

Title: Graduate Assistantship in Forest Ecology

Location: Montana State University, Bozeman, Montana, USA

Categories: M.S. student

Compensation: Stipend, tuition waiver, health insurance, & student fees

Application deadline: February 15, 2022

Responsibilities

We are seeking an independent and motivated M.S. student to start in the fall of 2022 to combine and map the critical climate and water balance thresholds for the most important life stages of whitebark pine (*Pinus albicaulis*). The goal is to identify planting areas where whitebark pine is most likely to survive future climate while also avoiding disturbance agents such as white pine blister rust, mountain pine beetle, and wildfire. Climate escapes from these hazards have been identified in prior studies by this research team and additional research on cone production and growth rates associated with climate and site characteristics is needed to complete the list of climate thresholds that determine the fate of whitebark pine. The ideal candidate will have an interest in computer modeling and climate adaptation; a considerable interest in quantitative analyses and publishing in peer-reviewed journals; experience in R, GIS, and Microsoft Excel; and an interest in using science to inform management of stunningly beautiful places undergoing dramatic change. This interdisciplinary project is funded by the National Park Service Inventory and Monitoring Program and involves a team of plant ecologists, plant physiologists, and spatial modelers. The M.S. position is supported for 2-3 years through a combination of teaching and research assistantships. This position is based at Montana State University in Bozeman, Montana located in close proximity to the Greater Yellowstone Ecosystem. Bozeman is an outdoor adventurer's dream with hiking, biking, skiing, etc. all within minutes of town.

Working with the National Park Service Inventory and Monitoring Program, the M.S. student will:

- 1) Identify the critical climate and water balance thresholds for the most important stages of whitebark pine life history including seed production, establishment and growth rate, as well as escape from the primary disturbance agents at different life stages including white pine blister rust, mountain pine beetle, and wildfire.
- 2) Map identified climate and water balance thresholds in the Greater Yellowstone Ecosystem to identify climate vulnerabilities now and into the future.
- 3) Use the generated maps to identify areas that could be managed as high value refugia, locations for restoration after wildfire, and areas for assisted migration that anticipate future shifts in climate space.

Qualifications

Applicants require a Bachelor's degree in plant ecology, landscape ecology, forestry, hydrologic modeling, remote sensing, or related field. Desirable qualifications include experience in quantitative analyses, remote sensing, statistics, and modeling; strong attention to detail; enjoying coding and troubleshooting; strong written and oral communication skills; experience working both independently and collaboratively with others; and/or experience mentoring or

supervising others. Experience and interest in traveling in mountain terrain under adverse conditions may be a part of this project.

Contact

To apply, please send, by March 1, 2022, an email with the subject "Grad Student Application" to: Dr. Brian Smithers (brian.smithers@montana.edu), Dr. Danielle Ulrich (danielle.ulrich@montana.edu), and Dr. David Thoma (Dave_Thoma@nps.gov) that contains the following: (1) one-page cover letter describing your academic and research experience, reasons for pursuing graduate school, and your specific current research interests; (2) curriculum vitae; (3) email address and phone number for three references; and (4) unofficial copy of university transcripts. Formal application to the Ecology graduate program at Montana State University is required subsequent to selection of the successful candidate. Inquiries about the position are welcome.