

# Melissa Whitaker, Ph.D.

Department of Biological Sciences  
East Tennessee State University  
whitakerm1@etsu.edu

## PROFESSIONAL EXPERIENCE

---

2023 - **Assistant Professor**  
Department of Biological Sciences  
East Tennessee State University, Johnson City, TN



2018 - 2022 **Research Associate**  
Entomological Collection  
ETHZ (Swiss Federal Technical Institute, Zürich)  
Zurich, Switzerland

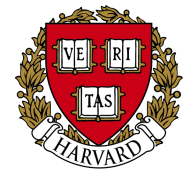


2018 - 2022 **Postdoctoral Researcher**  
De Moraes Lab, Biocommunication & Ecology Group  
ETHZ, Zurich, Switzerland

2017 - 2018 **AAAS Science & Technology Policy Fellow**  
Biosecurity Engagement Program  
U.S. State Department, Washington DC



2013 - 2017 **Postdoctoral Research Fellow**  
Pierce Lab, Museum of Comparative Zoology  
Department of Organismic and Evolutionary Biology  
Harvard University, Cambridge, MA



2015 - 2016 **Visiting Postdoctoral Fellow**  
Insect Symbiosis Group, Max Planck Institute for  
Chemical Ecology, Jena, Germany



## EDUCATION

---

01/09/2013 **Ph.D. in Ecology**, University of California, Davis, CA  
01/09/2009 **M.A. in Geography**, University of California, Davis, CA  
11/12/2004 **B.A. in Conservation Biology**, Prescott College, Prescott, AZ

## MANUSCRIPTS & PUBLICATIONS

---

1. Salzman, S., M.R.L. **Whitaker**, A.M. Sierra Pinilla, E.D. Bustos-Díaz, S.K. Sahu, Y. Liu, F. Barona, A. Cibrián-Jaramillo, SZ Zhang, J.C. Villarreal A. New insights on cycad biology and evolution. *In Review at New Phytologist*.
2. Gutiérrez-García\*, K., M.R.L. **Whitaker\***, E.D. Bustos-Díaz, S. Salzman, H.E. Ramos-Aboites, D. Garfias-Gallegos, M.F. Contreras-González, N.E. Pierce, A. Cibrián-

- Jaramillo, F. Barona-Gómez. 2023. Cycad-feeding insects resistant to BMAA possess conserved gut microbiota with distinctive siderophore-specialized metabolism. *ISME Communications* 3:122. **\*co-first authors**
3. **Whitaker**, M.R.L., S.A. Banack, M.C. Mescher, P.A. Cox, C.M. De Moraes. 2023. BMAA in cycad-feeding Lepidoptera: defensive sequestration or bioaccumulation? *Ecology & Evolution* 11:346. Invited contribution to special issue: Women in Chemical Ecology.
  4. **Whitaker**, M.R.L., F. Gilliéron, C. Skirgaila, M.C. Mescher, C.M. De Moraes. 2022. Experimental evidence challenges the presumed defensive function of a “slow toxin” in cycads. *Scientific Reports* 12: 6013.
  5. Valencia-Montoya, W.A, Quenta, T.B., Tonini, J.F.R., Lamas, G., Talavera, G., Crall, J.D., Liénard, M.A., Salzman, S., **Whitaker**, M.R.L., Busby, R.C., Kawahara, A.Y., Lohman, D.J., Robbins, R.K., N.E. Pierce. 2021. Evolutionary tradeoffs between male secondary sexual traits revealed by a phylogeny of the hyperdiverse tribe Eumaeini (Lepidoptera: Lycaenidae). *Proceedings of the Royal Society B* 288: 20202512.
  6. Liénard, M.A., G.D. Bernard, A.A. Allena, J. Lassance, S. Song, R. Childers, N. Yu, Dajia Yeb, A. Stephenson, W. Valencia-Montoya, S. Salzman, M.R.L. **Whitaker**, M. Calonje, F. Zhanga, N.E. Pierce. 2021. The evolution of red colour vision is linked to coordinated rhodopsin tuning in lycaenid butterflies. *PNAS* 118(6): e2008986118.
  7. **Whitaker**, M.R.L., S.S. Salzman. 2020. Ecology and evolution of cycad-feeding Lepidoptera. *Ecology Letters* 23: 1862-1877. Cover article.
  8. **Whitaker**, M.R.L., S.S. Salzman, X. Gratacos, J. Tucker Lima. 2020. Localized overabundance of an otherwise rare butterfly threatens endangered cycads. *Florida Entomologist* 103(4):519-522. Cover Article.
  9. Molleman, F., J. Javoš, R. Davis, M.R.L. **Whitaker**, T. Tammaru, A. Prinzing, E. Öunap, N. Wahlberg, U. Kodandaramaiah, K. Aduse-Poku, A. Kaasik, J. Carey. 2020. Quantifying the effects of species traits on predation risk in nature: a comparative study of butterfly wing damage. *Journal of Animal Ecology* 89:716–729.
  10. **Whitaker**, M.R.L, S.S. Salzman, C. Baker, D.J. Martins, N.E. Pierce. 2019. Combining stable isotope analysis with DNA metabarcoding improves inferences of trophic ecology. *PLOS ONE* 14(7): e0219070.
  11. Szenteczki, M., C. Pitteloud, L.P. Casacci, L. Kešnerová, M. **Whitaker**, P. Engel, R. Vila, A. Nadir. 2019. Bacterial communities within *Phengaris (Maculinea) alcon* caterpillars are shifted following transition from solitary living to social parasitism of *Myrmica* ant colonies. *Ecology and Evolution* 9(8): 4452-4464.
  12. **Whitaker**, M.R.L., B.J. Stolzmann. 2019. Species Interactions and Ants. *Frontiers for Young Minds*. 7:53.
  13. Salzman, S.S, M.R.L **Whitaker**, N.E. Pierce. 2018. Cycad-feeding insects share a gut microbiome. *Biological Journal of the Linnean Society* 123(4):728-38.
  14. **Whitaker**, M.R.L, S.S. Salzman, J.G. Sanders, M. Kaltenpoth, N.E. Pierce. 2016. Microbial communities of lycaenid butterflies do not correlate with larval diet. *Frontiers in Microbiology* 7: 1920. Special Topic: “Experimental models in animal associated microbiota.” Invited Contribution.
  15. **Whitaker**, M.R., A.J. Jiron, B. Maass. 2014. Developing mobile tools for biodiversity informatics and natural history education. *Journal of Natural History Education and Experience* 8. Invited Contribution.
  16. **Whitaker**, M.R., N. Katayama, T. Ohgushi. 2014. Plant-rhizobia interactions alter the quality of aphid honeydew. *Arthropod-Plant Interactions* 8(3): 213-220.

17. **Whitaker**, M.R.L., E.C. Long. 2014. Survey of the Butterflies of the Sutter Buttes, California. *The Journal of Research on the Lepidoptera* 47:1-10.
18. Molleman, F., A. Kaasik, M.R. **Whitaker**, J.R. Carey. 2012. Partitioning variation in duration of ant feeding bouts can offer insights into the palatability of insects: experiments on African fruit-feeding butterflies. *The Journal of Research on the Lepidoptera* 45: 65-75.
19. Molleman, F., M.R. **Whitaker**, J.R. Carey. 2010. Rating palatability of butterflies using the duration of feeding bouts of ants. *Entomologische Berichten* 70(2): 52-62.

## TEACHING & MENTORING EXPERIENCE

---

### East Tennessee State University, Department of Biological Sciences

- **General Entomology**, Spring 2023
- **Graduate Seminar: Neurochemical Ecology**, Spring 2023
- **Functional Genomics & Bioinformatics**, Fall 2023
- **Master's Committee Member**, 4 students, 2023 –
- **PhD Committee Member**, 1 student, 2023 –

### ETH Zürich, Institute for Agricultural Sciences

- **Student Supervisor** (15 graduate & undergraduate students), 2018 – 2022
- **Master's Project Advisor** (2 students), 2019 – 2020
- **Guest Lecturer**, *Insect Ecology*, Fall 2018, 2019, 2021

### Harvard College, Department of Organismic and Evolutionary Biology

- **Teaching Assistant & Guest Lecturer**, *Evolution*, Spring 2017
- **Teaching Assistant**, *Animal Behavior*, Spring 2017
- **Certificate of Distinction in Teaching**, Derek Bok Center for Teaching and Learning, Harvard University, 2017
- **Graduate Student Mentor** (1 student), Harvard University, 2016-2017

### University of California, Davis, Departments of Biological Sciences and Plant Sciences

- **Teaching Assistant**. Lecturing, lab demonstrations, field demonstrations, and grading for the full introductory biology course series for Biological Sciences majors (2009 – 2013):
  - Biological Sciences 2A: *Essentials of Life on Earth* (1 semester)
  - Biological Sciences 2B: *Evolution & Ecology* (4 semesters)
  - Biological Sciences 2C: *Biodiversity and the Tree of Life* (2 semesters)
  - Plant Biology 147: *Plant Communities of California* (1 semester)
- **Undergraduate Student Mentor** (2 students), 2011-2012

### Prescott College

- **Teaching Assistant**, *Conservation Biology* (2004)

### Pedagogical Training

- **Teaching Lab: Rapid Course Design**, ETH Zurich (2022)
- **Teaching Lab: Foundations of Online Teaching**, ETH Zürich (2021)
- **Teaching Certificate**, Derek Bok Center for Teaching and Learning, Harvard University (2017)
- **Data Carpentry Instructor Training**, Data Carpentry Organization, German Research Centre for Geosciences, Potsdam, Germany (2016)
- **Course Design**, Co-designed “Evolution for Poets,” an evolution course for non-science majors, UC Davis (2010)

- **Certificate of Completion**, Seminar on College Teaching, Teaching Resources Center, UC Davis (2008)

## DIVERSITY & OUTREACH

---

### Science Outreach

- **Naturalist**, Hike-a-delic event (2023)
- **Presentation Judge**, Appalachian Student Research Forum (2023)
- **Poster Judge**, ETH Zürich Institute of Agricultural Sciences, Agro-Day II (2019)
- **Long Night at the Museum Exhibitor**, ETH Entomological Collection (2018)
- **Climate Change Educator**, Lilla Frederick Middle School 8<sup>th</sup> grade class, *Scientist in the Classroom Program*, National Center for Science Education (2017)
- **Visiting Scientist**, Cambridgeport School 2<sup>nd</sup> grade class (2016)
- **Volunteer Instructor**, Data Carpentry Organization, (2015 – 2016)
- **Science Advisor & Lecturer**, *Wide Slumber for Lepidopterists Performance*, Reykjavik, Iceland (2014)
- **Teacher Naturalist**, Leaders in Environmental Action Forum, EarthTeam; Livermore, California (2007)
- **Teacher Naturalist**, Caritas Creek Education Center, Occidental California (2005 – 2006)

### Diversity Outreach

- **STEM Research Mentor**, McNair Scholars Program, UC Davis (2009 – 2010)
- **Graduate Student Panelist**, McNair, UC LEADS, and SURE program luncheon, UC Davis (2009)
- **Graduate Ambassador**, UC Davis Office Outreach, Recruitment, and Retention (2008)
- **Environmental Science Outreach Coordinator**, Louis Stokes Alliance for Minority Participation (LSAMP), Undergraduate Mentoring in Environmental Biology (UMEB), & Research Experience for Undergraduates (REU) Programs, CalState LA (2007)

### Literacy Outreach

- **Inmate Literacy Tutor**, Alameda County Library Reading for Life / Jail Tutoring Program, Oakland, California. (2010 – 2011).
- **Literacy and Education Activist**, Books Open the World Foundation, Uganda (2008)

## GRANTS & FELLOWSHIPS

---

2022	Agora Grant (co-writer), Swiss National Science Foundation	CHF200,000
2020	Malia Digitization Grant (co-writer), ETH Zurich Library & Archives	CHF499,265
2017	Science & Technology Policy Fellowship, American Association for the Advancement of Science	\$106,000
2016	Putnam Expedition Grant, Harvard Museum of Comparative Zoology	\$2,420
2015	Postdoctoral Award for Professional Development, Harvard University	\$1,000
2014	IGERT Travel Grant, NSF, UC Davis	\$1,918
2014	Small Research Grant, British Ecological Society	\$8,335
2014	Putnam Expedition Grant, Harvard Museum of Comparative Zoology	\$11,226
2014	Research Grant, Wildlife Reserves Singapore Conservation Fund	\$7,757
2014	Exploration Grant, Explorer's Club	\$2,000
2013	Postdoctoral Research Fellowship in Biology, NSF	\$249,500
2013	YSSP Fellowship, NSF and the National Academy of Sciences	\$5,130
2012	Research Award, UC Davis Center for Population Biology	\$1,500
2012	UT-Austin Workshop on New Methods for Phylogenomics & Metagenomics	\$700
2012	UC Davis Center for Population Biology	\$500

2012	Informatics for Phylogenetics, Evolution and Biodiversity (iEvoBio)	\$500
2011	IGERT Bridge Traineeship, NSF, UC Davis	\$40,000
2011	East Asia and Pacific Summer Institute Fellowship, NSF & Japan Society for the Promotion of Science	\$14,700
2010	Graduate Student Research Grant, UC Valentine Eastern Sierra Reserve	\$1,580
2010	Graduate Research Grant, UC Davis Consortium for Women and Research	\$1,000
2009	Young Explorer's Grant, National Geographic Society	\$1,480
2008	Bixby International Travel Grant, University of California	\$1,000
2007	Eugene Cota-Robles Fellowship, UC Davis	\$69,000
2005	REU Internship, NSF & Harvard Forest Summer Research Program in Ecology	\$8,000

## PROFESSIONAL SERVICE

---

### Editorial Service

Editorial Board Member: Journal for Natural History Education and Experience (2013 - 2020),  
Frontiers in Ecology and Evolution (Chemical Ecology, 2020 - present)

Reviewer: Journal for Natural History Education and Experience, PLOS ONE, Bioinformatics,  
Frontiers in Microbiology, Biological Invasions, Scientific Reports, Genome, Journal of Ethology

Scientific Editing: Sees-editing Ltd.

### Grant Reviewer

2023, 2024	National Science Foundation
2020, 2021	Swiss Federal Technical Institute (ETH)
2020	Swiss National Science Foundation
2019-2023 (Annually)	National Geographic Society
2017	Georgian National Science Foundation

### Professional Committee Experience

2024–	ETSU Basler Chair Committee
2023–	ETSU Brown Hall Renovation Committee
2023–	ETSU Biological Sciences Website Committee
2023–	ETSU Biological Sciences Faculty Search Committee
2013–2015	Postdoc Advisory Board Member, Faculty of Arts and Sciences, Harvard University
2011–2012	Reviewer, Admission Committee, Graduate Group in Ecology, UC Davis
2009	Judge, Travel Award Committee, GSA, UC Davis
2007	Planning Committee Member, Bay Area Conservation Biology Symposium, Society for Conservation Biology, UC Davis Chapter

## FIELD WORK

---

2018 – 2024	USA (Florida)
2017	Mexico, USA (Florida)
2016	Mozambique, South Africa, Zimbabwe, USA (California)
2015	Denmark, USA (Colorado, Massachusetts)
2014	South Africa, Kenya, Singapore, USA (Massachusetts)
2012	Thailand, Singapore, Malaysia, Indonesia, USA (California)
2011	Japan
2008 – 2010	USA (California)
2008	Uganda
2005	USA (Massachusetts)
2004	Costa Rica, Peru