Robin Decker

Department of Evolution and Ecology
One Shields Avenue • University of California, Davis • Davis, CA 95616
rrdecker@ucdavis.edu
website: robindecker.net

APPOINTMENTS

Assistant Professor of Teaching July 2025 - *present*

Department of Evolution and Ecology
University of California, Davis

Lecturer April 2025 - June 2025

Department of Wildlife, Fish, and Conservation Biology
University of California, Davis

Lecturer August 2024 - May 2025

Department of Biological Sciences
California State University, Sacramento

Statistical Consultant February 2025 - June 2025

SIRIUS II Project
Department of Biological Sciences
California State University, Sacramento

Postdoctoral Research Associate September 2024 - February 2025
Postdoctoral Fellow September 2019 - August 2024

Advisor: Caroline Farrior
Department of Integrative Biology
University of Texas, Austin

EDUCATION

Ph.D. Population Biology September 2019

Advisor: Alan Hastings
Dissertation: Plant population dynamics under climate change: Invasions, range shifts, and resilience
University of California, Davis
GPA: 4.000

B.S. Biology May 2014
B.S. Mathematics May 2014, with Distinction in Applied Mathematics

Advisor: Daniel E. Crocker
Honors senior thesis: Evaluating the assumptions of the marginal value theorem in northern elephant seals
Sonoma State University, Rohnert Park, California
GPA: 4.000

SCHOLARSHIPS & FELLOWSHIPS

National Science Foundation Graduate Research Fellowship (2015-19) - $102,000

University of California Institute for the Study of Ecological Effects of Climate Impacts (ISEECI) Natural Reserve System (NRS) Graduate Research Assistantship (Summer 2015, Summer 2016) - $2800 for research + 1 quarter full-time GSR + 1 quarter part-time GSR

Department of Defense National Defense Science and Engineering Graduate Fellowship (2015) - $102,000 (*offered and declined*)

Department of Energy Computational Science Graduate Fellowship (2015) - $152,000 (*offered and declined*)

Loretto Godoy Memorial Fellowship (2015) - $1000

TEACHING EXPERIENCE

* As Instructor of Record

* **Lecturer**, Population Dynamics & Estimation, University of California, Davis (Spring 2025)
  I taught the lecture component of Wildlife, Fish and Conservation Biology (WFC) 122, a high-enrollment (approx. 150 students) upper-division quantitative course. Course topics included population dynamics, density-dependence, equilbria, stability, maximum sustainable yield, age structure, multi-species dynamics, stochasticity, and maximum likelihood estimation.

* **Lecturer**, General Ecology Laboratory, Sacramento State (Fall 2024 - Spring 2025)
  I taught two sections of sophomore/junior level biology majors General Ecology laboratory as instructor of record in Spring 2025. I taught one section of this course in Fall 2024.

Guest Lecturer, General Ecology, Sacramento State (Fall 2024, Spring 2025)
  In Spring 2025, I gave two guest lectures on the topic of optimal foraging, the marginal value theorem, and adaptation in variable environments. In Fall 2024, I gave one guest lecture on the topic of predation and exploitation, including the Lotka-Volterra predator-prey model and predator avoidance.

* **Lecturer**, Biodiversity, Evolution, and Ecology, Sacramento State (Fall 2024)
  I taught one section of freshman level biology majors Biodiversity, Evolution, and Ecology activity as instructor of record for one semester.

Volunteer Instructor, High School Research Initiative, UT Austin (2020-2021)
  I trained high school science teachers to incorporate research experiences in the classroom and taught methods of scientific inquiry using mathematical modeling and simulations. I demonstrated applications of math modeling to theoretical ecology.

Guest Lecturer, Ecology (ECL) 231 - Mathematical Methods in Population Biology, UCD (Fall 2018)
  I was a guest lecturer in this graduate-level course for one week (two lectures).

Guest Lecturer, Wildlife, Fish and Conservation (WFC) 122 - Population Dynamics and Estimation, UCD (Spring 2016)
  I gave one upper-division undergraduate lecture on fish and mammal population biology.

Teaching Assistant, Wildlife, Fish and Conservation (WFC) 122 - Population Dynamics and Estimation, UCD (Spring 2016)

I led two computer lab sections weekly, which consisted primarily of mathematical and statistical exercises performed in Microsoft Excel. I held weekly office hours and homework discussions, and graded students' lab assignments and quizzes.

Teaching Assistant, Environmental Science and Policy (ESP) 100 - General Ecology, UCD (Fall 2015)

I led three discussion sections weekly, facilitated discussion of scientific articles, developed materials for the discussion component of the course, conducted review sessions prior to exams, developed exam questions and graded students' assignments.

Noyce Scholar Instructional Student Assistant, SSU Department of Mathematics and Statistics (2012-2013)

Supported by funding from the Noyce Scholarship Program, I tutored four sections of Modern Geometry and one section of Symmetry in the Arts and Sciences over the course of three semesters. I led these lower division general education math courses during multiple weekly meetings structured as discussion sessions, and graded homework assignments. I also maintained gradebooks for both sections, reported summaries of students' learning and maintained a solutions manual for homework assignments, midterms and quizzes.

RESEARCH EXPERIENCE

Biosciences Department, Sacramento State University, Sacramento, California USA
Biology Education Research September, 2024 - May, 2025

- Collaborating with Dr. Cathy Ishikawa, Dr. Joya Mukerji, and undergraduate students to identify how course activities, policies, or elements impact student success and belonging in biology courses, with a focus on students with disabilities.

- Leading the statistical analysis of complex datasets from student interviews and surveys to evaluate the effects of teaching practices on student outcomes, including Exploratory Factor Analysis, Confirmatory Factor Analysis, Structural Equation Modeling, and linear mixed effects modeling.

Department of Integrative Biology, UT Austin, Austin, Texas USA
Postdoctoral Research September, 2019 - February, 2025

- Exploring how fundamental, underlying tradeoffs in community interactions shape the dynamics of plant communities in response to global environmental change.

- Aided in the training of undergraduate and graduate research assistants in data analysis and modeling

Population Biology, UC Davis, Davis, California USA
Graduate Research October, 2014 - September, 2019
Investigated how climate change affects the spatial population dynamics of plants (Dissertation Committee: Alan Hastings, Susan Harrison and Marissa Baskett). Projects included:

- Development of a spatial mathematical model of coastal ecosystem engineers and changes in their population spread rate in response to increasing rates of sea-level rise.

– Field work examining how invasive removal treatments affect native community dynamics through extreme climatic events.

– Development of a moving habitat model to investigate how individuals left behind a moving habitat patch contribute to the population's response to climate change.

PEER-REVIEWED PUBLICATIONS

* Graduate mentee

* Cinoğlu, D., Rüger, N., **Decker, R. R.** & Farrior, C.E. (2025). Small disturbances and subsequent competition for light can maintain a diversity of demographic strategies in a Neotropical forest: results from model-data integration. *Journal of Ecology*, (in press).

Decker, R.R. & Hastings, A. (2023). Sea-level rise can reverse the conditions that promote the spread of ecosystem engineers. *Theoretical Ecology*, 16, 289–302.

Dallas, T.A., Santini, L., **Decker, R.**, & Hastings, A. (2020). Weighing the Evidence for the Abundant-Center Hypothesis. *Biodiversity Informatics*, 15(3), 81-91.

Beckman, N., Aslan, C., Rogers, H. Kogan, O., Bronstein, J., Bullock, J., ... **Decker, R.**, ... Zambrano, J. (2020). Advancing an interdisciplinary framework to study seed dispersal ecology. *AoB Plants*, 12(2).

Aslan, C., Beckman, N., Rogers, H., Bronstein, J., Zurell, D., Hartig, F., ... **Decker, R.**, ... Zhou, J. (2019). Employing plant functional groups to advance seed dispersal ecology and conservation. *AoB Plants*, 11(2).

Dallas, T., **Decker, R. R.**, & Hastings, A. (2018). Multiple data sources and freely available code is critical when investigating species distributions and diversity: a response to Knouft (2018). *Ecology Letters*, 21(9), 1423-1424.

Dallas, T., **Decker, R. R.**, & Hastings, A. (2017). Species are not most abundant in the centre of their geographic range or climatic niche. *Ecology Letters*, 20(12), 1526-1533.

Ferraro, M. S., **Decker, R. R.**, Costa, D. P., Robinson, P. W., Houser, D. S., & Crocker, D. E. (2017). Evaluating gain functions in foraging bouts using vertical excursions in northern elephant seals. *Animal Behaviour*, 129, 15-24.

MANUSCRIPTS AVAILABLE

Decker, R.R., Baskett, M.L., & Hastings, A. (In Revision). Trailing-edge zombie forests can increase population persistence in the face of climate change.
`https://doi.org/10.1101/2021.12.07.471250`

Decker, R.R., Cinoglu, D. & Farrior C.E. (In Revision). Stochastic forest gaps and competition for light can drive deterministic niche differentiation among species.

Decker, R.R., Case, E.J., Hastings, A. & Harrison, S. (In Revision). Post-invader-removal community recovery is resilient to major climate perturbations.

SELECTED CONFERENCE SEMINARS & POSTERS

* Invited
** Undergraduate mentee

Decker, R.R., D. Cinoglu, & C.E. Farrior 2024. "Opportunities for evolutionarily stable successional coexistence in forests at realistic spatial and temporal scales: Diversification from a physiological trade-off" (seminar). *Ecological Society of America Annual Meeting.*

* **Decker, R.R.** 2024. "Using evolutionary game theory to understand forest diversity" (invited seminar). *Sonoma State University Math Colloquium.*

C.E. Farrior, **R.R. Decker**, ** M. Bradley, D. Cinogu, & X. Yan. 2022. "Can we predict the evolution of differences among species that allow for their coexistence?" (seminar). *Ecological Society of America Annual Meeting.*

Decker, R.R. & C.E. Farrior. 2021. "Evolutionarily stable coexistence in a metacommunity model with successional dynamics" (seminar). *Ecological Society of America Annual Meeting.*

** Bradley, M., **R.R. Decker**, D. Cinoglu, & C.E. Farrior. 2021. "Evaluating Janzen-Connell dynamics as a potential driver of plant coexistence" (poster). *Ecological Society of America Annual Meeting.*

Decker, R.R. & C.E. Farrior. 2021. "Can successional dynamics in a metacommunity cause tree diversification?" (seminar). *UT Austin Department of Integrative Biology Eco-Lunch.*

* **Decker, R.R.** 2020. "Moving habitat models and the trailing edge: The role of zombie forests" (invited seminar). *Life on Planet Earth: Above and Below workshop. Mathematical Biosciences Institute (MBI) at the Ohio State University.*

Decker, R.R. 2019. "Moving habitat models and the trailing edge: The role of zombie forests" (seminar). *UT Austin Department of Integrative Biology Eco-Lunch.*

Decker, R.R. & A. Hastings. 2018. "Moving habitat models and the trailing edge: what individuals left behind reveal about a population's response to climate change" (seminar). *Ecological Society of America Annual Meeting*

* **Decker, R.R.** 2018."Theoretical spatial ecology: An introduction with applications" (invited seminar). *Sonoma State University Pi Mu Epsilon Conference.*

* **Decker, R.R.** & A. Hastings. 2018. "The impacts of ecosystem engineering and sea-level rise on the spread of invasions" (invited seminar). *Joint Mathematics Meetings.*

Decker, R.R. & A. Hastings. 2017. "The impacts of ecosystem engineering and sea-level rise on the spread of invasions" (seminar). *Ecological Society of America Annual Meeting.*

Decker, R.R. & A. Hastings. 2017. "The impacts of ecosystem engineering and sea-level rise on the spread of invasions" (poster). *Society for Mathematical Biology Annual Meeting.*

* **Decker, R.R.** 2016. "Mathematical ecology of climate change and invasive species" (invited seminar). *Sonoma State University Math Colloquium.*

SPECIALIZED TRAINING

Professional Development in Evidence-Based Teaching: Leveraging technology to help students succeed, Society for the Advancement of Biology Education Research (2024)

Grading and Assessment Practices for Learning and Equity, Ecological Society of America Annual Meeting, Long Beach, CA (2024)

Applying ESA's Four-Dimensional Ecology Education (4DEE) Framework to Teach Non-Majors, Ecological Society of America Annual Meeting, Long Beach, CA (2024)

Transform your Teaching from Good to Great Using 4DEE Video and Media Resources, Ecological Society of America Annual Meeting, Long Beach, CA (2024)

Certificate in Inclusive STEM Teaching, Improving Undergraduate STEM Education (IUSE) Inclusive STEM Teaching Project (2022)

> Certificate in inclusive STEM teaching practices, designed to advance the awareness, self-efficacy and ability of STEM faculty, so that they may cultivate inclusive learning environments for all of their students.

Diversity 102 in Graduate Education for the STEM Disciplines, University of California, Davis (2018)

COMMUNITY SERVICE & OUTREACH

Member, Biologists Engaged in Education in Research, Sacramento State University (2025)

Meeting Mentor for SEEDS (Strategies for Ecology Education, Diversity and Sustainability) at the Ecological Society of America annual meeting (2024)

Judge for Lotka Volterra Awards (student presentations) in the Theoretical Ecology section of the Ecological Society of America (2021, 2024)

Discussion Panelist Subjects and Skills for Graduate Students in the Biological Sciences (BIO 389D), UT Austin (2020-21)

Member, Equity and Inclusion Group, Department of Integrative Biology, UT Austin (2019-)

Graduate Student Representative Search Committee for Applied Ecosystem Modeler in Department of Environmental Science and Policy, UC Davis (2017-18)

Founding member, Population Biology Diversity Committee, UC Davis (2016-18)

Student Assistant Planner, Mathematical Association of America Golden Section Meeting and Sonoma State University Science Symposium (2014)

Volunteer classroom assistant & tutor Algebra Intervention program, Windsor Middle School (2012)

President, Pi Mu Epsilon Mathematics Honor Society, California Nu, SSU (2011-14)

- Coordinated and led annual Regional Applied Mathematics Conference
- Developed semester-long, weekly math competition

– Wrote grants and received over $2400 from national math organizations to improve student attendance to math conferences

AWARDS & HONORS

MathWorks Poster Prize at the Society for Mathematical Biology Annual Meeting (2017)

Graduated with Distinction, SSU Department of Mathematics & Statistics (2014)

SSU Department of Mathematics and Statistics Service Award (2014)

Honorary School of Science and Technology Student Banner Carrier for the Sonoma State University Commencement Ceremony (2014)

Dean's List, SSU (2011-14)

Meritorious Winner, COMAP Mathematical Contest in Modeling (2013)

REFEREE ACTIVITIES

Ecology • The American Naturalist • Ecology Letters • Bulletin of Mathematical Biology • Theoretical Ecology • Biological Invasions • Theoretical Population Biology • National Science Foundation Division of Environmental Biology • Oikos • Journal of Environmental Management

PROFESSIONAL MEMBERSHIPS

Ecological Society of America • Society for Mathematical Biology

REFERENCES

Caroline E Farrior, Associate Professor (Postdoctoral Advisor)
Department of Integrative Biology, University of Texas, Austin
cfarrior@utexas.edu • 512/232-6922

Alan Hastings, Distinguished Professor (Graduate Advisor)
Department of Environmental Science and Policy, University of California, Davis
amhastings@ucdavis.edu • 530/752-8116

Marissa Baskett, Professor (Dissertation Committee Member)
Department of Environmental Science and Policy, University of California, Davis
mlbaskett@ucdavis.edu • 530/752-1579

Brigitte Lahme, Professor (Undergraduate Mentor)
Department of Mathematics & Statistics, Sonoma State University
lahme@sonoma.edu • 707/664-2238