

How does habitat context influence monarch butterfly ovipositioning and egg and larva survival?

Mentor: Andrew Myers (PhD student)

URA Project Description

The monarch butterfly is perhaps the most recognizable and iconic insect species in North America. However, populations of monarchs have declined dramatically during the past two decades. Monarchs depend on milkweed host plants in the northern United States and Canada to build up their numbers during the summer breeding season. One hypothesis for their population declines is the elimination of milkweed from millions of agricultural lands in the Midwest through the adoption of herbicide-resistant corn and soybean starting the late 1990s. To compensate for the losses of milkweed in crops, conservation habitats for monarchs must be highly productive. During the summer of 2016 we investigated factors influencing the productivity of monarch breeding habitat by monitoring ovipositioning rates and survival of eggs and larvae on milkweed grown in experimental plots of crop (corn and soy) and non-crop habitats (fallow, turf grass, and prairie). We found that monarchs laid the most eggs on milkweed growing in corn and experience the greatest predation pressure on milkweed growing in prairie plots.

During the upcoming 2017 field season we will repeat these experiments along with several other studies to illuminate the mechanisms for the patterns we have observed. These projects include feeding trials and camera monitoring to determine important predators of monarch eggs and further experiments to determine mechanisms involved monarch egg laying site selection. The student will be expected to work on one of these side projects for approximately 20 hours per week at KBS from May 21–August 5, 2017.

Depending on the specific project, the student may be required to work at irregular times and at night or for long hours watching plants. Although the mentor's lab (the Landis Lab) group is not based at KBS, the mentor (Andrew) will be available regularly at KBS for support and will make a special effort to involve the mentee in the research activities and community at KBS. There will be many opportunities to explore other research questions of interest and help in publishing/presenting the results after the field season.