MICHAEL CULSHAW-MAURER

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EDUCATION

University of California, Davis *April 2021*
PhD in Ecology
Rosenheim and Schreiber Labs

Saint John's University *May 2015*
BA in Biology, 3.86 GPA
Graduated Magna Cum Laude with Distinction in Biology

PUBLICATIONS

Swetnam, T.L, Bartelme, R., Choi, I., Cooksey, A.M., Culshaw-Maurer, M. et al. (*in prep*) CyVerse: cyberinfrastructure for data intensive scientific discovery.

Pollack, L., Munson, A., Zepeda, E., Culshaw-Maurer, M., and Sih, A. (*in review*) Variation in plastic consumption: social group size influences individual susceptibility to an evolutionary trap.

Bohman, B.J., Culshaw-Maurer, M., et al. (*Invited submission to Plants, in prep*) Quantifying the uncertainty in critical N concentration for potato using Bayesian methods.

Culshaw-Maurer et al. (*in prep*) An agent-based model of indirect virulence via pathogen- induced cannibalism.

Culshaw-Maurer, M., Sih, A. and Rosenheim, J.A. (2020) Bugs scaring bugs: enemy-risk effects in biological control systems. Ecology Letters 23(11): 1693-1714
https://doi.org/10.1111/ele.13601

Bernoff A.J., Culshaw-Maurer M., et al. (2020) Agent-based and continuous models of hopper bands for the Australian plague locust: How resource consumption mediates pulse formation and geometry. PLOS Computational Biology 16(5): e1007820.
https://doi.org/10.1371/journal.pcbi.1007820

Rosenheim, J.A., Booster, N.A., Culshaw-Maurer, M. et al. (2019) Disease, contagious cannibalism, and associated population crash in an omnivorous bug, *Geocoris pallens*. Oecologia 190: 69-83
https://doi.org/10.1007/s00442-019-04407-y

HONORS AND AWARDS

USDA NIFA AFRI Predoctoral Fellowship 2019-2021 ($120,000)
Robert and Peggy van den Bosch Scholarship, Center for Biological Control, UC Berkeley 2017 ($15,000)
Robert and Peggy van den Bosch Scholarship, Center for Biological Control, UC Berkeley 2018 ($20,000)
UC Davis Graduate Group in Ecology Fellowship 2015-2018
UC Davis Graduate Group in Ecology Endowment Award 2017
Henry A. Jastro Research Fellowship 2018 ($1500)
St. John's University Honors Thesis
CSB/SJU Regents/Trustees Scholarship
Eldon Siehl Memorial Scholarship
St. John's Undergraduate Biology Research Fellowship

TEACHING EXPERIENCE

The Carpentries April 2021 - Present
Postdoctoral Researcher *Remote*

- Revamping the R for Ecology curriculum, the most-taught Data Carpentry workshop
- Leading a task force on lesson publication cycles and authorship assignment
- Taking over lead on The Carpentries Incubator, a collection of community-developed Carpentries lessons
- Acting as Editor for The Carpentries Lab, a repository for peer-reviewed lessons developed in the Carpentries Incubator

CyVerse, University of Arizona April 2021 - Present
Postdoctoral Researcher *Remote*

- Leading development and teaching of 10-week Foundational Open Science Skills workshop for graduate students, postdoctoral researchers, and research faculty
- Developing tools for cloud-based Bayesian analysis using RStudio and Stan
- Collaborating with researchers from University of Graz (Austria) on an asynchronous massive open online course (MOOC) teaching Open Science with CyVerse
- Establishing collaborations between The Carpentries and CyVerse to deliver instruction and cloud-computing capabilities to students, researchers, and educators

UC Davis Winters 19,20
Instructor, ECL 298: R-DAVIS *Davis, CA*

- Co-instructed course on R, RStudio, and Git with another graduate student
- Developed curriculum, maintained course website, taught using live-coding technique, live streamed course for remote students
- Course is required for all UC Davis Ecology graduate students

UC Davis Winters 19,20
Instructor, ENT 198: Gentle Intro to R/RStudio *Davis, CA*

- Created and co-instructed course on R, RStudio, with another graduate student
- Developed curriculum, maintained course website, taught using live-coding technique
- Course was developed for students in the Research Scholars in Insect Biology Program who are conducting research in entomology labs

UC Davis Spring 16, Winter/Fall 17
BIS 2B Teaching Assistant *Davis, CA*

- Taught and graded laboratory sections
- Lectured on concepts in ecology and evolution and guided laboratory exercises
- Received a mean 4.75/5 rating from end-of-quarter student evaluation

SERVICE EXPERIENCE

University of Arizona Data Science Resources and Training April 2021 - Present
Steering Committee Member *Tucson, AZ*

- Serving on committee alongside other leaders in data science research and training to coordinate campus-wide initiatives
- Acting as liasion between University of Arizona and The Carpentries to coordinate delivery of computational workshops

UC Davis Quantitative Courses Working Group Spring 2019 - Spring 2021
Committee Member *Davis, CA*

- Provided input on newly created quantitative coursework tracks
- Helped ensure cohesion between computational and quantitative courses
- Worked with faculty to identify gaps in ecological quantitative education

Davis R Users Group Spring 2018 - Spring 2021
Co-coordinator *Davis, CA*

- Organized weekly meetings and presented on data cleaning, analysis, visualization, and other topics in R
- Actively maintained the group website
- Provided assistance and guidance to undergraduates, graduate students, and postdocs seeking help with R

Graduate Group in Ecology Stats Support Group Spring 2019 - Spring 2021
Co-founder and Co-coordinator *Davis, CA*

- Organized weekly meetings, including lectures, group discussions, and group activities
- Provided guidance on statistics and data analysis to graduate students
- Created a welcoming community to discuss topics related to ecological data analysis and statistics

SELECTED PRESENTATIONS

Bureau of Labor Statistics July 2020
"*Working with BLS Time Series Data in R*" *Virtual*

Entomological Society of America National Meeting November 2020
"*Bugs scaring bugs: enemy risk effects in biocontrol systems*" *Virtual*

Predator-Prey Ecology Gordon Research Conference February 2020
"*Zombie Bugs: an agent-based model of disease and cannibalism in a beneficial insect*" *Ventura, CA*

UC Davis oSTEM LGBTQIA+ Science Club May 2018
"*Zombie Bugs*" *Davis, CA*

Davis R Users Group Feb 2018
"*Code Optimization in R*" *Davis, CA*

Chabot Space and Science Center May 2017
"*Zombie Bugs*" *Oakland, CA*

UC Davis Ecology Brown Bag Seminar May 2017
"*Disease and Cannibalism in a Beneficial Insect*" *Davis, CA*

OTHER RELEVANT EXPERIENCE

MN Dept. Natural Resources Stream Habitat Program May-August 2014, May-July 2015
Intern 2014, Student Worker 2015 *St. Paul, MN*

- As a student worker, trained new interns in field and office skills
- Field work included electroshocking and identifying fish, assessing habitat types, using geodimeter to map river cross-sections
- Analyzed historical stream gauge data for geomorphology group
- Assisted in trout stream restoration project, stream-crossing surveys, and mussel propagation project
- Taught fishing skills to inner-city students through the Fishing in the Neighborhood program

SJU Honors Thesis September 2014 - May 2015

"*The Induced Heart Rate Response to Fish Kairomones in* Daphnia pulex" *Collegeville*, MN

· I investigated the effects of predatory fish kairomones on *Daphnia pulex* heart rate across varying size classes. I utilized slow-motion videomicroscopy to measure heart rate in clonal populations to determine how size selection by predators affects anti-predator responses.

SJU Undergraduate Research Fellow May 2013 – August 2013

"*Shallow Lakes and Wetlands Research*" *Collegeville*, MN

· I worked with **Dr. William Lamberts** researching several aspects of the interconnected lakes, streams, and wetlands on the St. John's campus. I measured nutrient levels, temperature gradients, water depth, and macrophyte growth over the course of a summer. This involved gear maintenance, sample collection, filtration, and spectrophotometry.

Undergraduate Independent Study January 2013 – May 2013

"*The Effects of Tap Size on Sap Yield in Sugar Maples*" *Collegeville*, MN

· I worked with **Dr. Stephen Saupe**, **St. John's Outdoor University**, and members of **St. John's Abbey** to determine the effects of tap size on maple sap yield in a 1500+ tap, gravity-fed system. My study utilized volunteers for data collection, and I integrated my study into the daily activities of the syrup operation. The operation continued to use my methodology for several seasons in order to inform decisions regarding full-scale shifts in tap size.