

Postdoctoral Researcher in Quantitative Agroecology

Department of Wildlife, Fish, & Conservation Biology- University of California, Davis

- Application review date: May 15, 2021 (applications will be accepted until position is filled)
- Start date is flexible, but likely expected sometime in Summer or Fall 2021.

SUMMARY:

We are seeking a Postdoctoral Researcher with expertise in quantitative ecology, big data management/analysis, agroecology, and/or entomology to be jointly advised by Daniel Karp in the Department of Wildlife, Fish, and Conservation Biology and Jay Rosenheim in the Department of Entomology and Nematology the University of California, Davis. The initial appointment will be for one-year, with extension for a second year pending performance.

Agricultural pests cause significant damage annually, despite ongoing pesticide use which poses significant risks to people and the environment. The postdoctoral researcher will join a collaborative and interdisciplinary team of faculty and NGO scientists focused on compiling and analyzing the first global, 'living database' of crop pests and their natural enemies to better co-manage agricultural systems for food production and ecosystem services. Specifically, our multi-institution project, funded by the USDA, seeks to build an open-source, standardized data platform for pest control analysis and prediction, to enable scientific understanding and the development of decision-support tools to guide land managers and growers.

This project builds on prior pest-control compilation efforts that resulted in the largest pest database to date (<https://www.pnas.org/content/115/33/E7863>). Our team's core goals include:

- (1) Expanding the database by acquiring highly replicated data, across space and time, from governments, industry, and academics (e.g., <https://doi.org/10.1111/ele.13622>).
- (2) Supplementing it with life-history-trait data for agricultural pests and Earth observations (EO) of vegetation and climate for georeferenced locations of pest data.
- (3) Leveraging the database to predict pest outbreaks and identify farm/landscape-level interventions to co-manage landscapes for food production and environmental quality.
- (4) Developing the software infrastructure to automate the continued acquisition of insect, trait, and EO data and process these disparate data sources for subsequent analysis.

At UC Davis, the postdoc would work with Karp, Rosenheim, and Becky Chaplin-Kramer (lead scientist at the Natural Capital project and project PI) to:

- Develop, answer, and publish on agroecological questions related to pest population dynamics at farm and/or landscape scales (~60% time)
- Acquire and manage insect and trait datasets (~25% time)
- Collaborate with a hired software team to develop cyberinfrastructure to create a 'living database for pest management' (~15% time)

The postdoc will join a large interdisciplinary team and stakeholder network. They will also work with a to-be-hired postdoc at the University of Minnesota with expertise in Earth Observations.

QUALIFICATIONS:

- A Ph.D. in Ecology, Entomology, or a related field.
- Very strong quantitative skills and demonstrated proficiency with R.
- Evidence of commitment to diversity and inclusion in science.
- Strong interpersonal and communication skills and an ability to work both independently and collaboratively with researchers and practitioners from different backgrounds.
- Experience designing, planning, and executing research projects.
- Ability to follow through on deliverables and publish in high quality peer-reviewed journals.

The following qualification are preferred but not required:

- Prior experience working on agroecological questions, ideally related to pest management.
- Prior experience managing and analyzing 'Big Data.'
- Familiarity with hierarchical modeling, machine learning, or other such analytical approaches.
- Prior experience managing large projects.
- Demonstrated ability and/or desire to integrate results across interdisciplinary teams.

SALARY:

Salary and benefits are consistent with UC Davis policy and applicant experience. See link for current salary scale: https://grad.ucdavis.edu/sites/default/files/upload/files/facstaff/salary_20-21_october_1_2020.pdf

TO APPLY:

Please apply by preparing: (1) your CV inclusive of publications, awards, and research experience, (2) a cover letter discussing your qualifications, research interests, quantitative skills, and motivations for this position, (3) a 1-2 paragraph summary about your commitment to and/or experience with furthering diversity in the sciences, and (4) contact information for 3 references. Send all materials to dkarp@ucdavis.edu and jrosenheim@ucdavis.edu with the subject line: "***Quantitative Pest Control Postdoc Application.***"