Undergraduates)*: 2 students. Immersive research-focused course. Organized weekly article discussion, gave lecture on experimental design and execution, and mentored students throughout the development of independent research projects. Lead Instructor: Marisol Amaya Marquez. Virtually for Universidad Nacional de Colombia, Bogotá, Colombia (Fall 2021)

Guest lecturer

- *Considering Graduate School*: 25 students. Career and Curriculum Planning in Department: Natural Resource Conservation. Instructor: Lena Fletcher. Virtually for University of Massachusetts, Amherst, Amherst, MA (Fall 2020)

Teaching Assistant

- *The Secret Lives of Snails*: 11 students. Two-week research-intensive cornerstone. Helped students develop research questions with proper experimental design and conduct independent projects. University of Oklahoma, Norman OK (Spring 2015)
- *Evolution for biology majors*: 79 students. Wrote weekly quiz and graded exams. University of Oklahoma, Norman, OK (Fall 2013)

SELECTED OUTREACH AND ADVOCACY

Diversity, Equity and Inclusion 2019 – present

- Presented to Harvard Forest's summer interns on advice for succeeding in graduate school, especially as an under-represented minority in STEM.
- Volunteered for Cornell Diversity Preview Weekend: diversity recruitment program for under-represented minorities in ecology: Admissions committee, CV workshop reviewer, and culture & identity discussion moderator and panelist

Community Outreach: 2018 – present

- Presented to members of the Applewood Community in Massachusetts, focusing on pollinator diversity and best management practices in collaboration with UMass Amherst Research and Agriculture Extension Programs (2021)
- Developed interactive one-day science workshop for community members and Forest Department officials on insect diversity and ecological importance. Keystone Foundation Ecological Station, Sathyamangalam, Tamil Nadu, India: 20 participants (2018)

K-12 Science Outreach: 2012 – present

- *Pollinator Health Showtime!* (Science Center, NY: 2019); *Insectapalooza* (Cornell Entomology Open House, NY: 2015 – 2019); *Expand Your Horizons* (STEM outreach for girls, NY: 2016); *Pollinator Health Section* (Dryden Elementary Science day, NY: 2015); *BEES* (Biology Experience for Elementary Students, OK: 2014); *Migration Celebration* (Cornell Lab of Ornithology, NY: 2015); *BioBlitz!* (Team leader: biodiversity inventory and citizen science, OK: 2012 – 2014).

Environmental conservation:

- Invited Panelist for Cornell ECO (Collaborative for sustainability groups at Cornell University) to present on careers in sustainability, October 27, 2021 (virtual): 36 attendees.

SELECTED PRESENTATIONS

Invited Seminar Speaker

Figueroa LL. *Flowers as the source of poison and the cure: a tale of pathogens in plant-pollinator networks*. November 18, 2021. Illinois State University. Normal, Illinois.

Figueroa LL. *Pathogen transmission in plant-pollinator networks*. September 30, 2021. Smithsonian Environmental Research Center (virtual).

Contributed Conference Presentation

Figueroa LL, Thomas R, and Wolf SA. *Monitoring conservation agreements in India: constraints between theory and practice*. October 2, 2019. Student Conference on Conservation Science-New York. New York City, NY.

Figueroa LL, Blinder M, Grincavitch C., Jelinek A, Mann EK, Merva LA, Metz LE, Zhao AY, Irwin RE, McArt SH and Adler LS. *Bee pathogen transmission dynamics: deposition, persistence and acquisition on flowers*. July 18, 2019. International Conference on Pollinator Biology, Health & Policy. University of California Davis, Davis, CA.

Figueroa LL, Compton S, Grab H, McArt SH. *Functional traits predict pathogen prevalence in wild bees*. November 12, 2018. Entomological Society of America Annual Meeting. Vancouver, Canada. (Awarded President's Prize)

Figueroa LL, Grab H, Graystock P, McFederick QS, McArt, SH. *Landscapes, networks and flowers: Ecological factors at multiple scales shape patterns of disease in bees*. May 31, 2018. Ecology and Evolution of Infectious Diseases, Glasgow, Scotland.

Figueroa LL, LS Adler, RE Irwin, C Grincavitch, E Mann, L Metz, A Zhao and SH McArt. *Pathogen transmission among bees through shared floral resources: The role of flower species and pathogen placement*. November 5, 2017. Entomological Society of America Annual Meeting. Denver, CO. (Awarded President's Prize)

Figueroa LL, Grab H, Graystock P, McFederick QS, McArt, SH. *Pathogen Transmission in Plant-Pollinator Networks*. October 27th, 2016. XXV International Congress of Entomology. Orlando, FL.

Figueroa LL, Grab H, Graystock P, McFederick QS, McArt, SH. *Pathogen Transmission in Plant-Pollinator Networks*. July 18th, 2016. Third International Conference on Pollinator Biology, Health & Policy. Pennsylvania State University, University Park, PA.

Figueroa LL, Grab H, Graystock P, McFederick QS, McArt, S. H. *Pathogen Transmission in Plant-Pollinator Networks*. May 13th, 2016. The Cary Institute, Milbrook, NY.

MENTORING

Universidad Nacional de Colombia, Bogotá

Luis Murcia and Dayana Bolanos: pollination ecology of understudied Neotropical crops 2021 – present
Jessica Vaca-Uribe: Plant-pollinator networks in Colombian fruit orchards (M.s) 2019 – 2021

Cornell University

Lauren Cody: convolutional neural networks and insect bioacoustics 2021 – present

<u>Cali Grincavitch</u> : infection patterns in solitary bees	2019 – 2020
<u>Sally Compton</u> : role of bee functional traits on pathogen prevalence (Honors thesis, Cornell)	2016 – 2017
<u>Joshua Roberts</u> : molecular screening of bee pathogens (Cornell)	2016
University of Massachusetts, Amherst	
<u>Joshua Day</u> : bumble bee gut transit time	2017
Summer Pre-College Program:	
<u>Malcolm Blinder, Angus Jelinek, and Liam Merva</u> : Bee pathogen transmission on flowers	2017

PREVIOUS RESEARCH AND OTHER PROFESSIONAL EXPERIENCE

Organization for Tropical Studies, Costa Rica 2017 – present

- Principal investigator. Collaborators: Dr. Quinn McFrederick and Erin Krichilsky
- Evaluated microbiome of neo-tropical stingless bees, with a focus on carrion feeding *Trigona*

Keystone Foundation, Kotagiri, Tamil Nadu, India 2018

- Visiting Graduate Student. Advisors: Anita Varghese and Steven Wolfe
- Assessed effectiveness of conservation agreements on sustainable indigenous livelihoods and forest conservation

Oklahoma Biological Survey, Norman, OK 2012 – 2015

- Research Assistant. Advisor: Dr. Elizabeth Bergey
- Assessed non-native terrestrial snail dispersal through the horticultural trade, including field work and species identification

Sierra Club, Oklahoma City, OK 2013

- Intern, Advisor: Whitney Houston
- Beyond Coal Campaign. Awareness campaigns via booths and phone drives.

PEER-REVIEWED MANUSCRIPTS FOR

Ecology Letters; Trends in Ecology and Evolution; Ecology; Proceedings of the Royal Society B; Basic and Applied Ecology; Urban Ecosystems; Insects; International Journal of Parasitology; Agriculture, Ecosystems and the Environment; International Journal of Tropical Insect Science; Oecologia

SKILLS

Quantitative analysis: R (advanced statistics and intermediate programming) and QGIS (basic)
Molecular techniques: PCR and Sanger Sequencing
Languages: English (fluent), Spanish (fluent), and French (intermediate)