



Master's of Science Position Opening: Department of Biology, Utah State University

Discipline Area: Entomology

Research Topic: Predicting Balsam Woolly Adelgid Invasion Risk

Start Date: Flexible, August to December, 2020 preferable

Compensation: \$21,356 annual salary plus benefits (tuition, fees, and insurance; a package worth an additional \$7,463 for Utah residents and \$18,125 for non-residents annually)

We seek a MS student to join the Alston and Bentz Labs and contribute to a project investigating balsam woolly adelgid (BWA), *Adelges piceae* (Ratzeburg) invasion and population spread. BWA is an invasive insect introduced from Europe to the west coast of NA in the early 1920s, threatening all true firs (*Abies*). BWA populations dispersed eastward and were found throughout the range of true firs in Idaho by 1999 and were first detected in 2017 in northern Utah true fir forests (*A. lasiocarpa* and *A. concolor*). Rapid southward movement of BWA has continued, and infestations were confirmed just south of Salt Lake City in 2018. BWA has also been recently found in Montana and Wyoming but has not been confirmed in Colorado, New Mexico or Arizona. Research will focus on development of a phenology model for BWA, based on field sampling, environmental factors that influence tree mortality rates, and predicting invasion spread and risk using climate projections. This position will provide opportunities to learn skills in field insect monitoring, phenology modeling, and risk prediction. Engagement in outreach education is expected.

The graduate position is based on the Utah State University (USU) campus in Logan, UT. Logan is located in a mountain valley about 1.5 hr drive north of Salt Lake City with abundant outdoor recreation opportunities. USU has approximately 25,000 undergraduate and 3,000 graduate students on its main and regional campuses. USU has a strong tradition of commitment to high quality education, research, and extension. Funding support includes a research assistantship (2 semesters and summer per year) for up to 3 years, with opportunities to gain teaching experience. Degree options in Insect Biology and Pest Management, and Ecology are available. Visit the Department of Biology website for more information for prospective students, and about our faculty, students, staff, and research resources (<http://www.biology.usu.edu/>). Information about the US Forest Service Rocky Mountain Research Station and Dr. Bentz can be found at <https://www.fs.fed.us/research/people/>.

Contact Diane Alston (diane.alston@usu.edu) or Barbara Bentz (barbara.bentz@usda.gov) for more information. Submit a cover letter with statement of interest, resume, unofficial copy of undergraduate transcripts, and names and contact information of three references to Diane and Barbara.

USU is an AA/EO employer. The institution recognizes and values the importance of diversity and inclusion in enriching the experience of its employees and students.