Sullivant's Milkweed Restoration for the Michigan Department of Transportation: I-75 La Plaisance Interchange, Monroe County, Michigan

Prepared By:
Amanda K. Klain and Phyllis J. Higman
Michigan Natural Features Inventory
Michigan State University Extension
P.O. Box 13036
Lansing, MI 48901-3036

Prepared For:
The Michigan Department of Transportation

12/04/2020

MNFI Report No. 2020-22

Michigan Natural Features Inventory
Discover. Define. Deliver.

MICHIGAN STATE UNIVERSITY | Extension

Suggested Citation:

Klain, A.K. and P.J. Higman. 2020. Sullivant's Milkweed Restoration for the Michigan Department of Transportation: I-75 La Plaisance Interchange, Monroe County, Michigan. Michigan Natural Features Inventory, Report No. 2020-22, Lansing, MI.

Front Cover Photo: A successful Sullivant's milkweed transplanted in 2019 from the I-75 Reconstruction Corridor to the Morin Restoration Site in Monroe County, Michigan. Photo taken on June 30, 2020, by Amanda K. Klain.

Michigan Natural Features Inventory
Discover. Define. Deliver.

MICHIGAN STATE UNIVERSITY | Extension

Table of Contents

List of Figures

Appendices

Introduction

This report provides a summary of activities associated with the transplanting of state threatened Sullivant's milkweed (*Asclepias sullivantii*) to mitigate anticipated impacts of the Monroe County I-75 corridor reconstruction, which was extended to include the La Plaisance interchange in (Project 125868, Figure 1). Approximately 373 plants were previously documented in the La Plaisance extension, 75-100 of which were targeted for transplanting to a Lakeplain Prairie Restoration Site.

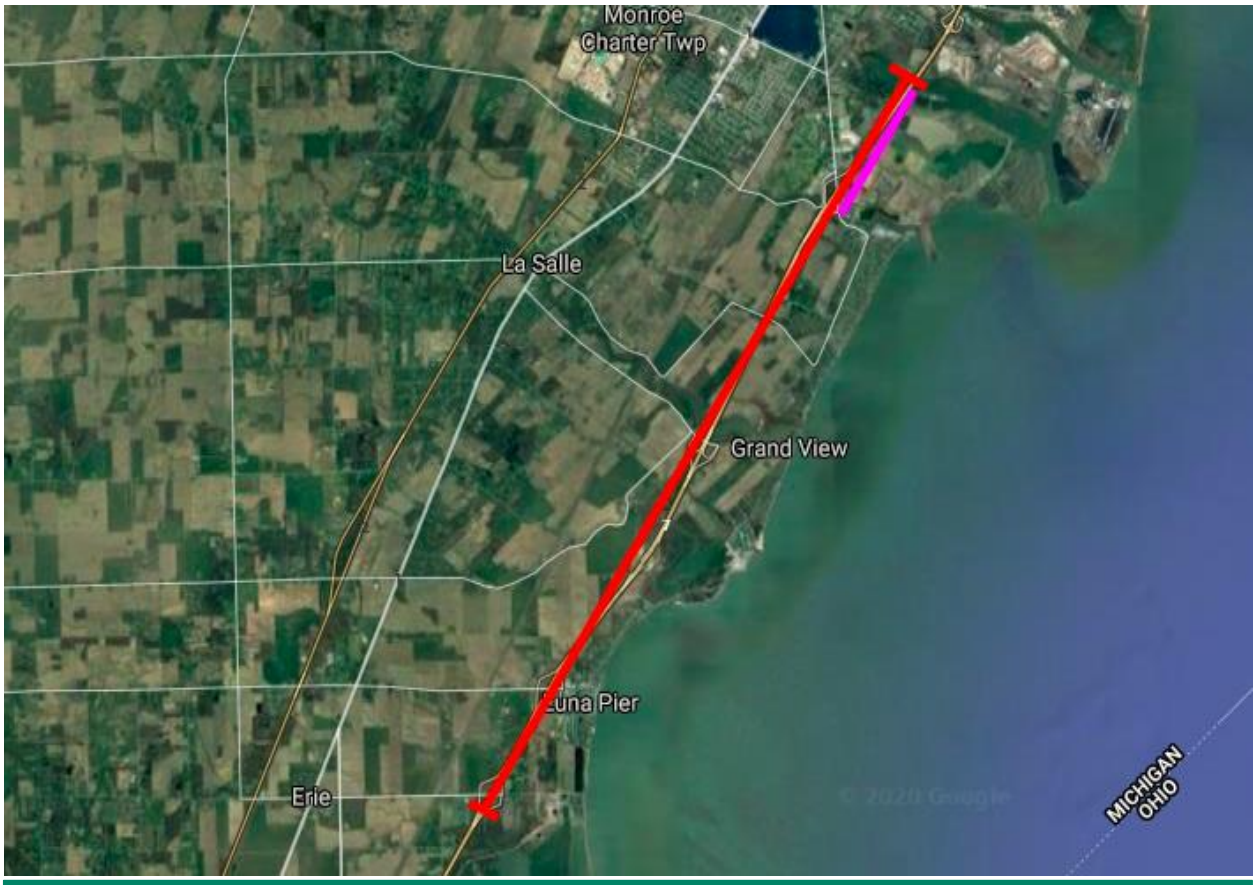

Figure 1. Monroe County I-75 corridor with the La Plaisance extension at the northeast end.

Methods

Michigan Natural Features Inventory (MNFI) worked with the Michigan Department of Natural Resources (MDNR) to initiate and secure a threatened and endangered species permit that is required prior to disturbance of state threatened Sullivant's milkweed.

Aerial photos of the survey area with previously mapped occurrences of Sullivant's milkweed were reviewed and uploaded to a Samsung tablet and accessed using Avenza maps. A preliminary field review of the project site was conducted in late June to become familiar with the extended project area, verify and assess the approximate number and locations of previously mapped and flagged Sullivant's milkweed plants for potential transplant, and to update the distribution of trailing wild bean in the project area for stockpiling. The primary goal was to identify the best locations of milkweed plants that could be targeted for transplant. Efforts were also made to identify and mark additional occurrences of the milkweed or trailing wild bean that were not previously observed, and any previously documented plants that were no longer there.

MNFI worked with MDOT and MDNR to determine the transplant location. The Morin Restoration Site that was used for transplanting Sullivant's milkweed in 2019, was chosen because of its easy access and suitability of habitat for the species. A field visit to the restoration site was conducted with MDOT staff in late June to check the status of the previous year's transplants and to assess the best location for planting the 75-100 incoming transplants from the La Plaisance exchange area.

A site visit was conducted in August to delineate and mark approximately 75-100 of the previously mapped 300+ plants re-located in the I-75 corridor in June. Individual plants were marked with pin flags. Plant phenology was also assessed to determine suitability for transplanting, which is best conducted in late summer and early fall when plants are dormant, and the rootstocks are well stocked with nutrients for winter survival. Based upon this assessment, transplanting was conducted on September 23, 2020.

Hand shovels were used to cut squarely downward into the soil horizon in a circle from 6" surrounding the base of the plant and pop the plant out with the goal of removing a 12 x 12 x 12-inch rhizomatic root ball with its surrounding soil. After digging, the plants were loaded into the bed of a truck and immediately transported to the transplant site where they were laid in a group, protected, and wrapped in a tarp, until all 75-100 had been removed from the I-75 corridor and secured at the restoration site. Holes were dug large enough to fit the entire root-ball and the plants were places in the holes. The root balls were then tamped down firmly by foot, watered heavily, and tamped down again to compact the soil around the roots.

Results and Discussion

During the initial field visit, none of the targeted and previously flagged 75-100 individuals of Sullivant's milkweed could be relocated. The area was severely degraded by invasive species and a previous surveyor noted similar findings. Eventually, 300+ previously mapped and easily accessible individuals were located in another portion of the ROW that was intended as a stockpiling area (Figure 2-4). Based on the project budget and amount of time required to

locate these other plants, the surveyor focused on finding accessible Sullivant's milkweed for transplant and was unable to fully delineate the trailing wild bean populations.

Figure 2. Monroe County I-75 corridor with Sullivant's milkweed flagged for transplanting.

Figure 3. Digging up Sullivant's milkweed along the I-75 corridor.

Figure 4. Healthy Sullivant's milkweed from the I-75 corridor, ready for transplanting.

The milkweed was transplanted to the upper terrace of the Morin Restoration site located at 8868 Bay Creek Rd. (Figure 5). In 2019, 154 Sullivant's milkweed individuals were transplanted to this same site (Klain & Higman 2019) and adding additional plants here will continue to expand the range of transplanted milkweed beyond Sterling State Park, where transplanting of milkweed occurred in previous years. The Moran site was also judged to have the best conditions for transplanting and the site was deeded over to the MDNR and has a conservation easement on it which will minimize the chances it will be mowed accidentally.

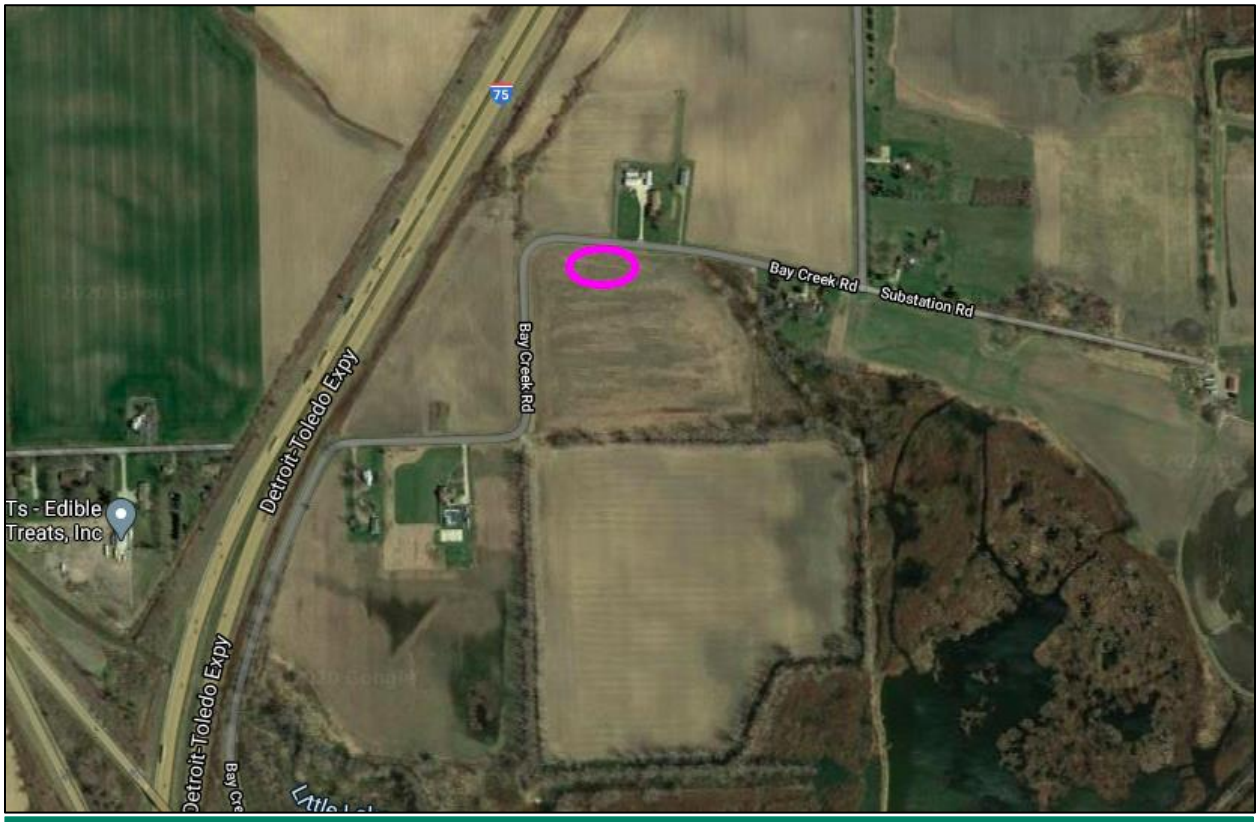

Figure 5. The Morin restoration site in Monroe County, with transplant area marked.

The permit was secured prior to the transplanting date of September 23 and a crew of two were assembled, including the MNFI survey lead and MNFI botanist. The crew worked together to dig up the first of two loads of plants and transport them to the restoration site. The transplants were secured in a shady nook, the roots watered, and covered with a tarp. The crew then returned to the I-75 corridor to dig the last half of the intended transplants and transport them to the restoration site. It was quite challenging to dig the plants up from the right-of-way due to the lack of recent rain and the heavy clay composition of the soil, however, the clay content also helped keep the root balls intact with the surrounding soil. Occasionally more than one milkweed individual was included in one root ball due to their close proximity. A total of 127 plants were dug up in the I-75 right-of-way and transported to the Restoration Site.

Once all the plants were transported and secured temporarily at the restoration site, the crew inspected the site to determine the best scheme for planting. The site was heterogeneous with varying water levels and amount of vegetation. The lower terrace was heavily vegetated and saturated at the time, the middle terrace was also heavily vegetated though drier, while the upper terrace had sparser vegetation but was very compacted and dry. Planting was conducted primarily in the upper terrace because there was less competition from other plant species.

The crew dug holes and planted the majority of plants in groups of five which made it easier to map discernable GPS points—only one point was taken for each group. These groups were spread across in the upper terrace of the restoration, individual plants were marked with pin flags, and a corresponding GPS point was taken for each group (Figures 6, 7). Occasionally, more than one plant was dug up in a single root ball, so some groups had more than five individual milkweed stems. One hundred and two stems were planted in groupings on the terrace. The remaining 25 individuals were planted in a single row on the northern edge of the site just a few feet over and down from the crest of the upper terrace (Figure 7). The soils here were very sandy in comparison to the main terraces and placing some plants here provides an opportunity to compare success rates in these sandy soils to those in the heavy clay soils of the terraces. Appendix 1 provides a summary of the GPS points and number of plants associated with each. The GPS shapefiles were delivered to MDOT along with this report.

Figure 6. Upper terrace where the majority of Sullivant's milkweed was transplanted.

Figure 7. Sullivant's milkweed planted in sandy soils.

Digging the holes for planting in the upper terrace was as difficult as digging them out of the I-75 right-of-way, due to the dry, compact, and heavy clay soils. In contrast, digging and planting in the sandy soils was exceedingly easy and quick. In spite of the difficult digging, with a crew of two, the entire operation was accomplished over a period of 11 hours. All plants were planted at the site within 3-4 hours of exposure and were protected in the interim. A total of 127 plants were moved from the I-75 corridor to the Morin Wetland Restoration Site using the same methods that were used here in 2019 and at Sterling State Park in 2018. Plants were mostly senesced with substantial, well-nourished roots, and high survival rates are anticipated. The plants are marked with pin flags and GPS points were taken for groupings of plants (Appendix 1) for future long-term monitoring by MDOT.

The transplants from 2019 were checked during the late June field review and there was an approximate 60% survival rate, which was as expected and congruent with previous MDOT Sullivant's transplant success rate data. The cover photo of this report, taken on June 30, 2020, shows a successful milkweed that was transplanted to the Morin Restoration Site in 2019. Figure 8 shows a diversity of native forbs in the upper terrace on August 18, 2020.

Figure 8. Upper terrace of the Morin Restoration Site showing a diversity of species.

References

Klain, A.K. and P.J. Higman. 2019. Sullivant's Milkweed Restoration for the Michigan Department of Transportation: I-75 between Erie and Otter Creek, Monroe County, Michigan Natural Features Inventory Report No. 2019-35. Lansing, MI.

Acknowledgements

We thank Dave Schuen for providing us the opportunity to do this work and for sharing his knowledge about transplanting Sullivant's milkweed. Thanks also to our administrative staff Brian Klatt, Nancy Toben, and Ashley Adkins for administrative assistance, and to Helen Enander for her essential expertise with Samsung tablets, GPS, and GIS data.

Appendix 1. Summary of GPS points for transplants.

The following table provides a summary of the GPS points taken for each transplant grouping at the Morin Restoration Site. The shapefile of these points was delivered to MDOT with this report

Waypoint Name	Number of Plants per Group	Latitude	Longitude
923AS1	5	41.77412	-83.45489
923AS2	5	41.77415	-83.47487
923AS3	5	41.77417	-83.47482
923AS4	5	41.77419	-83.47492
923AS5	5	41.77415	-83.47504
923AS6	6	41.77419	-83.47508
923AS7	5	41.77428	-83.47509
923AS8	5	41.7742	-83.47513
923AS9	5	41.77423	-83.47514
923AS10	6	41.77223	-83.47504
923AS11	7	41.77425	-83.47513
923AS12	5	41.77418	-83.47517
923AS13	6	41.77416	-83.47520
923AS14	5	4177412	-83.47529
923AS15	5	41.7742	-83.47523
923AS16	6	41.77422	-83.47516
923AS17	7	41.77417	-83.4751
923AS18	5	41.77405	-83.47517
923AS19	4	41.77401	-83.47509
923AS20*	25	41.77455	-83.47489
923AS21*		41.77432	-83.47478
Total:	**127**		

*start and end points of the row of Sullivant's milkweed individuals planted in sand at the northern edge of the Morin Site .