Postdoctoral Fellowship: Landscape Models and Data

The [HJ Andrews Experimental Forest (HJA) Long-term Ecological Research Program](#) is seeking applicants for a **Postdoctoral Scholar** to integrate landscape modeling with existing geospatial and research data, analyze model outputs, and use those outputs to test ecological hypotheses across the landscape with relevance to forests of the Pacific Northwest. We encourage applicants with strong interests and experience in one or more of the following: landscape ecology, simulation modeling, disturbance ecology, spatial analysis, long-term data analysis, and interdisciplinary research.

The modeling framework used in this effort is iLand. The iLand is a model of forest landscape dynamics, simulating individual tree competition, growth, mortality, and regeneration. It addresses interactions between climate change, disturbance regimes, vegetation dynamics, and forest management. This model of forest change will be used as the platform upon which short-term (<10 years) and long-term (10-100 years) predictions about species' populations, ecological communities, geomorphic behavior, carbon storage, microclimate, and a variety of other responses can be examined.

The postdoctoral scholar will work with a collaborative team of Oregon State University and USDA Forest Service scientists as well as iLand modeling experts from Technical University of Munich and University of Washington.

The postdoctoral scholar will use the iLand model to unify developing hypotheses, and link inputs and outputs (e.g., scenario development, connections with bird, mammal, plant and arthropod species distribution models, hydrology/stream models, microclimate, etc.). From that point of view, the successful applicant will be able to think across taxa and processes and at several scales.

The position will also collaborate with program scientists and information managers to organize and archive data from the 2023 Lookout Fire, and will assume primary responsibility for final archiving within the Forest Science Data Bank or other appropriate public repository. These data will include geospatial data on fire spread, suppression efforts and burn severity, as well as supplemental information such as observation notes from fire managers, aircraft flight records and sensor data from the HJA. These data will serve as the official HJA archive of the historic Lookout Fire and will be essential inputs for initial conditions to run the iLand model. In addition, the position will compile and organize relevant data inputs for initializing iLand simulations.

Required Qualifications:
- PhD in a natural resources-related field (e.g., ecology, forestry, geosciences) or geography, by the start date of the position and received within five years.
- Familiarity with principles in landscape ecology, fire and disturbance ecology, forest ecology, stream ecology and related fields.
- Advanced knowledge of statistical modeling and large dataset management, particularly for geospatial data (in GIS software)
- Proficient with statistical modeling software, particularly R

- Experience with simulation modeling
- Strong quantitative skills
- Ability to analyze model outputs
- Strong data organization skills
- Excellent writing and oral communication skills
- Demonstrated ability to work independently and collaboratively within an interdisciplinary research team
- Commitment to promoting and enhancing diversity, equity and inclusion

Preferred Qualifications:

- Experience implementing individual-based forest models
- Experience with additional programming languages, such as Python and Java.
- Strong spatial analysis skills (e.g., GIS, Google Earth Engine)
- Strong publication record
- Interest in applied science and demonstrated ability to communicate scientific research to government, academic, industry and/or NGO management partners

The postdoc will be supervised and mentored by Drs. Matt Betts and David Bell and will work as part of a large, integrated, interdisciplinary team of scientists with the Andrews Forest LTER program and the larger group of scientists involved in iLand.

The Andrews Forest Long-Term Ecological Research Program is supported by Oregon State University and the USDA Forest Service Pacific Northwest Research Station as part of the Long-Term Ecological Research Network, funded by the National Science Foundation. The H.J. Andrews Experimental Forest is a 16,000-acre ecological research site in Oregon's beautiful western Cascades Mountains. The Betts Landscape Ecology Lab, is in the Department of Forest Ecosystems and Society (FES) at Oregon State University in Corvallis, Oregon, and the Permanent Sample Plot Network, and Landscape Ecology, Modeling, Mapping & Analysis Team are collaborative teams involving OSU and the USDA Forest Service Pacific Northwest Research Station.

Support for this position is provided by the Center for the Future of Forests and Society (CFFS) within OSU's College of Forestry. The mission of the CFFS is "To advance systems-based science and knowledge to ensure the resiliency of our forests, inform sustainable forest management practices and positively impact society."

This position offers an excellent opportunity to pursue independent and mentored research, strengthen analytical and writing skills, and lead and co-author papers.

Salary will be commensurate with experience and qualifications per OSU guidelines
https://gradschool.oregonstate.edu/postdocs/stipends-and-benefits

Location: Corvallis, Oregon, on the campus of Oregon State University, with possible field work at the HJ Andrews Experimental Forest near Blue River, Oregon.

Duration: This is a full-time position with the Department of Ecosystems and Society, College of Forestry, Oregon State University. The initial appointment will be for one year, with the possibility of renewal for a second year subject to satisfactory performance.

The start date is negotiable but will ideally be before April 15, 2024.

Open and close dates: We will begin reviewing applications on February 15th, 2024. Applications received by February 14, 2024, will be given full consideration. Applications after this date may be considered if position is not filled. Please note that only candidates that meet the required skills and expertise will be contacted.

To apply: For full consideration, send, in a single PDF: (1) a letter of interest, (2) CV, (3) transcripts (unofficial transcripts are sufficient), (4) up to 3 pdfs of recent publications or other writing representative of your work, and (5) contact information (email and phone number) for three references to: Lina DiGregorio (lina.digregorio_at_oregonstate.edu) with reference "Postdoc Application Models and Data – [Your Last Name]" in the subject line.

OSU commits to inclusive excellence by advancing equity and diversity in all that we do. We are an Affirmative Action/Equal Opportunity employer, and particularly encourage applications from members of historically underrepresented racial/ethnic groups, women, individuals with disabilities, veterans, LGBTQ community members, and others who demonstrate the ability to help us achieve our vision of a diverse and inclusive community.