

Final Report

The final report includes the following summaries:

| Factors that Endanger Monarchs | Egg | Caterpillar | Chrysalis | Butterfly |
|---|-----|-------------|-----------|-----------|
| Bird Predators | | √ | √ | √ |
| Cold Weather, Hail, Rain and Snowstorms | √ | √ | √ | √ |
| Collision with a Motor Vehicle | | | | √ |
| Herbicides | √ | √ | | √ |
| Insecticides | √ | √ | √ | √ |
| Bt corn pollen | | √ | | |
| Lack of Milkweed Plants | | √ | | √ |
| Lack of Wildflowers | | | | √ |
| Mouse Predators | | √ | √ | √ |
| Other Arthropods | √ | √ | | |
| Parasitoids, pathogens | √ | √ | √ | √ |
| Roadside Mowers | √ | √ | √ | √ |

| List of hypotheses that were investigated: | Accept based on monarch census data | Accept based on milkweed distribution data | Reject due to insufficient data | Reject because the data do not support it |
|--|-------------------------------------|--|---------------------------------|---|
| Has the monarch population at Miller's Pond declined? | √ | | | |
| Have the monarch populations at locations near Miller's Pond declined? | √ | | | |
| Was a decline in the monarch populations around Miller's Pond due to lower numbers at the overwintering sites? | | | | √ |
| Was a decline in the monarch populations in the Miller's Pond area due to adverse weather | | | | √ |

| | | | | |
|---|--|---|---|---|
| conditions this year? | | | | |
| Did monarchs have a higher rate of infections, predation, and parasitoids around Miller's Pond this year? | | | | √ |
| Did Bt pollen have an adverse effect on monarch caterpillars around Miller's Pond this year? | | | √ | |
| Did herbicide use reduce the number of milkweeds within the crop fields around Miller's Pond? | | √ | | |

| Conclusions: | Yes | No |
|--|-----|----|
| All of the above factors have an impact on Monarch butterfly populations at different times of the year and in different locations. | √ | |
| In this study at Miller's Pond the most important impact appears to be from the use of herbicides in nearby crop fields. | √ | |
| Recommendations: | | |
| Encourage creation of habitats that will benefit monarch butterflies as well as many other wildlife and plant species. | √ | |
| Remove <i>Asclepias syrica</i> infestations from roadsides and abandoned fields by mowing. | | √ |
| Protect milkweeds and nectar sources in agricultural areas throughout the breeding range of the Monarch butterfly in the United States and Canada. | √ | |
| Reduce herbicide spraying and mowing of roadsides and agricultural edges. | √ | |
| Enforce laws against illegal logging in the monarch butterfly overwintering areas in Mexico. | √ | |
| Breed Monarch larvae that can feed on corn plants. | | √ |