Opportunity Title: USDA-FS Fellowship: Exploring the Adaptive Capacity of At-Risk Pine Forests
Opportunity Reference Code: USDA-FS-RMRS-2024-0214

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-FS-RMRS-2024-0214

How to Apply ***To submit your application, scroll to the bottom of this opportunity and click APPLY.***

A complete application 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, including academic history, employment history, relevant experiences, and publication list
- 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.

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

USDA Forest Service Office/Lab and Location: This fellowship is available at the Fort Collins Forestry Sciences Lab with the U.S. Department of Agriculture (USDA) Forest Service's (FS) Rocky Mountain Research Station, located in Fort Collins, Colorado (https://www.fs.usda.gov/research/rmrs). The selected candidate will be co-located with multiple Forest Service research scientists.

At the heart of the USDA 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 USDA 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 ORISE fellow will participate in exploring the geographic and climatic drivers of adaptive variation and adaptation in at-risk high-elevation five-needle pines. Climate change poses a severe threat to these pine forests, which not only occupy habitats at the climatic limits of tree growth but also face the lethal white pine blister rust disease. These

pines lack an evolutionary history with white pine blister rust, increasing their vulnerability. Developing scientific knowledge to support adaptive management strategies that promote ecosystem resilience and enable these forests to adapt to WPBR and future climatic uncertainties is a research focus of the USDA Forest Service (USDA-FS) Rocky Mountain Research Station (RMRS).

The ORISE fellow will participate in establishing and applying statistical analysis strategies for existing common garden studies to quantify the patterns of variation in adaptive traits and genetic disease resistance traits and their associations. This opportunity will involve communicating with scientists and managers researching limber pine, Rocky Mountain bristlecone pine, Great Basin bristlecone pine, and whitebark pine; conceptualizing and refining the integration of quantitative and evolutionary ecological research into restoration frameworks; establishing collaborative connections with scientists and statisticians in the development of a series of analysis designs for common garden studies; collaborating on research and literature reviews regarding the causes and patterns of variation in genetic traits conferring growth, disease resistance, and stress tolerance and the implications on adaptive capacity and population trajectories; and being an active participant in project meetings, workshops, and webinars.

The ORISE fellow will have the opportunity to engage in related research involving high-elevation 5-needle pines, white pine blister rust, genetic disease resistance, population dynamics, and scientist-manager coproduction programs. The fellow will participate in interdisciplinary teams, data analysis and interpretation, and disseminating results and knowledge via publications, presentations, and tech transfer products.

Learning Objectives: By the end of this fellowship, the ORISE fellow will have gained training in the scientific process for the fields of restoration ecology, disease management, forestry, conservation science, and scientist-manager coproduction strategies under the RMRS mentor. The participant will gain experience in expanding their quantitative ecology analysis techniques for application to natural resource data, making inferences about heritable adaptive traits and variation, phenotypic plasticity, and population trajectories, and learning about factors challenging high-elevation five-needle pines under the RMRS mentor. The participant will also gain experience in project development, interaction with land managers and scientists, data quality assurance, data interpretation and analysis, and oral/written communication. In addition, the ability to contribute to a scientific publication will aid in the career development of the ORISE participant.

Mentor: The mentor for this opportunity is Anna Schoettle (anna.schoettle@usda.gov). If you have questions about the nature of the research, please contact the mentor.

Anticipated Appointment Start Date: 2024. Start date is flexible and will depend on a variety of factors.

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Appointment Length: The appointment will initially be for one year but may be extended upon recommendation of USDA Forest Service 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 annual stipend will range from $55,000-$68,500. A health insurance supplement will be included.

Citizenship Requirements: This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the Guidelines for Non-U.S. Citizens Details page of the program website for information about the valid immigration statuses that are acceptable for program participation.

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 USDA Forest Service. Participants do not become employees of USDA, USDA Forest Service, 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 ORISE.USFS.RMRS@orau.org 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 the one of the relevant fields (e.g. quantitative ecology, conservation biology, evolutionary biology, restoration ecology, forestry, plant biology, plant ecology, biostatistics, or related field). Preference is given towards doctoral graduates or students who have their master's degree. Degree must have been received within the past five years, or anticipated to be received by 12/31/2024.

Preferred skills:

- The ability and desire to collaborate with and learn from an interdisciplinary team of scientists and land managers;
- A strong interest in creatively exploring quantitative relationships at the intersection of evolutionary ecology, restoration, genetics, disease resistance, and climate change for use in land management decisions related to forests;
- Excellent organizational, data quality, and communication skills;
- Proficiency in R statistical software and demonstrated recent competency;
- Understanding of statistical procedures for biology research and interest in learning and adapting methods for application to natural resource

data;
- Experience with plant common gardens and provenance trials;
- Established writing and presentation skills as evidenced by published research or technical reports and scientific presentations;
- Experience with GIS/spatial analyses is preferred.

Eligibility Requirements

- **Degree:** Master's Degree or Doctoral Degree received within the last 60 months or anticipated to be received by 12/31/2024 11:59:59 PM.
- **Academic Level(s):** Graduate Students, Post-Bachelor's, Postdoctoral, or Post-Master's.
- **Discipline(s):**
  - **Environmental and Marine Sciences** (4 👁)
  - **Life Health and Medical Sciences** (10 👁)
  - **Mathematics and Statistics** (3 👁)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).