

**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:** January 6, 2021

### **Responsibilities**

We are seeking an independent and motivated M.S. student to use remote sensing and hydrological modeling to quantify the effect of whitebark pine (*Pinus albicaulis*) on watershed hydrology, specifically on snowpack and streamflow. The goal is to improve ecological understanding and projections of effects of whitebark pine mortality on snowpack and streamflow in the Greater Yellowstone Ecosystem (GYE). The ideal candidate will have an interest in computer modeling and remote sensing; 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 Montana Water Center, and involves a team of plant ecologists, hydrologists, and spatial modelers. The M.S. position is supported for 2-3 years through teaching and research assistantships. The position begins June of 2021.

The M.S. student will:

- 1) Use broad-scale analysis (remote sensing in Google EarthEngine) and spatial datasets (Daymet) with a hydrological model to identify the effect of forest mortality on hydrological processes (snowpack, streamflow) at multiple USGS-gaged watersheds in the Greater Yellowstone Ecosystem (GYE).
- 2) Identify and instrument two backcountry field sites to determine effects of whitebark pine on snowpack and streamflow.
- 3) Parameterize a daily water balance model with empirical field measurements.

### **Qualifications**

Applicants require a Bachelor's degree in plant ecology, landscape ecology, forestry, watershed science, hydrology, 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 in all seasons is necessary for the field work aspects of this project.

### **Contact**

To apply, please send, by January 6 2021, an email with the subject "Grad Student Application" to: Dr. Danielle Ulrich ([danielle.ulrich@montana.edu](mailto:danielle.ulrich@montana.edu)), Dr. Brian Smithers ([brian.smithers@montana.edu](mailto:brian.smithers@montana.edu)), and Dr. David Thoma ([Dave\\_Thoma@nps.gov](mailto: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.