

Rare Plant Surveys for the Michigan Department of Transportation: Cheboygan/Gaylord/US-23 from Huron St. East to Mill Creek Discovery Park



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Cover: Typical road ditch and adjacent upland woodland habitat near east end of site looking back to west, Cheboygan County, Michigan. Photo by David L. Cuthrell.

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Introduction

This report provides a summary of rare plant surveys along portions of the US-23 right-of-way (ROW) from Huron St. East in Mackinaw City, southeast approximately 3.2 miles to Mill Creek Discovery Park (Figures 1 and 2). These surveys are required to ensure compliance related to MDOT Project # 208357.

Methods

A review of the Michigan Natural Heritage database was conducted to identify species listed as endangered, threatened or special concern with potential to occur in the survey area outlined in red in Figures 1 and 2. Five species were identified as potential targets, including two species that flower during early-season and three species that flower or fruit during late-season (Tables 1 and 2). Two species that are both federally and state threatened, two species that are state threatened and one state special concern species were identified as potential targets.

Table 1. Species targeted during early-season surveys.

Scientific Name	Common Name	Listing Status
<i>Iris lacustris</i>	dwarf lake iris	LT, T
<i>Cypripedium arietinum</i>	ram's head lady's slipper	SC

*LT, T: state and federally threatened; SC: state special concern

Table 2. Species targeted during late-season surveys.

Scientific Name	Common Name	Listing Status
<i>Eleocharis compressa</i>	Flattened spike-rush	T
<i>Cirsium pitcheri</i>	Pitcher's thistle	LT, T
<i>Tanacetum bipinnatum</i>	Lake Huron tansy	T

*LT: state threatened; T, T: state and federally threatened; SC: state special concern

Meander surveys were conducted throughout the entire survey area with a more focused effort in areas that supported likely habitat. Aerial photos of the survey area were reviewed to delineate stretches of the right-of-way that clearly lack suitable habitat, including commercial, residential, developed, mowed, or maintained areas. These areas were still walked but at a much faster pace and usually in a straight-lined approach.

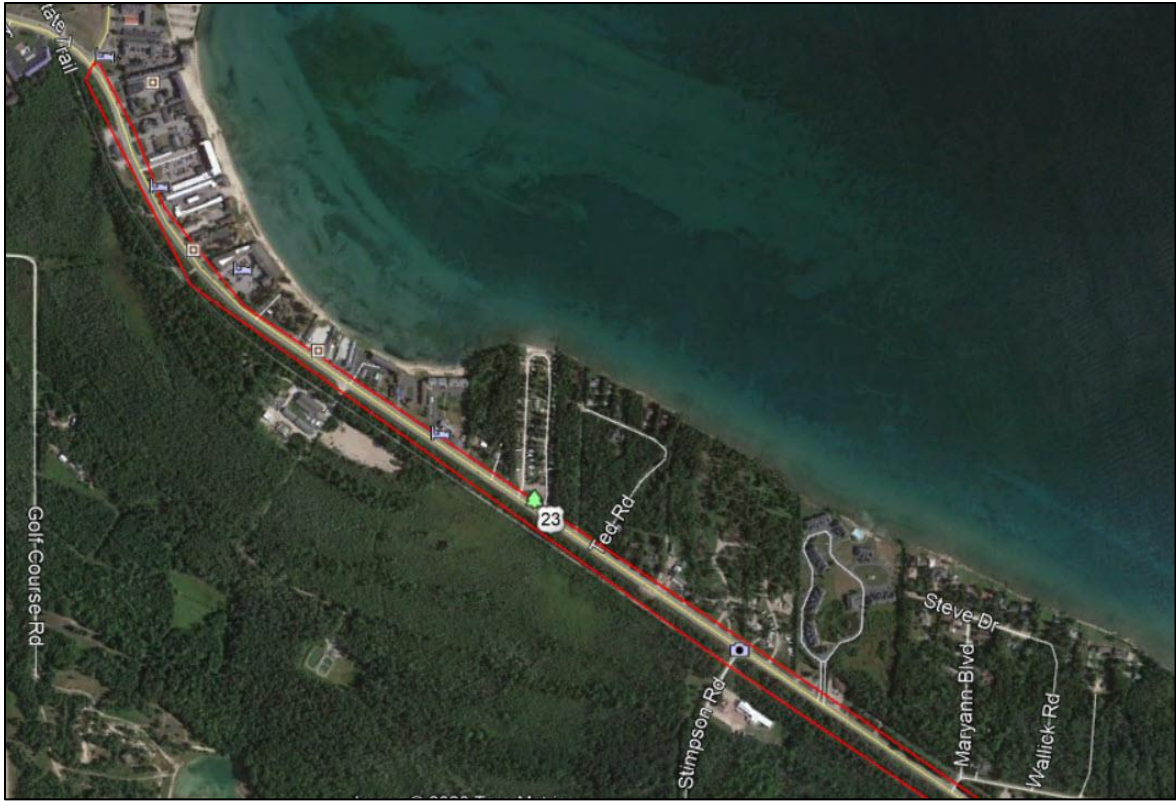


Figure 1. Northwest Survey Area at US-23 and East Huron Street to Stimpson Road.

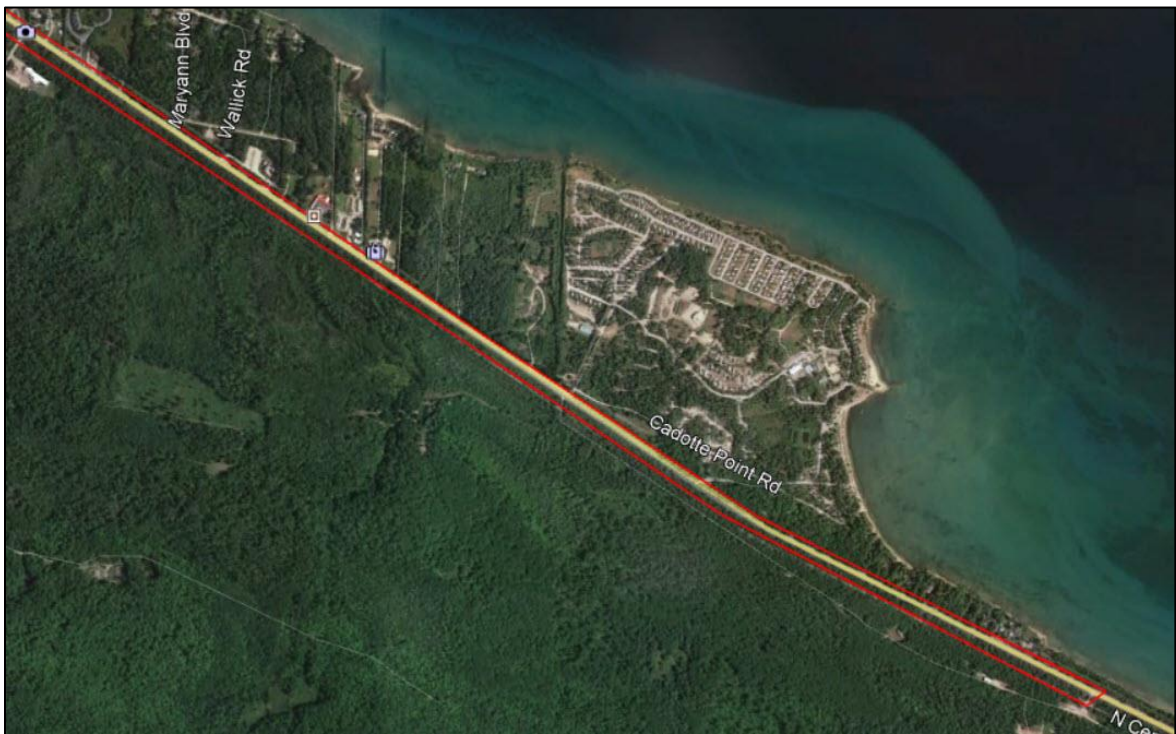


Figure 2. Southeast Survey Area at US-23 and Stimpson Road to Mill Creek Discovery Park.

Early-season surveys were conducted on May 26 and late season surveys were conducted on August 13. A Garmin-64 GPS unit was used to record points of any targeted or other listed species, and any other points of interest observed during surveys. General descriptions and dominant species for each segment of the survey area were recorded as notes in the application Survey123 was recorded on an iPhone. Pictures were also taken in Survey123.

Results

The survey area was generally composed of native species with a mix of weedy species and no state or federally listed species were observed. Several areas had one or more somewhat conservative native species; however, none of these are listed species and other more common and weedy species were interspersed and dominant.

One small occurrence of invasive phragmites (*Phragmites australis*) was observed with non-native cat-tails in a small wetland north of the road in the middle portion of the survey area (Figure 3). Invasive wild parsnip (*Pastinaca sativa*) was observed to occur sporadically in the wetland portions of the ditches throughout the entire survey area.

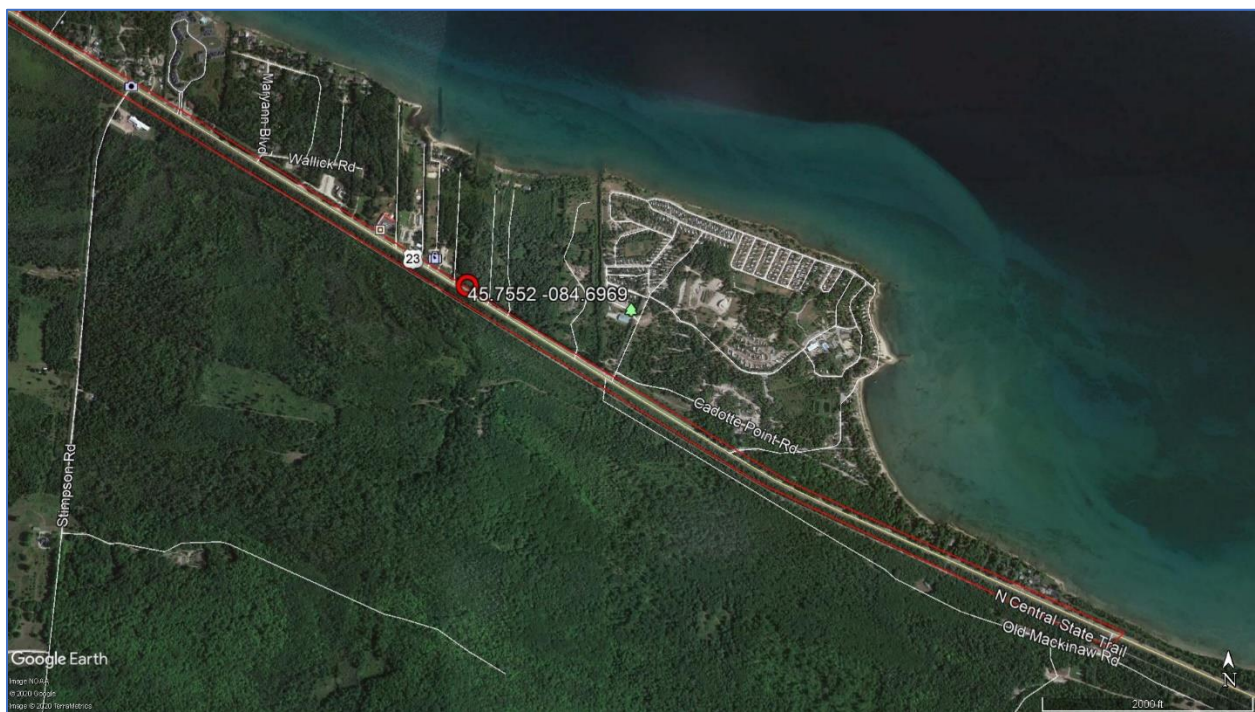


Figure 3. Southeast Survey Area showing the location of a small wetland with non-native, invasive phragmites and cat-tails.

Summary of Survey Area Segments

Segments of the survey area included the Northwest and Southeast sections shown in Figures 1 and 2 above. Brief descriptions of each are provided below.

Northwest Survey Area

US-23 and East Huron Street east to Stimpson Road

The east bound ditch and ROW overstory includes white pine (*Pinus strobus*), red pine (*Pinus resinosa*), tamarack (*Larix laricina*), white cedar (*Thuja occidentalis*), white spruce (*Picea glauca*), white oak (*Quercus alba*), quaking aspen (*Populus tremuloides*), paper birch (*Betula papyrifera*), red oak (*Quercus rubra*), balsam fir (*Abies balsamea*), sugar maple (*Acer saccharum*), red maple (*Acer rubrum*) and Ironwood (*Ostrya virginiana*) (Figures 4 and 5). Wetter pockets were dominated by tag alder (*Alnus incana*) and willows (*Salix* spp.) (Figure 6).



Figure 4. Eastbound US-23 with woodlands dominated by white pine, spruce, tamarack, and quaking aspen.



Figure 5. Westbound US-23 with overstory of white pine, tamarack, and spruce.

The shrub layer is a mix of native species including bearberry (*Arctostaphylos uva-ursi*), wintergreen (*Gaultheria procumbens*), bracken fern (*Pteridium aquilinum*), and creeping juniper (*Juniper horizontalis*). The ground flora is a mix of native and non-native species, including native starry false Solomon-seal (*Maianthemum stellatum*) and large-flowered trillium (*Trillium grandiflorum*), and non-native European marsh thistle (*Cirsium palustre*).

In the ditch proper (Figures 4 and 5) native species such as grass-leaved goldenrod (*Euthamia graminifolia*), Canada goldenrod, (*Solidago canadensis*), bog goldenrod (*Solidago uliginosa*), Ohio goldenrod (*Solidago ohioensis*), joe-pye (*Eutrochium maculatum*), black-eyed susan

(*Rudbeckia hirta*) and yarrow (*Achillea millefolium*), are intermixed with non-native wild parsnip (*Pastinaca sativa*), spotted knapweed (*Centaurea stoebe*), sow thistle (*Sonchus arvensis*), wild carrot (*Daucus carota*), and common mullein (*Verbascum thapsus*). One small wetland in this survey sections was dominated by non-native, invasive phragmites and cat-tails (Figure 6 and Figure 7).

Graminoids include sedges: (native *Carex stricta*, *C. lasiocarpa* and others) and mostly nonnative grasses: non-native smooth brome (*Bromus inermis*), fescues (*Festuca* spp.), and timothy (*Phleum pratense*). Native scouring rush (*Equisetum hyemale*) was also common. Many of these species occur in near-monoculture patches. Occasional clumps of native little bluestem (*Schizachyrium scoparium*) and Indian grass (*Sorghastrum nutans*) were also observed.

The westbound side of the highway was largely mowed grasses (Figures 8 and 9) with various non-native forbs including dandelion (*Taraxacum officinale*), yellow rocket (*Barbarea vulgaris*), and highly invasive spotted knapweed, and Canada thistle. Closer to Mackinaw City, manicured lawns, cement sidewalks and parking lot entrances increase in abundance (Figures 10 and 11).



Figure 6. Wet area dominated by tag alder, willows, and sedges.



Figure 7. Small wetland area dominated by invasive phragmites and cat-tails.



Figure 8. Westbound US-23 with shallow, mowed ditch.



Figure 9. Westbound US-23 showing mowed ditch.



Figure 10. Mowed lawn and sidewalk.



Figure 11. Mowed lawn and parking lot near west end of survey.

Southeast Survey Area

US-23 east of Stimpson Road to Mill Creek Discovery Park

This stretch of the survey included a mix of dry upland woods (Figure 12 and 13) grading to wet cedar, spruce, and tamarack-dominated forests closer to Stimpson Road (Figure 14 and Figure 15). The dry upland woods near the east boundary was composed of an overstory of red and white pine, red and sugar maple, aspen, and red oaks. The understory was predominantly balsam fir, and the shrub layer was dominated by bracken fern, winter green, bearberry, and blueberry (*Vaccinium angustifolium*). The ground layer included native Pennsylvania sedge (*Carex pensylvanica*), poverty grass (*Danthonia spicata*), bastard-toad flax (*Comandra umbellata*), starry false Solomon-seal, yarrow, and strawberry, and non-native dandelion, smooth brome, common mullein, spotted knapweed, and sweet clover (Figures 12 and 13).



Figure 12. US-23 near east end of survey area, facing east with typical dry woods south of ditch.



Figure 13. Typical understory and ground layer near east end of survey, between US-23 and a biking/hiking trail to south.



Figure 14. The US-23 westbound ditch and woods transitioning from dry to wet soils.



Figure 15. A close-up view of the understory and ground layer of the cedar dominated sections of woods along US-23.

Discussion

While the project area is largely composed of native species and natural habitats (at least in the southern ditches of US-23 and the right-of-way), no state or federally listed species were documented during our surveys. One occurrence of invasive phragmites, growing with invasive cat-tails, was mapped in a small wetland. Eradication of this isolated occurrence will slow the spread of these species in the region and decrease the risk and cost of long-term management needs. A re-evaluation as to whether this wetland is on private or MDOT lands would be necessary before treatment. Wild parsnip, which was documented throughout the wetter ditch areas, is spreading rapidly along road corridors in Michigan and is increasingly recognized as a human health risk. Management of this species as well as European marsh thistle and spotted knapweed is also recommended.

Acknowledgements

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