**Meadowlands Terrestrial Invertebrate Pilot Research Proposal**

Meadowlands Research & Restoration Institute

Prepared by: Jake Hessels

**Introduction**

The New Jersey Meadowlands are encompassed by a plethora of different habitats such as wetlands, saltwater marshes, upland grasslands, and urban areas. This project aims to assess the microhabitats of these habitats within the Meadowlands for terrestrial invertebrate species that inhabit them. Some of these terrestrial invertebrates play particularly important roles within the ecosystems they inhabit. Without them, some species of birds would not migrate to the area, certain flowering plants would not be pollinated, and there would be a lack of decomposition within the environment (Kiviat 2022). It is important to know what species are inhabiting what areas and what they are doing within those areas.

Within this study, we will look at the visitation of individuals to flowering plants within Dekorte Park and the surrounding area. Looking at visitation to flowering plants such as *Monarda didyma*, *Trifolium repens*, and many other species of native and non-native flowering plants within the area. The intended purpose of this study is to observe individual visitation within different plant species of pollinating and non-pollinating species of terrestrial invertebrates. Additionally, this study will assess microhabitats such as *Phragmites* clusters, burrows, and under rocks (Kiviat 2013). This will broaden the range of insects, giving a greater understanding of the species found within the Meadowlands district.

Overall, this study aims to assess a heavily understudied taxonomic group within the New Jersey Meadowlands by (1) identifying local terrestrial invertebrates and the microhabitats they occupy, and (2) laying the groundwork for potential future research on local terrestrial invertebrates. Filling this gap in our knowledge of Meadowlands wildlife may prove invaluable in making the best possible land use, management, and restoration decisions.

**Methods**

The protocols for the study will be on a case-by-case basis but will follow some rules. Firstly, a sweep will be done of the area around the habitat to look at the species of plants within those habitats and to find any microhabitats. A microhabitat consists of a cluster of flowers, plants, burrow, or rock within a 4-foot radius from a point. Individual areas within the microhabitat will then be identified, observed, or captured within a 10-minute interval. This has been an effective protocol for prior insect studies done.

The observational portion of the study will have two parts. The first part of observational identification is the physical identification of terrestrial invertebrates. This will be assisted with field guides, Discover Life dichotomous keys, and literature found on terrestrial invertebrates within the area (Pickering 2018, Evans 2007). This will only be done down to the order or genus of an individual and will be less accurate for the species identification of most insects. The second part of the observational study will be photo identification for accurate identification of individual insects. This would involve the use of a camera to capture individual pictures of specimens for identification and presentation purposes.

If possible, it would also be good to collect samples as well from microhabitats using a sweep net for accurate identification and presentation of results. This would require a sweep net, jars, ethyl-acetate, pins, and paper. The specimens would be captured using swift swipes through randomly selected microhabitats and put into jars with ethyl-acetate to preserve the specimen (Grootaert *et al.* 2010). Then pinned for proper observation under a stereoscopic microscope for species-level identification.

**References**

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