

Opportunity Title: USFS Postdoctoral Research Fellowship: Analyses of Drone Imagery for Identifying High Elevation Pine Species
Opportunity Reference Code: USDA-USFS-2023-0300

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-USFS-2023-0300

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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. Click [Here](#) for detailed information about acceptable transcripts.
- A current resume/CV, including Cover Letter (please upload with CV/resume)
- Two educational or professional recommendations. At least one recommendation must be submitted in order for the mentor to view your application.

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

Application Deadline 8/18/2023 3:00:00 PM Eastern Time Zone

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

USFS Office/Lab and Location: This fellowship is available with the US Department of Agriculture (USDA) Forest Service's (USFS) Rocky Mountain Research Station, located in Boulder, Colorado.

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.

Research Project: The incumbent will participate in a project looking at the efficacy of using drone imagery to identify and differentiate *Pinus flexilis* and *P. longaeva*, tree species that often grow in the same high elevation forest stand. Both species are threatened by climate change both directly—through increasingly hotter/drier conditions, and indirectly—through novel host selection behavior by bark beetles. Understanding the scale of tree mortality arising from these threats is key to managing and protecting these iconic species, but they typically grow in remote, high elevation stands in isolated mountain ranges which makes monitoring a challenge. Drone-based remote sensing validated against field reference data have recently shown promise for monitoring the extent and health of



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isolated stands at a low per-area cost. A goal is to integrate drone imagery with field-based forest inventory data to create a model that can be applied to high elevation forests in the Great Basin for monitoring high elevation pine forests.

Learning Objectives: The incumbent will have the opportunity to contribute intellectually to experimental design, data analysis, interpretation, and publishing and communicating findings. The participant will also be exposed to a management-based research organization (USDA Forest Service, Rocky Mountain Research Station), learn about the challenges climate change poses to managers of high elevation forests, and how science is seeking ways to address these challenges.

Mentor: The mentors for this opportunity are USDA Forest Service Research Entomologist Dr. Barbara Bentz (barbara.bentz@usda.gov) located in Logan, Utah, and Dr. Mike Koontz at the Earth Lab, CU Boulder, Colorado. If you have questions about the nature of the research, please contact the mentor(s).

Anticipated Appointment Start Date: September 1, 2023. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will begin September 1 and extend through September 30, 2023.

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 monthly stipend for this opportunity is \$6,000.**

Citizenship Requirements: This opportunity is available to U.S. citizens 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 doctoral degree in one of the relevant fields (e.g. Ecology, Mathematics), or be currently pursuing the degree with completion before the appointment start date.

Preferred Skills:

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- Experience conducting drone surveys in high-elevation western US forests.
- Experience and background knowledge of plant ecology.
- Experience in mathematical modeling of ecological phenomena.
- Experience teaching, mentoring, or consulting researchers on complex mathematical/statistical/data challenges.

**Eligibility
Requirements**

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Academic Level(s):** Graduate Students or Postdoctoral.
- **Discipline(s):**
 - **Communications and Graphics Design** (1 [👁](#))
 - **Computer, Information, and Data Sciences** (2 [👁](#))
 - **Earth and Geosciences** (2 [👁](#))
 - **Environmental and Marine Sciences** (5 [👁](#))
 - **Life Health and Medical Sciences** (4 [👁](#))
 - **Mathematics and Statistics** (4 [👁](#))