

Opportunity Title: USFS Modeling Fire Resistance Management

Opportunity Reference Code: USDA-USFS-2021-0074



Organization U.S. Department of Agriculture (USDA)

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A complete application package consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. Selected candidate must provide proof of completion of the degree before the appointment can start. All transcripts must be in English or include an official English translation. Click [Here](#) for detailed information about acceptable transcripts.
- A current resume/CV
- A writing sample such as a publication, paper submitted for a course, or thesis chapter
- Two educational or professional recommendations

All documents must be in English or include an official English translation.

Application Deadline 5/7/2021 3:00:00 PM Eastern Time Zone

Description ***Applications may be reviewed on a rolling-basis.**

USFS Office/Lab and Location: A research opportunity is available at the USDA Forest Service, Pacific Northwest Research Station Located in Portland, Oregon.

At the heart of the U.S. Forest Service's mission is their purpose. Everything they do is intended to help sustain forests and grasslands for present and future generations. Why? Because their stewardship work supports nature in sustaining life. This is the purpose that drives the agency's mission and motivates their work across the agency. It's been there from the agency's very beginning, and it still drives them. To advance the mission and serve their purpose, the U.S. Forest Service balances the short and long-term needs of people and nature by: working in collaboration with communities and our partners; providing access to resources and experiences that promote economic, ecological, and social vitality; connecting people to the land and one another; and delivering world-class science, technology and land management.

The mission of the Forest Service's Pacific Northwest Research Station is to generate and communicate impartial knowledge to help people understand and make informed choices about natural resource management and sustainability. Consistent with this mission and with guidance from the mentor, the participant will enjoy opportunities to (1) continue their professional development while addressing policy relevant questions at a pivotal moment, as changes in climate and fire are becoming increasingly apparent in west coast forests, (2) inform and contribute to decisions about managing forest ecosystems, (3) gain understanding of how management objectives, practices and opportunities differ, but may complement one another, across ownerships, and (4) pursue research related to fire resistance and resilience, forest carbon dynamics and policies with potential to increase realization of landowner and societal objectives.

Research Project: Public, corporate and non-corporate ownerships in the Pacific Northwest's multi-owner forest landscapes west of the Cascade crest implement disparate approaches to forest management. A collection of largely stand replacing megafires in western Oregon and southwest Washington in 2020 impacted about a million forested acres and dramatically underscored the ecological and economic importance of low frequency, stand replacing fire in this region. To what extent do current management practices on each ownership enhance resistance to wildfire and deliver climate benefits via carbon sequestration and storage?

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What silvicultural alternatives might more effectively deliver these benefits, and what tradeoffs would they imply, particularly with respect to the economic feasibility of managing these lands? This modeling component of the PNW Research Station's Westside Fire Research Initiative study of Strategic Fuels Management addresses these questions by leveraging the statistically representative sample of all forests provided by the Forest Inventory and Analysis network of 7000+ forest inventory plots in this region and the BioSum modeling framework and its Forest Vegetation Simulator stand projection model to simulate management outcomes over decades. Building on information generated by research collaborators in this study who are interviewing and surveying landowners to understand current forest objectives and management, and if/how they address fire and carbon, mentor and participant will collaborate to model management effectiveness and feasibility from multiple perspectives on each FIA plot under multiple management scenarios, over time. Summarizing this data across a very large number of forest plots that represent virtually all extent forest conditions, will help us recognize and position us to recommend owner- and stand-specific opportunities for reducing fire hazard and enhancing the delivery of climate benefits.

Learning Objectives: Learning objectives for the project include advancing the participant's exposure to policy relevant, hypothesis based research and technology development centered on the management of forests and natural resources. They will enhance their capabilities for formulating practical research questions and designing research that promotes understanding of how management can be modified to enhance fire resistance; the compatibility of fuels management with carbon sequestration and other forest goals that vary among landowners; and the complex interplay among goal accomplishment, stand replacing fire incidence, and the effects of climate change. Participant will also gain experience with analyzing and modeling inventory data, implementing silvicultural prescriptions in a stand projection model, and sharing information developed through this analysis with a cadre of co-producers and clients engaged with this project as well as larger management, professional and scientific communities via presentations and publication of findings in journals, reports and electronically delivered visualizations.

Mentor(s): The mentor for this opportunity is Jeremy Fried (orise@pnwfia.info). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: **June 15, 2021.** Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for one year, but may be renewed upon recommendation of USFS and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience, ranging from \$55,000-\$70,000 per year.

Citizenship Requirements: This opportunity is available to U.S. citizens and Lawful Permanent Residents (LPR) only.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and USFS. Participants do not become employees of USDA, USFS, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

Questions: Please visit our [Program Website](#). After reading, if you have additional questions about the application process please email USForestService@orise.orau.gov and include the reference code for this opportunity.

Qualifications

The qualified candidate should have received a master's or doctoral degree in one of the relevant fields, or be currently pursuing one of the

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degrees with completion by June 30, 2021.

Preferred skills:

- Experience running and interpreting output from the Forest Vegetation Simulator or another stand projection system, analyzing forest inventory data, engaging in forest or fuels management, and familiarity with forest fire and forest carbon dynamics
- Strong data management skills, especially working in database (e.g., MS Access) and analysis programming environments (e.g., R, Stata, SAS) to link, query, summarize, massage and analyze large datasets to generate clearly understandable tables and graphics that convey accurate and compelling interpretations
- Articulate in oral and written communications, particularly when it comes to documenting analysis processes and reporting research findings
- Experience with effectively conveying technical information to both decision-makers and scientists

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Master's Degree or Doctoral Degree.
- **Overall GPA:** 3.50
- **Discipline(s):**
 - **Earth and Geosciences** (1 )
 - **Environmental and Marine Sciences** (11 )
 - **Mathematics and Statistics** (2 )
 - **Other Non-S&E** (1 )