Opportunity Title: USFS Fellowship in Forest Inventory Analysis of Wildfire Effects and Recovery in the Pacific Northwest
Opportunity Reference Code: USDA-USFS-2022-0234

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-USFS-2022-0234

How to Apply ***Connect with ORISE...on the GO!*** Download the new ORISE GO mobile app in the Apple App Store or Google Play Store to help you stay engaged, connected, and informed during your ORISE experience and beyond!

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. Click **Here** for detailed information about acceptable transcripts.
- A current resume/CV
- Three educational or professional recommendations. Applications need at least one recommendation submitted in order to be viewed by the mentor.

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

Application Deadline 8/2/2022 3:00:00 PM Eastern Time Zone

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

USFS Office/Lab and Location: A research opportunity is available at the U.S. Department of Agriculture (USDA) Forest Service (USFS), Pacific Northwest Research Station with the opportunity to be based in either Portland or Corvallis, Oregon.

Research Project: This project explores post-fire forest ecosystem responses in west-side Pacific Northwest (PNW) forests over the past 20 years using repeated measurements of permanent forest inventory plots that burned, most of which received little or no active post-fire management. We seek insights into how wildfire effects and post-fire ecological dynamics can best be managed to achieve desired conditions.

The research fellow's mission is to analyze forest inventory remeasurement data to understand and report on management-relevant aspects of post-fire trajectories, such as 1) post-fire dead wood dynamics and their implications for wildlife habitat, carbon pools, and future fire behavior; 2) post-fire forest structural and community dynamics, including describing post-fire vegetation development without active management under different pre-fire structural conditions and wildfire burn severities; and 3) early seral habitats initiated by fires of varying severity across a gradient of pre-fire stand structures.

Summarizing and building models from this data across several hundred forest plots that span broad gradients in climatic and forest contexts will allow us to generalize findings more broadly to west-side forests that have not yet burned or have burned quite recently. The Fellow may also model the effects of forest management treatments using FVS to evaluate treatment effectiveness for increasing fire resistance and estimate the resulting wood supply, or perform analysis on greenhouse gas emissions to assess the effects of recent wildfires. Collaborating with manager,

practitioner and academic co-producers of this research will ensure that findings inform post-fire management that can more effectively address future fire hazard, regeneration needs, habitat development and delivery of climate mitigation benefits.

Learning Objectives: Learning objectives for the project include understanding how PNW west-side forest ecosystems respond to and develop following wildfire disturbance, and exploiting the knowledge attained to guide post-fire management under actively shifting climate and fire patterns. The participant will also gain experience analyzing and modeling many kinds of inventory remeasurement data, gain broad perspectives on forest management through research co-production with managers and practitioners, and improve communication skills and experience by sharing information developed with management, professional and scientific communities via presentations and publishing findings in journals, reports and electronically delivered visualizations.

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, and (3) pursue research related to drivers of fire effects and recovery, ecological community assembly, forest resilience, forest carbon dynamics and policies with potential to increase realization of landowner and societal objectives.

Mentor: The mentor for this opportunity is Jeremy Fried (jeremy.s.fried@usda.gov). If you have questions about the nature of the research please contact the mentor.

Anticipated Appointment Start Date: August 15, 2022. Start date is flexible and negotiable, and will depend on a variety of factors.

Appointment Length: The appointment will initially be for one year, but may be extended 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. **The current annual stipend for this opportunity is $59,000 (MS) or $70,000 (Ph.D.). Health insurance can be provided as needed. There will be funding allocated for travel to conduct research and/or present research findings while following all COVID-19 safety protocols.**

Citizenship Requirements: This opportunity is available to U.S. citizens only.

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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 be currently pursuing or have received a master's or doctoral degree in one of the relevant fields (e.g. Forestry, Natural Resources, Environmental Science, Geography, Wildlife Management).

Preferred skills:

- Experience analyzing forest inventory data, especially including growth, removals and mortality analysis in which longitudinally collected tree data are reconciled, fire behavior and effects analysis, and familiarity with forest carbon dynamics
- Impeccable data management skills, especially working in relational databases (e.g., MS Access and SQLite) and analysis programming environments (e.g., R or Python) to link, query, summarize, massage/restructure and analyze large datasets to generate clearly understandable tables and graphics that convey accurate and compelling interpretations
- An affinity for patiently digging into longitudinal plot and tree list data to seek out both patterns and anomalies and developing creative solutions for resolving the latter as part of integrated quality assurance
- Articulate in oral and written communications, particularly when it comes to timely and articulate documentation of analysis processes and reporting research findings
- Experience with effectively conveying technical information to both decision-makers and scientists
- Familiarity with relevant literature or a commitment to move quickly and independently to catch up with relevant literature and methods
- Experience with forest inventory models such as the Forest Vegetation Simulator (FVS)

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Master's Degree or Doctoral Degree.
- **Discipline(s):**
  - **Environmental and Marine Sciences** (7 👁)
  - **Life Health and Medical Sciences** (7 👁)
  - **Mathematics and Statistics** (2 👁)

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- **Social and Behavioral Sciences** (1 👁)