INTEGRATED MONARCH MONITORING PROGRAM

Monitoring monarch butterflies and evaluating habitats to inform conservation efforts

Overview

The Integrated Monarch Monitoring Program (IMMP) is a national initiative to track North American monarchs and their habitats to inform conservation efforts. To gather information on the vast scale used by this migratory species, this monitoring effort engages a broad network of community scientists, biological researchers, resource managers, and landowners. Participants collect data that build a national dataset available for local, regional, or national analyses. Conservation organizations can engage now to develop datasets that will benefit their own monitoring efforts as well as nationwide monarch conservation.

Benefits and Uses of IMMP Data

IMMP data build knowledge of monarchs, pollinator habitat, and efficacy of conservation work.

- Understand the baseline status of pollinator habitat
  - Identify the abundance, richness, and seasonality of flowering plants
  - Document the density and diversity of milkweeds
- Evaluate how monarch life stages interact with habitat characteristics
- Quantify the impact of conservation sites by assessing differences in habitat quality on conservation sites vs. randomly-selected "status quo" sites
- Assess the effectiveness of conservation actions by tracking changes in key habitat characteristics
- Contribute to national goals of updating and refining population models, and build the capacity to track local or regional trends in monarch populations

Monitoring Sites

The IMMP accommodates data from almost any location. There are two main ways in which the program identifies sites for monitoring:

Figure 1. Randomly-selected IMMP priority sampling locations.

1) Random: Randomly-selected sites are spatially balanced across several land use types to gather representative data about habitat availability and monarch use.

2) Non-Random: Non-random sites may be monitored and are selected by the participant. Often times, these are conservation sites of interest to land managers.

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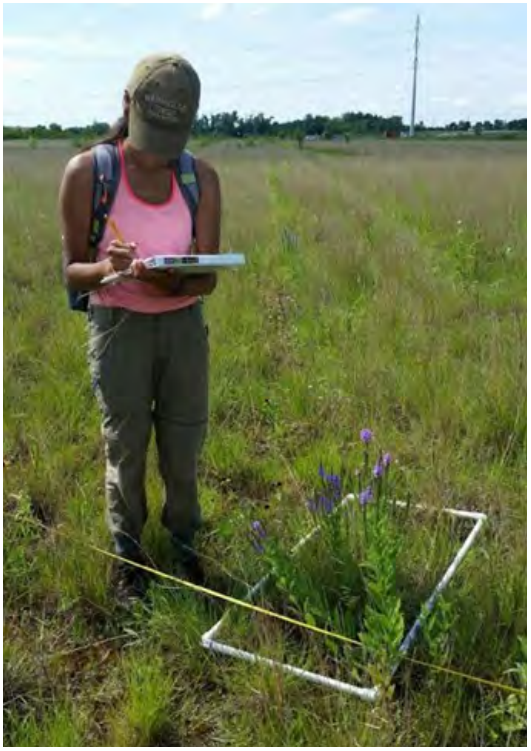
Field Activities

Field activities are conducted in a 1-hectare monitoring plot. Participants may choose one or more activities according to their interests or information needs. Data are collected on paper and then entered into the web-based IMMP Data Portal.



Select any of the activities listed here; no need to conduct them all. Frequencies are recommendations, not requirements.

Site Description

- 5-15 min, each visit
- Record site characteristics and plot information while walking through plot

Milkweed & Blooming Plant Survey

- 1-3 hrs, monthly
- Collect data in 100 quadrats placed along transects to count milkweed and identify blooming nectar plants in order to describe milkweed density, nectar plant frequency, and species diversity

Monarch Egg & Larva Survey

- 1 hr, weekly
- Examine milkweed plants for monarch eggs and caterpillars to measure density of immature monarchs on milkweed stems and species

Adult Monarch Survey

- 30 min, bi-weekly
- Walk a 500-meter route to measure adult abundance while recording adult locations, behaviors, and nectar species use

Monarch Parasitism and Survival

- 15 min, daily
- Rear monarch caterpillar(s) to estimate survival and parasitism rates

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For online training videos, protocol access, and more information visit: *monarchjointventure.org/IMMP*

Questions? *Email monitoring@monarchjointventure.org*