# Monarch CCAA Monitoring Plan TEMPLATE

This document provides a template monitoring plan for the Pollinator Scorecard. A monitoring plan is *not required*, however, some organizations may find a plan is helpful for many reasons: maintaining consistency from surveyor to surveyor (year to year), providing specifications needed for contracting, or to document organization-specific procedures for quality control purposes.

This template is provided as an example resource; we encourage you to build upon this example for your own purposes. Please refer to Section 14.2 in the CCAA and the June 2021 Monitoring Addendum, and the Planning for Monitoring Guidance 2021 Edition for assistance completing this template.

## Organization & Author Information

|  |  |
| --- | --- |
| **Organization Name** |  |
| **Author** |  |
| **Date** |  |

## Monitoring Goals

The purpose of monitoring is to demonstrate the biological effectiveness of conservation measures on adopted acres and contribute to program-level monitoring as described in the Monarch Butterfly CCAA section 14.2.1. Monitoring is also intended to detect changes in milkweed stem densities on adopted acres to inform adaptive management, if needed.

Monitoring goals should be clearly identified and communicated to all team members prior to conducting monitoring. The monitoring goals as outlined in the CCAA are to:

1. Conduct monitoring in accordance with monitoring requirements outlined in Section 14.2 of the CCAA,
2. Verify that adopted acres are providing monarch habitat (milkweed and/or nectar plants), and
3. Inform adaptive management, when required.

If there are additional monitoring goals for your organization, provide a description of the monitoring goals to share with team members.

## Management Overview

Provide a brief description of the management plan for areas to be monitored. This will help inform the monitoring objectives and management response sections of this plan.

## Management & Sampling Objectives

Provide one or more pairs of management and sampling objectives (insert rows in the table below to add more). Management objectives describe the desired state of the habitat; sampling objectives describe the level of precision required to detect progress towards or achievement of each management objective.

|  |  |  |
| --- | --- | --- |
| **1** | **Management Objective** | Maintain greater than 6 milkweed stems on managed lands from 2020 through 2050 |
| **Sampling Objective** | Obtain estimates of milkweed stem abundance with 90% confidence intervals no wider than +/-2 milkweed stems per plot |

## Sampling Design

A sampling design describes the who, what, when, where, and how of collecting monitoring data.

Use the table below to summarize the sampling design elements of this plan. Subsequent sections of this monitoring plan allow for further documentation of your organization’s approach to monitoring.

| **Sampling Design Element** | **Instructions** | **Description** |
| --- | --- | --- |
| Area of Interest | Describe the geographic extent of the area that will be characterized with monitoring data. |  |
| Data Collection Protocol | Describe any supplemental considerations in addition to the CCAA monitoring protocol and June 2021 addendum. |  |
| Number of plots collected | Indicate the number of plots to be collected. See Table 14-4 in the CCAA for assistance. |  |
| Plot location strategy | Describe how plots will be located within the area of interest. |  |
| Data collection platform | Method(s) used by your organization to collect and compile sampling data. Could include ROWHWG pollinator habitat scorecards, internal GIS, or paper hard copies of forms. |  |
| Survey timing | Sampling can be conducted any time during the growing season, but is ideally carried out during peak bloom |  |
| Survey frequency | Describe how often areas will be resampled (or if using permanent plots how often to revisit plots). |  |
| Random plot selection method(s) | If plots will be established while in the field, indicate how plots will be located to reduce bias. |  |
| Data Collectors | List or describe who will collect data. |  |
| Data management and reporting | Describe how data will be managed and how results will be reported. |  |

## Area of Interest

Describe the geographic extent of the area that will be characterized with monitoring data. *Attach a map as Appendix A (optional)*.

## Sampling Protocol

The survey protocol developed for the CCAA are described in Section 14.2.2 in the CCAA. An excerpt of this protocol is provided via the [Monarch CCAA Toolkit](http://rightofway.erc.uic.edu/wp-content/uploads/2020/01/Sampling-Protocols-20200120.pdf).

Describe any deviations in monitoring protocol (if different than that described in [User Guide](http://rightofway.erc.uic.edu/wp-content/uploads/Pollinator-Scorecard-Users-Guide-V2.1.pdf) of the ROWHWG Pollinator Habitat Scorecard) and select which Tier(s) of Scorecard to use. The table below describes the different Scorecard Tiers. Indicate whether to use paper forms, the Survey123 App, or an alternative form of data collection.

## Plot Locations

Sampling plots are to be randomly or systematic-randomly selected within adopted acres prior the time of the survey. Partners must established a method for selecting sample plots. Describe the selection process used here. Provide a map if possible.

## Timing & Frequency

Sampling can be conducted any time during the growing season but is ideally carried out during peak bloom, or when monarchs are present for CCAA Partners. Conduct monitoring when responses to vegetation management are most likely to be evident. Describe the timing expectations specific to your organization.

## Equipment

Identify required and/or optional equipment needed by the survey technicians to successfully and safely complete field surveys. Common equipment used may include:

| **Equipment** | **Required?** | **Use** |
| --- | --- | --- |
| PPE (personal protective equipment) | Yes | Bring high-visibility vest, hat, water, sunscreen, bug spray |
| GPS unit with backup paper map and printed list of coordinates including spatial projection used | Yes | Plot locations are uploaded to a GPS unit; paper maps can be used if GPS unit fails. |
| Clipboard/pens or tablet/smartphone | Yes | Data may be collected via paper form or monitoring app |
| [ROWHWG Pollinator Scorecard](http://rightofway.erc.uic.edu/pollinator-habitat-scorecard/) | Yes | Tier 1 version; bring in case monitoring app fails |
| Survey123 App | Optional | Monitoring can be completed via the Rights-of-Way as Habitat Working Group [Geospatial Database](http://rightofway.erc.uic.edu/geospatial-database/) mobile app, if desired. |
| [Effectiveness Monitoring Template](http://rightofway.erc.uic.edu/wp-content/uploads/Effective_Monitoring_Tracking_Table_20200729-1.xlsx) | Yes | Data tracking spreadsheet with the reporting fields requested by the CCAA |
| Flagging, marker cones, or stakes | Optional | Mark transect boundaries |
| Camera | Optional | Photo document plot conditions |
| Sampling binder | Optional | Reference documentation such as safety forms, field protocol, and data sheets |

Describe or list your organizations required and optional equipment used to conduct field data collection:

| **Equipment** | **Required?** | **Use** |
| --- | --- | --- |
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## Monitoring Roles / Responsibilities

Provide the contact information for the organizational personnel assigned to the monitoring roles (see Planning for Monitoring Guidance for role responsibilities).

**Survey Manager Name:**

Address:

Phone Number:

E-mail:

**Survey Technician Name:**

Address:

Phone Number:

E-mail:

**Data Manager Name:**

Address:

Phone Number:

E-mail:

Describe any additional roles or responsibilities here:

## Training

Training is recommended for staff conducting field surveys to orient staff to the sampling protocols, ensure consistent field sampling, and teach milkweed and nectar plant identification. We recommend personnel engaged in CCAA monitoring be trained at least once annually, and periodically throughout the season, on:

1. Your organization’s involvement in the Monarch CCAA, including the role of monitoring in maintaining compliance.
2. The identification of both native and non-native species, particularly invasive and noxious weeds and milkweed and nectar plant resources for pollinators.
3. Protocols and procedures expected of surveyors conducting field sampling. This may include any access communications, plus health and safety requirements.

## Data Management

Partners should develop a data management strategy to ensure that data collected in the field is properly stored for later use and review. This *may include:*

1. Once surveys are completed, verify sample plots are uploaded into the appropriate geospatial database.
2. Scan any hard copy completed data sheets and provide copies to the data manager.

Describe the data management protocols expected of your organization.

## Data Notification and Reporting

Describe the data reporting protocols expected of your organization.

# Appendix A: Map of Area of Interest

**(with plot locations, optional)**