Graduate Position (MS) in Dryland Ecological Modeling

The Palmquist Lab at Marshall University is recruiting for a funded MS position at Marshall University in quantitative dryland plant ecology. Our research focuses on quantifying vegetation dynamics over space and time and identifying how the relative importance of ecological processes structuring plant communities changes with spatial and temporal scale. In addition, a key goal of our research is to understand how pattern and process in plant communities will be altered in the face of global environmental change. An important motivation for our work is to address ecological questions at large spatial scales to inform landscape conservation. We collect field data, use existing large observational data sets, and implement simulation modeling to address these goals in temperate shrublands, woodlands, and forests. Additional information about the lab can be found at http://www.kylepalmquist.org/.

RESEARCH FOCUS: The successful candidate will broadly explore the interacting effects of climate change and increases in wildfire frequency on big sagebrush plant communities throughout their spatial extent in the western US. These water-limited ecosystems are undergoing rapid environmental change and represent some of the most threatened systems in North America. This project will utilize an individual-based plant simulation model, coupled to a process-based soil water model, to understand the impacts of climate change on dryland ecohydrology and plant community composition in the future. In particular, we are interested in assessing the future spread of cheatgrass (Bromus tectorum), an invasive annual grass, into currently unaffected areas, to identify areas that will become vulnerable to cheatgrass invasion and areas that will remain resistant. I encourage students to identify their own research questions and topics of particular interest within this broad umbrella and I will work closely with them to design an interesting and fulfilling research project.

PREFERRED QUALIFICATIONS: A background, including relevant coursework, in ecology and statistics, an interest in studying ecosystems of the western US, strong communication and written skills, and quantitative skills or an interest in learning them. Experience in ecological modeling and computer programming is highly desirable, but not required.

EXPECTATIONS: The successful candidate will be expected to conduct high-quality research, serve as a teaching assistant within the Department of Biological Sciences, present their research to the scientific community at regional and national meetings, and publish in peer-reviewed scientific journals.

TIMELINE: The position is available starting January 2019. Ideally, students would join us at the start of the spring 2019 semester or at the latest by June 2019, to begin learning about the ecological simulation models this project would utilize before starting classes in August.

FUNDING: Funding will consist of a combination of research and teaching assistantships for two years. A 12-month competitive stipend ($17,000), full tuition waiver, and health insurance will be provided.

HOW TO APPLY: Interested students should apply by submitting the following to Dr. Kyle Palmquist (kyleannpalmquist@gmail.com): 1) Short statement of research interests and career goals (no longer than 1 page), 2) CV or resume, 3) Unofficial transcripts, 4) GRE scores, and 5) Contact information for three professional references.

Review of applications will begin immediately and continue until a candidate is selected. I will contact you to discuss your research interests and goals for graduate school to determine if you would be a
good fit for the lab. If selected, a full application must be submitted to the Department of Biological Sciences at Marshall University, Huntington, WV. More information about the Department and its programs can be found here: https://www.marshall.edu/biology/. Application requirements for admission to the DBS graduate program can be found here: https://www.marshall.edu/biology/admission/.

Marshall University is in a fantastic, affordable college town, located on the Ohio River in the beautiful state of West Virginia. The town is small enough to get around on foot and bike, but large enough to support a variety of restaurants and other cultural activities. Huntington and the surrounding area offer ample recreational opportunities (hiking, skiing, rafting), along with proximity to larger cities, including Louisville, KY, Cincinnati, OH, and Columbus, OH. The Department of Biological Sciences contains expertise in a variety of biological fields, including but not limited to ecology, evolution, herpetology, and physiology. In the Palmquist Lab, we highly value and encourage work-life balance.

I strongly encourage students from diverse backgrounds and experiences to apply. Feel free to contact me with questions at any time!