

Jessica Maccaro

PhD Candidate

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@JessicaMaccaro

@Insects4inclus



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RESEARCH/WORK EXPERIENCE

Undergraduate

- Wilson Lab – Tree Crop IPM
Staff Research Associate | June 2018 – July 1 2020
- Daane Lab- Vineyard IPM
Lab Assistant | March 2017 – May 2018
- Smithsonian Tropical Research Institute–Mangrove Ecology in Panama
Field Assistant | August 1-25, 2017
- Tsutsui Lab- Chemical Ecology, Behavior, and Evolution
Research Assistant | Jan 2017 – May 2018
- Brasheres Lab- Conservation Ecology
Research Assistant | Jan 2017 – May 2017
- Blackman Lab- Botanical Research
Research Assistant | Feb 2016 – Jan 2017
- International Rivers- NGO
Media Intern | Jan 2016 – May 2016
- Open Viral Load Lab – HIV research
Biochemistry Research Coordinator | May – August 2017

Graduate

- McFrederick Lab
Graduate Research Assistant | Sept 2020 – Sept 2021
- ENTM 60W –Science Communication
Teaching Assistant | Sept 2021 – Dec 2021
- Bard College – Citizen Science Class
 - **Faculty** | Jan 2024

EDUCATION

University of California, Riverside

Entomology, PhD | McFrederick Lab
2020-Expected Grad. 2025

University of California, Berkeley

Molecular Environmental Biology ,
B.S. | Entomology concentration
2014-2018 *magna cum laude*

AWARDS & FELLOWSHIPS

- 2020** • Entomological Society of America – First Place Student Speaker Award
- 2022** • NSF Graduate Researcher Fellowship (GRFP)
- 2022 & 2023** • First Place EcoSlam Science Communication Video Contest
- 2022 & 2023** • Gluck Foundation – Outreach and Performing Arts Fellowship
- 2023** • Blackstone LaunchPad Student Entrepreneurship Award

MENTORSHIP

2018-2020

- As a lab manager I mentored and trained 10 students in insect ID and fieldwork

2020 - 2023

- As a graduate student I mentored 6 students in phylogenetics, science communication, molecular biology, and microbiology

PUBLICATIONS AND PRESENTATIONS FOR AN ACADEMIC AUDIENCE

Peer Reviewed Publications

Maccaro & Moreira Salgado et al. "Comparative Genomics Reveals that Metabolism Underlies Evolution of Entomopathogenicity in Bee-loving *Ascosphaera* spp. Fungi", *Journal of Invertebrate Pathology* 2022

Figueroa & **Maccaro** et al. "Why did the bee eat the chicken?: symbiont gain, loss, and retention in the vulture bee microbiome", *mBio* 2021

Maccaro. "Be Mindful of Your Metaphors about Microbes", *Commentary, mSphere* 2021

Maccaro & Whyte et al. "The Ant Who Cried Wolf? Short-Term Repeated Exposure to Alarm Pheromone Reduces Behavioral Response in Argentine Ants", *Insects* 2020.

Maccaro & McFrederick. "2nd Edition of Carrion Ecology, Evolution and Their Applications: Sociality and the Necrobiome" 2023 (invited to write this book chapter; currently in prep)

Wilson, Daane, **Maccaro** et al. "Winter Cover Crops Reduce Spring Emergence and Egg Deposition of Overwintering Navel Orangeworm (*Lepidoptera: Pyralidae*) in Almonds", *Environmental Entomology* 2022

Stahl, Wilson, Straser, **Maccaro** et al. "Irrigated trap crops impact key hemipteran pests in organic pistachio orchard", *Arthropod Plant Interactions* 2021

Wilson, **Maccaro** et al. "Optimizing trap characteristics to monitor the leafhoppered bug *Leptoglossus zonatus* (*Heteroptera: Coreidae*) in orchards", *Insects* 2020

Presentations and Posters

Entomological Society of America 2022 - "Vulture Bee Metagenomics" 10 min talk

Microbe 2022 - "Vulture Bee Microbiomes" Rapid Fire Talk

International Union for the Study of Social Insects (IUSSI) 2022 - "Vulture Bee Microbiomes: Symbiont gain, loss and retention" Poster

University of California, Riverside Department of Entomology Seminar Series 2021 - "Comparative Genomics Reveals that Metabolism Underlies Evolution of Entomopathogenicity in Bee-loving *Ascosphaera* spp. Fungi" Virtual Talk

University of California, Riverside Student Seminar Day 2022. - "Vulture Bee Microbiomes" Poster

Cold Springs Harbor Laboratory 2021 - "Comparative Genomics Reveals that Metabolism Underlies Evolution of Entomopathogenicity in Bee-loving *Ascosphaera* spp. Fungi" Virtual Poster

Ecology and Evolution of Infectious Diseases 2021- "Comparative Genomics of Bee-Loving Fungi Provides Clues to The Evolution of Entomopathogenicity in *Ascosphaera* spp." Virtual Poster

Entomological Society of America 2020-"Mating Disruption to Control *Amyelois transitella* (*Lepidoptera: Pyralidae*) in California Fig Orchards" Virtual Talk

SERVICE AND TRAINING

Service

UCR Entomology Department Faculty Committees:

Seminar and Special Lectures Committee 2020-2021 - Student Representative
I co-organized an 8 week seminar series on entomology jobs outside of academia

Displays, Exhibits and Outreach Committee 2022-2023:

UC Riverside Entomology Department - Student Representative
Organize and attend outreach events in the local community.

Entomology Graduate Student Association:

Diversity, Equity and Inclusion Committee 2020-2022- Member/co-chair, 2023 - Chair
Created a climate survey and organised DEI speakers for our weekly seminar.

Insect Fair Committee co-chair in training -2023

Organised the insect fair with the city of Riverside where about 10,000 people come learn about insects

Peer reviewed scientific papers:

2 research articles for G3: Genes, Genomes and Genetics & FEMS Microbiology Ecology
1 review paper for Arthropod - Plant Interactions

Relevant Science Communication Training

SciComm@UCR - member 2020-2021, president 2022 - present

Graduate student organization working to communicate science in creative ways to a broad audience. I have several other projects I initiated that are described on the science communication projects page.

Hubbard Brooks Foundation - Young Voices of Science Program 2021

8 week training program in several mediums of science communication.

ComSciConLA 2021

Training workshop and conference run by graduate students interested in science communication.

Prose Poetry Class Fall 2022

Prose poetry class this Fall to improve my creative writing for science communication

EEID Communicating Novelty and Controversy Workshop May 2023

3 day workshop dedicated to science communication that builds empathy, trust and collaboration.

ComSciCon Flagship July 2023

Training workshop and conference for graduate students interested in science communication.

SCIENCE COMMUNICATION PROJECTS

Insects4Inclusion 2020 - 2022 - Co-Founder

 <https://insects4inclusion.wixsite.com/stem>

Platform to sell insect art, photography, music and natural history to fund scholarships that advance inclusivity in Entomology (\$3,237 donated so far)

Across the Cline Podcast 2022 - present | Founder and Co-host

Connect two people from very different backgrounds to explore surprising similarities and learn about different disciplines.

Science Nights at Back To The Grind Sept 2022-present | Founder and Host

Founded and organize informal coffee shop talks covering a variety of scientific topics every month. Every month I train the speakers before hand in science communication techniques.

Gluck Outreach and Performing Arts Fellowship Project - Nov 2022 - present


"Insect Poetry Workshop" - Designed and conducted insect-poetry workshop for 5th and 6th graders (6 classes). I have compiled a book of their poems and their illustrations to explore their perceptions about insects

" Schedule a Virtual Meeting with Your Wild Bees":

 <https://hchu036.wixsite.com/beezoom>

Interactive website of my macro-photography to explore and learn about native bee diversity

Personal Website of Insect Macro photography:

 <https://jmacc0031.wixsite.com/mysite>

Cleveland National Forest

Using my macro photography of pollinators for an informational kiosk

Artistic Expression of Original Research Workshop Winter 2023

Created a free 10 week workshop for graduate students in the sciences to learn how to express their original scientific findings artistically (40 students). Organised two art shows Spring 2023 to showcase their (and my own) science-art work created throughout the workshop ~ 200 people came!

Mimicry and Crypsis Display Case 2023

Created a display case with pinned insects and mixed media art (charcoal, digital, poetry) to communicate about insects that blend in with their surroundings.

Insect Fair April 2023

2 art pieces selected to display in gallery. Won poetry contest about insect resilience. Illustrated a game for people to guess which crops were pollinated by insects

Across The Cline Coalition (in progress) 2023

I'm in the process of creating a platform for connecting people across disciplines to forge creative collaborations. This coalition will also host events and conferences that are trans-disciplinary.

Publications

Maccaro. "In search of the perfect unit", Consilience, Sept 2022

Maccaro."How Social Insect Manage Disease: Lessons From The Colony", Natural History Magazine, Sept. 2021 issue (only in print)

Outreach Talks

Science Nights @ Back To The Grind 2022 (2 in person talks)
Informal coffee shop talk on "Insect Diversity" & "Pollinators"

Ferment Radio 2022 (podcast interview)

"The War on Bugs: A conversation with Jessica Maccaro" - On the power of metaphor in science

UC Riverside Insect Fair 2021, 2022,2023 (tabling)

Educated the local community about native bees (9,500 people attended)

Bug Talk 2021 (podcast interview)

"Insects for Inclusion" - On my DEI science/art initiative (more in science art & communication section)

Moreno Valley STEAM event 2021 (virtual talk)

"Macrophotography Basics" - to a local low income community of all ages

LA Library Pollinator Program 2021 (virtual talk)

"Pollinator Diversity" - To members of the LA library community

Com-Sci-Con MI 2021 (virtual talk)

"Graduate Students Taking Action" - On how graduate students can start their own science communication/art initiative based on Insectsforinclusion

Master Gardeners 2021 (virtual talk)

"Incredible Insect Diversity" - As part of the Master Gardener training program

Girl Scouts of America 2020 (virtual talk)

"Insect Diversity" - To girl scouts from age 5-16

Outreach Talks Continued

Pentland Gluck Music Series 2022-2023 (tabling)

"Community Insect Poetry for Undergraduates" -Insect poetry and collaging tabling at music event 6 times.

Colton High School Outreach - Jan 2023 (in person talk)

"Insect Diversity" Talk with senior high school students

Talaterra Podcast- Feb 2023 (podcast interview)

Interviewed about our podcast Across the Cline (more info on science communication projects page below).

Stonehaven Sustainability Event - Feb 2023 (in person talk)

Talked about pollinator diversity in Riverside with apartment residents.

Central Middle School - March 2023 (in person talk)

"Insect Basics" Talk and touch-a-bug with about 200 middle school students

Plant Discovery Day - May 2023 (tabling)

Taught 100 5th graders about insects and had them write a collective poem about them.

Reading groups

Salon | June 2021 - present

Graduate students from different department read and talk about philosophy weekly

Science Communication | 2021-2022

Science graduate students from different departments meet every two weeks to learn about affective forms of science communication.

Autopoesis | March 2022- present

Graduate students discussing the concept of self-making and self-maintaining in biology, sociology, and philosophy.

Political Theory | this summer

Graduate student mostly in political science read about Black and queer political theory.

HOBBIES AND INTERESTS OUTSIDE OF WORK

Mountain biking, backpacking, climbing, dancing, soccer, philosophy, drawing, writing poetry (currently working on a book of symbiosis poetry), traveling, insect macro-photography, meeting new people, starting too many book clubs, playing and listening music, and more to come!