**Restoring prairie ecosystems: Whether weather matters**

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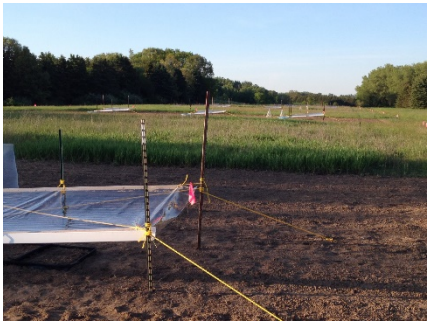

**Research overview.** Ecological restoration is the practice of re-creating natural communities in places where they have been lost. For tallgrass prairies, restoration is done by clearing the current landscape (usually an unused agricultural field) and sowing seeds of the native prairie plants. However, environmental conditions are never exactly the same from one year to the next. Because different plant species have different requirements for germination, survival, and growth, these temporal variations (changes through time) will have a great influence on which plants establish first at a restoration site. This can have long-term impacts on the community, sometimes even dictating whether the restoration succeeds or not. My research focuses on how different environmental conditions will influence the establishment of a prairie restoration. Which conditions (e.g. rainfall, temperatures, or seed eaters) are most important? How and why are the plants affected? What is the impact of invasive species? And finally, is there any signature of these effects in restored prairies that were established decades ago?

**Summer plans.** In summer 2016, the URA and I will be maintaining a field experiment testing whether precipitation in the first year of a prairie restoration impacts the establishment of the community. In 2014, 2015, and now 2016, we will compare the plant community that germinates and establishes under four watering treatments (drought, average, wet, or ambient). By comparing this data across years, we will be able to determine whether the community is more affected by rainfall—the leading hypothesis—or other conditions that vary from year to year. Additional experiments and analyses will explore what other conditions might be important for these plants— such as herbivores, temperature, seed eaters, and invasive species.

Schedules permitting, we will also travel to restored prairies across the Midwest (Illinois, Indiana, and Michigan) to survey the plant communities at sites that were restored in different years in the past. This data will be compared with historical weather information collected in the year each prairie was originally restored. Opportunities for travel will likely be June 27-July 15, therefore, if interested, the student should consider enrolling only in a first-session course and/or remaining available for travel during the session break (both optional).

**Position details.** This URA position is from May **16**-Aug 5 (12 weeks—starts 1 week earlier than usual KBS URA start) at MSU's Kellogg Biological Station. The student well help set-up and maintain this summer's experiment (e.g. watering plots) and participate in Gross lab meetings and other KBS activities. The student will also have the option to develop an independent research project to help further explore additional aspects of this project, including, but not limited to: seed germination, seedling survival, sown species, non-sown species, plant communities, seed predation, or herbivory. Students applying for this position should enjoy spending full summer days outdoors and have an enthusiasm for exploring the world of research (no preliminary plant knowledge is required)—attitude is everything. Please email Anna (grovesa2@msu.edu) with any questions.