

# Melissa Whitaker, Ph.D.

Biocommunication Research Group  
ETH Entomological Collection  
Zürich, Switzerland  
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## PROFESSIONAL EXPERIENCE

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

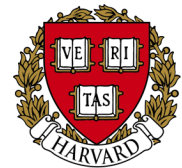


2018 - **Postdoctoral Researcher**  
Biocommunication & Ecology Group  
ETHZ  
Zurich, Switzerland

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



Max Planck Institute  
for Chemical Ecology

## EDUCATION

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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.

## PUBLICATIONS

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1. Valencia-Montoya, W.A, Quental, 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. 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.
2. 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.
3. **Whitaker, M.R.L.**, S.S. Salzman. 2020. Ecology and evolution of cycad-feeding Lepidoptera. *Ecology Letters* 23: 1862-1877. Cover article.
4. **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.
5. 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.
6. **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.
7. 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.
8. Whitaker, M.R.L., B.J. Stolzmann. 2019. Species Interactions and Ants. *Frontiers for Young Minds*. 7:53.
9. 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.
10. **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.
11. **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.
12. **Whitaker, M.R.**, N. Katayama, T. Ohgushi. 2014. Plant-rhizobia interactions alter the quality of aphid honeydew. *Arthropod-Plant Interactions* 8(3): 213-220.
13. **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.
14. 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.
15. 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.

## MANUSCRIPTS SUBMITTED OR IN PREPARATION

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1. **Whitaker, M.R.L.**, F. Gilliéron, C. Skirgaila, M.C. Mescher, C.M. De Moraes. What makes a good anti-herbivore compound? Experimental evidence challenges the presumed defensive function of a “slow toxin” in cycads. *Submitted to Scientific Reports*.
2. Gutiérrez-García, K.\*, **Whitaker, M.R.L.\***, E.D. Bustos-Díaz, S. Salzman, H.E. Ramos-Aboites, D. Garfias-Gallegos, M.F. Contreras-González, L. Rojas-Abarca, E. Bojorquez-Quintal, N.E. Pierce, A. Cibrián-Jaramillo, F. Barona-Gómez. Cycad-feeding insects resistant to the neurotoxin beta-Methylamino-L-alanine (BMAA) possess conserved gut microbiota with distinctive siderophore-specialized metabolism. *Submitted to PNAS*. \*Co-first authors.
3. **Whitaker, M.R.L.**, J. Sims, M.C. Mescher, C.M. De Moraes. Comparative analysis of leaf volatile organic compounds from 16 cycad species grown in a common garden. *In preparation*.
4. **Whitaker, M.R.L.**, S.A. Banack, M.C. Mescher, P.A. Cox, C.M. De Moraes. Sequestration and transport of neurotoxic beta-Methylamino-L-alanine in cycad-feeding Lepidoptera across development. *In preparation*.

## TEACHING & MENTORING EXPERIENCE

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### ETH Zürich, Institute for Agricultural Sciences

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

### 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), Harvard University, 2011-2012

### Prescott College

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

### Pedagogical Training

- **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

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### Science Outreach

- **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

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2020	Malia Digitization Grant (co-writer), ETH Zurich Library & Archives
2017	Science & Technology Policy Fellowship, American Association for the Advancement of Science
2016	Putnam Expedition Grant, Harvard Museum of Comparative Zoology
2015	Postdoctoral Award for Professional Development, Harvard University
2014	IGERT Travel Grant, NSF, UC Davis
2014	Small Research Grant, British Ecological Society
2014	Putnam Expedition Grant, Harvard Museum of Comparative Zoology
2014	Research Grant, Wildlife Reserves Singapore Conservation Fund
2014	Exploration Grant, Explorer's Club
2013	Postdoctoral Research Fellowship in Biology, NSF
2013	YSSP Fellowship, NSF and the National Academy of Sciences
2012	Research Award, UC Davis Center for Population Biology
2012	UT-Austin Workshop on New Methods for Phylogenomics & Metagenomics
2012	UC Davis Center for Population Biology
2012	Informatics for Phylogenetics, Evolution and Biodiversity (iEvoBio)
2011	IGERT Bridge Traineeship, NSF, UC Davis
2011	East Asia and Pacific Summer Institute Fellowship, NSF & Japan Society for the Promotion of Science

- 2010 Graduate Student Research Grant, UC Valentine Eastern Sierra Reserve
- 2010 Graduate Research Grant, UC Davis Consortium for Women and Research
- 2009 Young Explorer's Grant, National Geographic Society
- 2008 Bixby International Travel Grant, University of California
  
- 2007 Eugene Cota-Robles Fellowship, UC Davis
- 2005 REU Internship, NSF & Harvard Forest Summer Research Program in Ecology

## **PROFESSIONAL MEMBERSHIPS & SERVICE**

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### **Memberships**

Society for the Study of Evolution, Ecological Society of America, SACNAS, British Ecological Society, Cambridge Entomological Club, Cycad Society

### **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

### **Grant Reviewer**

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

### **Committee Experience**

- 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**

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- 2018 – 2020 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