Moth Community Composition in Urbanized Landscapes

MS Entomology Research Project at University of Delaware

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**Summary:** I am a graduate student at the University of Delaware pursuing a masters in entomology, and I am beginning my research project this summer studying the moth populations of developed landscapes. Study sites have not been finalized but will be situated in cities in eastern Massachusetts and Rhode Island and will include suburban, rural, and forested areas. To sample for moths in developed areas, I will need landowner permission to deploy bucket traps, which I will set out in the evening and collect early the following morning every few weeks in each location.

**Study Concept:** Understanding the ability of small remnant and restored habitats to contribute energy in the form of moths and their caterpillar larvae to local food webs will help inform conservation decisions, especially in developed regions where remaining habitats are often small and highly fragmented. The ability of developed landscapes, where habitats are highly fragmented, to support populations of moths is unknown. Moths face many challenges in urban areas aside from fewer food resources, including light pollution, insecticide use, and physical hazards such as cars. It is commonly thought among ecologists that such landscapes support mainly moths that can feed as caterpillars on numerous plant species rather than the many species that will feed only on specific plants. My research intends to test this assumption, addressing in particular whether food generalist species are more abundant than specialist species in urban areas.

**Specifics:** Moth collection is highly dependent on weather: windy, rainy, and cold nights are not suitable for my study. I therefore cannot commit well in advance to a specific schedule of trapping nights, but I plan to visit each location every few weeks. I will run traps in several sets of locations; each set will be in a single city and will include sites ranging from urbanized to forested. For the data gathered to be statistically valuable, I will have to sample all the sites in each set on the same nights. This all means that if you volunteer to let me conduct my study on your property, I will have to be able to set a trap in your yard on any given night over the summer on fairly short notice. I will plan trapping nights three to five days in advance based on the weather forecast. I plan to trap June through August, four or five nights total in each location, and will provide an approximate schedule in May, before my survey season begins. I will not require any assistance with surveying except access to yards and ideally also a power source. (The batteries required for light trapping are expensive, and I will likely be limited in the number I can buy.)

**Liability:** I take full responsibility in the highly unlikely event that I injure myself or damage your property in the course of conducting this survey.

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Thank you for considering participating in this project. If you would like, I can send you a list of the species I document on your property once I have finalized the data in the winter following surveying.

