

# Postdoc position in forest and fire ecology

Joint position in the labs of Drs. [Andrew Latimer](#) and [Derek Young](#)  
University of California, Davis



The Latimer and Young Labs are recruiting a postdoc with strong data science skills and field experience to contribute to two interrelated projects evaluating post-fire dynamics and recovery in California mixed-conifer forests (details below). The projects involve analysis of novel **plot-based field data** and **large geospatial datasets**. The postdoc will also provide occasional support to other related lab projects, with additional opportunities for co-authorship. Strong background in scripted (e.g., R-based) geospatial processing and statistical/machine learning analysis of large datasets is required. Optional opportunities exist to incorporate drone imagery, LiDAR, and computer vision into analyses.

## **Project 1:** Forest fuel accumulation and short-interval reburn dynamics (remote sensing & geospatial analysis approach)

With increasing fire frequency, more areas are reburning soon after previous fires. The resulting mosaics of fire history offer opportunities to learn about fire-fuel feedbacks and the effects of multiple burns on ecosystems. Further, severity of later fires is influenced by fuel accumulation rates since earlier fires. This project will support efforts to (a) use remote sensing and statistical modeling/machine learning to map forest fuel loads and wildfire hazard across California and (b) understand the ecological implications of increasingly common short-interval reburns. The analysis will infer post-disturbance fuel accumulation rates by relating recent observed fire severity patterns to time since previous disturbance and environmental covariates across large burned areas throughout the state. The postdoc's primary duties include:

- Adapt/refine the analytical approach developed by the PIs
- Lead the data analysis (including geospatial data assembly, processing, and statistical analysis)
- Lead the preparation of a manuscript

## **Project 2:** Medium-term (5-15 year) post-fire recovery (field data approach)

Plant population and community responses to single and multiple burns will strongly affect the future of California's vegetation as climate warms and fire becomes more frequent. Successfully projecting these changes will require both synthesizing existing field data and improving the parameterization of existing dynamic vegetation models and validating their projections. This project is a collaboration between UC Davis and Lawrence Berkeley National Laboratory (LBNL) to use field data on postfire recovery trajectories to improve the representations of postfire dynamics in the ecosystem model FATES. The postdoc will focus on compilation and analysis of empirical data to predict medium-term vegetation recovery trajectories after wildfire. The work

will support and complement concurrent ecosystem modeling efforts (led by LBNL staff) to simulate changing fire regimes and fuel treatment scenarios across California forests. The postdoc will coordinate closely with LBNL scientists and an ecosystem modeling postdoc. The postdoc's primary duties include:

- Lead the compilation and assessment of existing plot data to select plots for revisits
- Assist in training and directing a field crew to conduct plot revisits
- Perform empirical analysis of revisited plot data to predict recovery trajectories
- Optionally analyze LiDAR data to complement plot-based analyses of post-disturbance vegetation recovery
- Lead preparation of manuscript(s) documenting empirical and ecosystem modeling results

**Hours, dates, and work location:** The postdoc position is full time beginning in January or February 2022. The primary work location is a lab/office setting on the UC Davis campus, but some work can be performed remotely if desired. Funding is available for a minimum of one year with potential extension for an additional year or more. The paper for Project 1 will be submitted in Year 1. Papers for Project 2 and/or other lab projects will be submitted in Year 2.

**Compensation:** Salary is based on years of experience as a postdoc and ranges from \$54,540 to \$65,292 annually. The salary table can be found [here](#). The postdoc will be eligible for full benefits.

**Minimum qualifications:**

- PhD in ecology or related field
- Understanding of and interest in forest ecology and disturbance ecology concepts
- Proficiency with multilevel statistical modeling in R
- Proficiency with scripted geospatial analysis in R (e.g., using the 'raster', 'terra', and 'sf' packages)
- Experience working with large field datasets and climate data layers
- Experience collaborating via GitHub or equivalent
- Experience conducting field research and supervising the work of field crews
- Experience successfully mentoring diverse undergraduate and/or graduate students
- Evidence of ability to publish research results in peer-reviewed journals

**Desired qualifications:**

- Experience studying conifer forests in California or the western U.S.
- Experience with fire ecology research
- Experience with machine learning and other advanced data science methods

**To apply:** Please combine a cover letter, CV, and contact information for three references into a single PDF and email to Drs. Andrew Latimer, [amlatimer@ucdavis.edu](mailto:amlatimer@ucdavis.edu), and Derek Young, [djyoung@ucdavis.edu](mailto:djyoung@ucdavis.edu). Use the exact subject line "Latimer-Young postdoc". The application deadline is December 1. Applicants will be notified if they have been selected for an interview by December 8.