

# 2015 Landis Lab Undergraduate Positions Available



The Landscape Ecology and Biological Control Lab is seeking applicants for several campus-based and one KBS-based full-time summer research assistant positions. Hours will be long during peak season. Applicants must be prepared to work outdoors, in all weather conditions, with team members or alone, must have a valid driver's license and be willing to drive 1-3 hours to field sites in university vehicles. These jobs are not likely to be compatible with taking summer classes. Wages are based on experience but start at **\$10/hr.** Full time (May-August, possible part-time during the school year) with multiple year commitment encouraged, but not required. Students with coursework, experience or career plans in ecology, agroecology, zoology, wildlife, entomology or plant sciences and insect or plant identification skills are preferred.

## **Impacts of Bioenergy Crops on Beneficial Insects**

As part of the Great Lakes Bioenergy Research Center, we are investigating the potential impacts of bioenergy crops on insect biodiversity and their biocontrol services. Ants are ubiquitous components of terrestrial ecosystem and often considered ecosystem engineers. Experiments will explore the role of ants as consumers and engineers in grassland ecosystems. Successful applicants will work as part of a team to prepare lab experiments and travel to sites across Lower Michigan to establish field experiments, collect insects, and monitor beneficial/pest insect populations. *Note: During peak season, schedule flexibility is necessary as sampling may require 8+ hours/day a couple times a month.*

## **Impact of Switchgrass Cultivar and Cropping System on Herbivore and Natural Enemy Communities**

This project aims to investigate how the potential bioenergy crop switchgrass could be best implemented to increase insect biodiversity and biocontrol services. Part of this project will take place in the field, sampling insects and assessing biocontrol levels, while the other portion will take place in the lab conducting bioassays. These bioassays will use caterpillars to test their feeding preference on different varieties of switchgrass. Successful applicants will help prepare and conduct experiments in the lab, as well as do field work at sites across Mid-Michigan.

## **Native Plants to Enhance Beneficial Insects**

Most beneficial insects (predators, parasitoids, pollinators) require regular access to pollen and nectar to enhance longevity, reproduction, and fuel their pest control/pollination activities. However, agricultural landscapes in many parts of the North-Central Region no longer contain a reliable diversity of floral resources. Our project targets research to identify insectary plants that thrive on coarse-textured soils. After pollination, many beekeepers move hives to bee yards near stands of spotted knapweed, an invasive plant. Although beekeepers like knapweed because of its high nectar quantity, natural areas land managers actively control it, setting up a potential conflict between agricultural and environmental interests. Our research and education project seeks a win-win situation where native insectary plants supplement spotted knapweed, addressing agriculture's need for pollinator- and natural enemy-supportive farm landscapes while contributing to native habitat restoration.

## **Fear as a Pest Control Tactic (at MSU Kellogg Biological Station)**

Recent studies have shown that insect herbivores exhibit fear-based responses to predators. In the presence of predators, herbivores frequently drop from plants, consume less or lower quality food, and have elevated stress responses that have negative consequences on herbivores at the individual and population level. We will investigate these non-consumptive effects as possible pest management practices using the cabbage white butterfly (*Pieris rapae*). Successful candidates would live in the area for the summer and would work very independently setting up experiments and monitoring the behavior of these insects.

**To apply please e-mail current resume and 2 references to Julia Perrone at [perrone5@msu.edu](mailto:perrone5@msu.edu)**