

MATTHEW CHOI KUSTRA

Website: <https://kustra-matt.github.io/>
GitHub: <https://github.com/Kustra-Matt>
matthewckustra@berkeley.edu

APPOINTMENTS

2024 – Present **University of California, Berkeley**
Miller Postdoctoral Research Fellow
Advisor: Christopher Martin

EDUCATION

2018 – 2024 **University of California, Santa Cruz**
Ph.D. Department of Ecology and Evolutionary Biology
Advisor: Suzanne Alonzo

2014 – 2018 **University of Virginia**
B.S. in Biology, with Highest Distinction, and B.A. in Computer Science

FELLOWSHIPS, GRANTS, AND HONORS (Total = \$502,500)

Fellowships (Total = \$498,000)

2023 UC Berkeley Postdoctoral Miller Research Fellowship (\$321,000)
2022 ARCS Fellow (\$10,000)
2018 Dissertation Year Fellowship (\$24,000)
2018 NSF Graduate Research Fellowship (\$138,000)
2017 NSF Research Experiences for Undergraduates, University of North Carolina at Charlotte (\$5,000)

Grants (Total = \$4,000)

2022 American Society of Naturalists Student Research Award (\$2,000)
2022 International Society for Behavioral Ecology Travel Award (\$800)
2017 Rocky Mountain Biological Laboratory REU Travel Grant (\$1,200)

Honors

2023 Society for the Study of Evolution Hamilton Award finalist (\$500)
2020 “Honors” for PhD qualifying exam
2018 “Highest Distinction” for undergraduate thesis

PEER REVIEWED PUBLICATIONS

9. **Kustra, M. C.**, Servedio, M. R., & Alonzo, S. H. (2025). Cryptic female choice can maintain reproductive isolation. *Evolution*. qpaf156. <https://doi.org/10.1093/evolut/qpaf156>.

8. **Kustra, M. C.**, & Carrier, T. J. (2025) Microbes as manipulators of developmental life-history. *mBio*. 16 (5): e03655-24. <https://doi.org/10.1128/mbio.03655-24>
7. **Kustra, M. C.** & Alonzo, S. H. (2023). The coevolutionary dynamics of cryptic female choice. *Evol. Lett.* 7 (4): 191-202. <https://doi.org/10.1093/evlett/qrad025>.
6. **Kustra, M. C.**, Stiver, K., Marsh-Rollo, S., Hellmann, J. K., & Alonzo, S. H. (2023). Social environment influences the temporal dynamics of sneak-spawning in a fish with alternative reproductive tactics. *Am. Nat.* 202 (2): 181-191. <https://doi.org/10.1086/725057>.
5. **Kustra, M. C.** & Carrier, T. J. (2022). On the spread of microbes that manipulate reproduction in marine invertebrates. *Am. Nat.* 200 (2): 217-235. <https://doi.org/10.1086/720282>.
4. Kahrl, A. F., **Kustra, M. C.**, Reedy, A. M., Bhave, R., Seears, H. A., Warner, D. A., & Cox, R. M. (2021). Selection on sperm count, but not on sperm morphology or velocity in a wild population of *Anolis* lizards. *Cells*. 10 (9): 2369. <https://doi.org/10.3390/cells10092369>.
3. Cronin, M.R., Alonzo, S. H., Adamczak, S. K., Baker, D. N., Beltran, R. S., Borker, A. L., Favilla, A. B., Gatins, R., Goetz, L. C., Hack, N., Harencar, J.G., Howard, E.A., **Kustra, M. C.**, Maguiña, R., Martinez-Esteevez, L., Mehta, R. S., Parker, I. M., Reid, K., Roberts, M. B., Shirazi, S. B., Tatom-Naecker, T. M., Voss, K. M., Willis-Norton, E., Vadakan, B., Valenzuela-Toro, A. M., & Zavaleta, E. S. (2021). Anti-racist interventions to transform ecology, evolution and conservation biology departments. *Nat. Ecol. Evol.* 5: 1213 – 1223. <https://doi.org/10.1038/s41559-021-01522-z>.
2. **Kustra, M. C.** & Alonzo, S. H. (2020). Sperm and alternative reproductive tactics: a review of existing theory and empirical data. *Philos. Trans. R. Soc. B.* 375: 20200075. <https://doi.org/10.1098/rstb.2020.0075>.
1. **Kustra, M. C.**, Kahrl, A. F., Reedy, A. M., & Cox, R. M. (2019). Sperm morphology and count vary with fine-scale changes in local density in a wild lizard population. *Oecologia*. 191: 555-564. <https://doi.org/10.1007/s00442-019-04511-z>.

MANUSCRIPTS UNDER REVIEW

2. Martin, C. H., Zapata, A. A., Paredes, R.G.C., Cortés, F., Hernández, S. G., **Kustra, M.C.**, Mar-Silva, A. F., Mex, F., Palominos, M. F., Tralka, C., Badillo-Alemán, M., Schmitter-Soto, J. J., Martinez, C. M., Arroyave, J., & Gracida-Juárez, C. A. Adaptive radiation along ecological and morphological lines of least resistance in *Cyprinodon* pupfishes. *Evolutionary Journal of the Linnean Society*. *bioRxiv* doi: <https://doi.org/10.1101/2025.08.13.670168>

1. **Kustra, M. C.**, Rogers, M. M., Alissa, L. M., Molinari, M., Stiver, K. A. & Alonzo, S. H. Warm waters may undermine cryptic female choice for preferred males. *Functional Ecology*. *bioRxiv* doi: <https://doi.org/10.1101/2025.04.10.648287>.

MAGAZINE ARTICLES

1. **Kustra, M. C.** & Alonzo, S. H. (2025) Quick Guide: Male alternative reproductive tactics. *Current Biology*. 35 (14): R697-699. <https://doi.org/10.1016/j.cub.2025.06.005>.

PRESENTATIONS

(*invited presentation)

Evolution. Athens, GA.	2025
Speciation, Gordon Research Seminar. Ventura, CA.	2025
American Society of Naturalists meeting. Asilomar, CA.	2025
*Museum of Vertebrate Zoology Lunch Seminar. University of California, Berkeley, CA	2024
Biology of Spermatozoa. Nynäsgård, Sweden.	2023
Evolution. Albuquerque, NM.	2023
American Society of Naturalists meeting. Asilomar, CA.	2023
Stanford/UCSC Species Interactions Workshop. Santa Cruz, CA.	2022
International Society for Behavioral Ecology Congress. Stockholm, Sweden.	2022
Evolution, Virtual.	2021
American Society of Naturalists, Virtual.	2021
Society for Integrative and Comparative Biology. San Francisco, CA.	2018

TEACHING EXPERIENCE

Guest Lecturer

Feb. 2025- Current

- *Teaching Quantitative Skills to Math-Adverse Students*. University of California, Santa Cruz (Winter 2025)

Graduate Student Instructor: Ecosystems of California

April 2024 – June 2024

Department of Ecology and Evolutionary Biology, University of California, Santa Cruz

Instructor of record for a 60-person online course. Students in this course had to collect and analyze data, write a research paper, and give peer reviews. I gave lessons on analyzing and plotting data in R.

Santa Cruz R User Base Co-leader

Sept. 2019 – May 2024

Department of Ecology and Evolutionary Biology, University of California, Santa Cruz

Co-led a weekly R workshop for postdocs, graduate students, and undergraduate students. I have made lessons on topics such as conducting basic statistics, basic programming, making graphs using ggplot2, supercomputing, and R markdown.

Graduate Teaching Assistant

Sept. 2018 – April 2024

Department of Ecology and Evolutionary Biology, University of California, Santa Cruz

- *Introduction to ecology and evolution* (Fall 2018)
- *Marine invertebrate zoology* (Winter 2019)
- *Modeling evolution and ecology* (Winter 2021)
- *Ecosystems of California* (Fall 2023)
- *Population genetics* (Winter 2024)

Undergraduate Teaching Assistant

Aug. 2016 – May 2018

Department of Biology, University of Virginia

- *Introductory to biology laboratory: Cell Biology and Genetics* (Fall 2016, 2017)
- *Introductory to biology laboratory: Organismal and Evolution* (Spring 2017, 2018)

PROFESSIONAL EXPERIENCE

Smithsonian Institution, R Shiny web app developer

June 2024 – Dec. 2025

Smithsonian Environmental Research Center, Tiburon, CA

I developed a R Shiny web app for researchers at the Smithsonian Environmental Research Center to process and filter BLAST results for metabarcoding of eDNA.

Institute of Marine Science, Fisheries Data Analyst

Nov. 2022 – July 2024

University of California, Santa Cruz

I write R scripts to analyze and visualize fishery data. This project is helping inform California Department of Fish and Wildlife's implementation of the Marine Life Management Act and other policies. Specifically focusing on the socioeconomic and behavioral impacts of domoic acid-related management measures on the state's crab and urchin fisheries and seafood supply systems.

Fish Innovations Lab, R Shiny web app developer

June 2021 – Nov. 2023

Mississippi State University

I developed a R Shiny web app for USAID-Feed the Future Initiative project, "Increasing sustainability of fisheries for resilience of Cambodian communities." This tool empowers community fisheries management councils in Cambodia to better assess trends in their fishery and make more informed management decisions. This web app features interactive graphs, maps, and allows users to translate between English and Khmer.

AMPEL BioSolutions, Investigative Research Analyst Intern
Charlottesville, VA

May 2018 – Aug. 2018

I characterized the genetic signature of circulating plasma cells in Systemic Lupus Erythematosus and helped identify candidate drugs that target this genetic signature.

OUTREACH AND MENTORSHIP

Ecology and Evolutionary Biology Mentor Match

Sept. 2021 – Sept. 2024

As a mentor in this program, I assist my assigned mentee with applying to graduate programs in Ecology and Evolutionary Biology.

Science Internship Program Mentor

May 2020 – Aug. 2022

University of California, Santa Cruz

I have led teams of high school students in summer research projects on animal behavior in the ocellated wrasse as well as modeling sexual selection. Through this program I have mentored seven students.

Peer-to-Peer Mentor

Oct. 2020 – Oct. 2021

University of California, Santa Cruz

As a mentor for the Peer-to-Peer Mentorship Program, I helped first-year graduate students transition into grad school and build connections within the Ecology and Evolutionary Biology community.

Consilience Research Art Gallery

March 2021

University of California, Santa Cruz

I worked with an undergraduate artist to develop artwork inspired by my research with the ocellated wrasse.

Santa Cruz Museum of Natural History Docent

Oct. 2018 – Dec. 2019

I led inquiry-based learning field trips at Neary Lagoon for third grade classes. Students act as community scientists by making observations of wildlife and recording bird count data.

Evolution Education 2nd Annual Teacher Workshop

July 2016

Evolution Education is a project organized by the Cox lab and funded by the NSF that aims to improve K-12 science education by integrating research into the classroom. I presented a Data Nugget that I co-wrote using data from the Cox lab (<http://datanuggets.org/2017/11/is-it-better-to-be-bigger/>).

SERVICE

Manuscript Reviewer

Sep. 2022 – Current

Miller Social Committee Member

University of California, Berkeley

Sep. 2024 – Current

Faculty Search Committee Graduate Student Representative

University of California, Santa Cruz

Oct. 2022 – Feb. 2023

PROFESSIONAL WORKSHOPS AND TRAINING

Research

2022 Evolutionary Quantitative Genetics – University of Washington

Teaching, mentorship, and diversity

2023 Teaching Sexual Selection – the Gender Academy, Stockholm University, Sweden

2022 Supporting Our International Students and Scholars – Office for Diversity, Equity, and Inclusion; University of California, Santa Cruz

2022 Understanding Religious Beliefs and Believers – Office for Diversity, Equity, and Inclusion; University of California, Santa Cruz

2022 Diversity Inclusion and Certificate Program Mandatory Orientation: Power, Privilege & Positionality – Office for Diversity, Equity, and Inclusion; University of California, Santa Cruz

2020 Preparing for Supporting STEM Identity Workshop – Institute for scientist and engineer educators; University of California, Santa Cruz

2018 Making the CAISE: Creating Active and Inclusive Section Experiences – Ecology and Evolutionary Biology Department; University of California, Santa Cruz