Internship project at WSU Puyallup – Eradication of exotic pests and pathogens using steam

Project Description: The WSU Puyallup Ornamental Plant Pathology (PPO) program (https://ppo.puyallup.wsu.edu) is offering an undergraduate student internship in 2021. Students interested in obtaining hands-on experience in plant pathology research and extension are particularly encouraged to apply. The goal of the internship is to expose the student to applied research and help the student gain an understanding of the options for pursuing careers in plant and environmental sciences, including the possibility of graduate studies.

Internship projects include

- Steam treatment methods for large areas
- Eradication of the vineyard snail (*Cernuella virgata)* at the Port of Tacoma
- Decontamination of pond sediment containing *Phytophthora ramorum* at a botanical garden
- Further development of techniques for treating soil at contaminated restoration sites
- Post-steaming soil remediation with biocontrol fungi

Specifically, the intern will work on projects related to using low pressure steam for the management of *Phytophthora* and other diseases and pests, such as the vineyard snail, in soil. Examples of data collected during projects include temperature monitoring, soil moisture content, snail mortality, and molecular detection of *P. ramorum*.

Student Learning Outcomes: This internship will expose the student to research on management of the invasive snail, *Cernuella virgata*, and *Phytophthora ramorum*, an invasive plant pathogen. Both of these organisms are of regulatory and economic significance to Washington State. The vineyard snail must be eradicated from the Port of Tacoma to prevent its movement into wheat production areas in WA. Because the *C. virgata* infestation is in a seasonal wetland area, treatment with poison bait is not permitted. Methods for treating soil at restoration sites with steam are being developed to provide a non-chemical alternative for preventing the movement of *Phytophthora* and other soilborne pests/pathogens from contaminated planted nursery stock into the ecosystem being restored.

The student will assist WSU staff in setting up steaming plots, placing temperature sensors and dataloggers, collecting and processing soil moisture samples, operating the steam generator, and other activities. The student will interact with government agencies such as WSDA, USDA-APHIS, and the Port of Tacoma while working on this project. The intern will be assisting with research that will be used to

help government agencies make decisions about regulations involving *P. ramorum* and other invasive species. If covid-19 restrictions permit, the student will also have opportunities to meet other researchers at WSU Puyallup and learn about some of the other programs.

Requirements: This internship will involve some heavier labor in the field such as handling steam hoses, tarps, and sandbags, must be able to lift at least 50 pounds. In addition, driving vehicles to steaming sites. WA drivers license and proof of insurance are required. Must be at least 18 years old and have more than 2 years driving experience.

Duration: The timeframe for the internship will be during spring-fall 2021. These dates can be adjusted according to the intern's schedule or travel plans. Specific details concerning pay rate, start date, daily work hours, etc. will be determined by the mentor and intern.

Application process: Send resume and information on your availability to:

Dr. Marianne Elliott, WSU Puyallup Plant Pathology, 2606 West Pioneer, Puyallup, WA, USA, 98371-4998; 253-445-4596 (o); 206-992-5474 (m); melliott2@wsu.edu

More about the Ornamental Plant Pathology program and our many other projects here:

https://ppo.puyallup.wsu.edu/