

Opportunity Title: USFS Fire and Fuel Dynamics in Mixed Hardwood-Pine Forests

Opportunity Reference Code: USDA-USFS-2021-0151

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-USFS-2021-0151

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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
- 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 7/23/2021 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 with the US Forest Service (USFS), Upland Hardwood Ecology and Management Unit located in Huntsville, Alabama.

Research Project: This unit studies tools and techniques most applicable to sustainable forest management across a broad spectrum of land types and ownerships goals. Scientists are scattered over 5 states and conduct applied research over a myriad of forest types and ecological conditions. As disturbance regimes have changed in eastern upland hardwood-pine forests, scientists and managers have become more aware of the need to reintroduce planned disturbances to create conditions conducive to desired species compositions and structures. The use of prescribed fire is one of these tools. Contemporary forests have been altered due to disturbance regime changes, and we need to develop models that better predict how vegetation, fuels and fire behavior interact to provide science-based decision support tools for land management.

Fire behavior and smoke forecasting need to meet the growing challenges of air quality, health, and safety concerns, while allowing for tools such as prescribed fire to be used to manage stands for desired goods and services. Restoration and management of mixedwoods will require evaluation of the interactions among fire and timber harvest in a climate context, necessary since they may lead to changes in composition, succession, above ground biomass and productivity. Research may include incorporating stand-level elements such as cohorts' regeneration, shifts in species importance, changes in fuel component loadings, and weather parameters, to better document and model the changes in forest



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composition and structure, fuel dynamics and fire behavior. Incorporating data from new technologies, such as ground-based LiDAR, will require exploratory modeling to determine how to couple field-measured parameters to drive, evaluate and improve new models for prescribed fire planning and implementation. Science communication and delivery includes both peer-reviewed publication and engaging land managers via field tours/workshops.

Learning Objectives:

- Gain first-hand experience conducting cutting-edge research within a federal agency
- Foster skill in interacting with partners to develop applied science to meet complex natural resource management and conservation needs
- Advance analytical skills with challenges such as harmonizing disparate data types, applying machine learning techniques to large databases, and developing analytical models for applied decision science
- Expand knowledge of natural resource science approaches, develop science writing and communication skills, as well as project development, leadership, and management skills

Mentor(s): The mentor for this opportunity is Callie Schweitzer (callie.schweitzer@usda.gov). If you have questions about the nature of the research please contact the mentors.

Anticipated Appointment Start Date: June 21, 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.

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.

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Qualifications The qualified candidate should have received a master's or doctoral degree in one of the relevant fields. Degree must have been received within the past five years.

Preferred skills:

- Experience synthesizing data from disparate data sources
- Experience using statistical software (especially SAS and R) to analyze and report on data
- Experience in diverse fields and a history of incorporating diverse perspectives into project challenges

- Eligibility**
- **Citizenship:** U.S. Citizen Only
- Requirements**
- **Degree:** Master's Degree or Doctoral Degree received within the last 60 month(s).
 - **Discipline(s):**
 - **Computer, Information, and Data Sciences** ([2](#) 👁)
 - **Environmental and Marine Sciences** ([1](#) 👁)
 - **Mathematics and Statistics** ([5](#) 👁)