

Graduate Research Assistantships – Functions of Microbes in the Invasive Biology of the Emerald Ash Borer and Red Turpentine Beetle

University of Minnesota, St. Paul, MN. September 25, 2020

Two graduate research assistantships available at the Ph.D. level to investigate microbes associated with invasive beetles, the emerald ash borer (*Agrilus planipennis*) and the red turpentine beetle (*Dendroctonus valens*). This NSF funded project will focus on the taxonomic, functional, and genetic biodiversity of microbes associated with these insects and their role in the invasive process in the U.S. and China, respectively. The overall goals of the project are to understand how microbial communities and their functions may change during biological invasions to aid the invasiveness of wood-boring beetles. The project will characterize the microbiomes associated with these beetles using both culture-dependent and culture-independent approaches, investigate potential functions of microbial associates using laboratory, greenhouse, and field experiments, and characterize mechanisms of evolution within fungal genomes that contribute novel metabolic adaptations to their beetle hosts. One graduate assistantship will concentrate on microbes that may function in degrading lignocellulose, detoxifying plant defense compounds, or facilitating pathogenesis on trees, while the other position will investigate entomopathogenic fungi associated with beetle with potential to control beetle populations and the arsenals of secondary metabolites they produce that are toxic to insects. Students may apply for graduate programs through the Departments of Plant and Microbial Biology (<https://cbs.umn.edu/academics/departments/pmb>), Plant Pathology (<https://plpa.cfans.umn.edu/graduate-program/about-graduate-program>), or Ecology, Evolution, and Behavior (<https://cbs.umn.edu/academics/departments/eeb/graduate/about-program>) at the University of Minnesota.

The University of Minnesota is a diverse, interdisciplinary, and stimulating research environment that values and supports racial, ethnic, cultural, and gender diversity. The University is also home to a vibrant community of researchers with strong expertise in mycology, forest pathology, entomology, ecology, chemistry, and host-microbe interactions.

To apply: Questions regarding the position should be directed to Dr. Kathryn Bushley (kbushley@umn.edu) or Dr. Bob Blanchette (robertb@umn.edu). Informal inquiries are welcome. Please send an e-mail with your background and research interests and Resume or CV. To be considered for these positions, you must apply through the Graduate School (<http://www.grad.umn.edu/>). See the links above for general information on each graduate program and department, application procedures, funding opportunities, current students, faculty and their research interests, and life in the Twin Cities in Minnesota. The positions are available beginning in 2021.