Opportunity Title: USFS Postdoctoral Fellowship in Biodiversity-Forest Ecosystem Functioning Using Remote Sensing/GIS
Opportunity Reference Code: USDA-USFS-2021-0136

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-USFS-2021-0136

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. 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
- Two 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 7/15/2021 3:00:00 PM Eastern Time Zone

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

USFS Office/Lab and Location: A postdoctoral research opportunity is available with US Forest Service (USFS), Southern Research Station, Eastern Forest Environmental Threat Assessment Center in Research Triangle Park, North Carolina. The participant will mainly be stationed at the University of New Hampshire in Durham, New Hampshire, but will travel to Research Triangle Park periodically and South Carolina and Florida as needed if funding is available. The initial research location may be remote depending on COVID restrictions.

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 overarching goal is to use structural measures from NASA's Global Ecosystem Dynamics Investigation (GEDI) instrument and in situ measurements from the Experimental Forests Ranges (EFR) and the Forest Inventory and Analysis (FIA) to explore forest biodiversity and its relation to structural diversity, and to relate both types of diversity to

productivity, carbon cycling and major disturbances such as fire, drought, invasive pest outbreaks, and sea-level rises.

The specific objectives designed to achieve the overarching goals are to:

- Map both structural and species diversity of southern forests using data from GEDI, other satellite data, and measurements from the EFR network and FIA;
- Evaluate the performance of GEDI products for estimating forest structural and plant diversity of all species at the site level;
- Quantify forest structural diversity - productivity (carbon cycling) relations at local and regional scales;
- Elucidate how structural diversity regulates the resilience of forest productivity/carbon sequestration to fire and drought.

Learning Objectives: Our proposed project will examine how structural diversity is related to forest productivity and carbon sequestration (and thus water use), and explore the resilience of southern forests to fire and drought, and therefore will address SRS priority research areas in Fire, Water, and Restoration. This study combines expertise from multiple RWUs and Centers, incorporating field data from all the EFRs and FIA. Forest restoration to improve forest ecosystems services is a high priority area of R8 and Southern Group of State Foresters. Through this research and collaboration, the fellow will

- Gain an appreciation of the practical challenges and limitations of remote sensing in both short and long-term monitoring and assessments in forest ecosystems
- Improve understanding of fundamental monitoring needs and how evolving technology can assist forest management in the future

Mentor: The mentors for this opportunity include Qinfeng Guo, Jeff Atkins, Jingfeng Xiao, and Ge Sun. Please feel free to contact Qinfeng Guo (qinfeng.guo@usda.gov) or Jeff Atkins (Jeffrey.atkins@usda.gov) if you have questions about the nature of the research.

Anticipated Appointment Start Date: July 15, 2021. 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 annual stipend will be around $70,000. A health insurance supplement covering individual health and prescription coverage (excludes dental/vision) will also be provided.**

Citizenship Requirements: This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals. Non-

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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 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., forestry, ecology, remote sensing), or be currently pursuing the degree with completion by June 30, 2021. Degree must have been received within the past five years.

Preferred skills:

- Familiarity with spatial data analysis, GIS, remote sensing, Google Earth Engine, R and/or Python
- Forest databases and forest dynamics
- Strong writing skills

Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 6/30/2021 11:59:00 PM.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (2)
  - **Earth and Geosciences** (1)
  - **Environmental and Marine Sciences** (5)
  - **Life Health and Medical Sciences** (5)
  - **Mathematics and Statistics** (2)
  - **Social and Behavioral Sciences** (1)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).