

# Rare Plant Species Surveys for the Michigan Department of Transportation: I-75 and Cheeseman Rd., St. Ignace, Mackinac County. MDOT project No. 215063



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Cover photo: Northwest corner of Cheeseman Rd bridge dominated with dense common juniper (*Juniperus communis*).

All photos in this report were taken by Amanda Klain.

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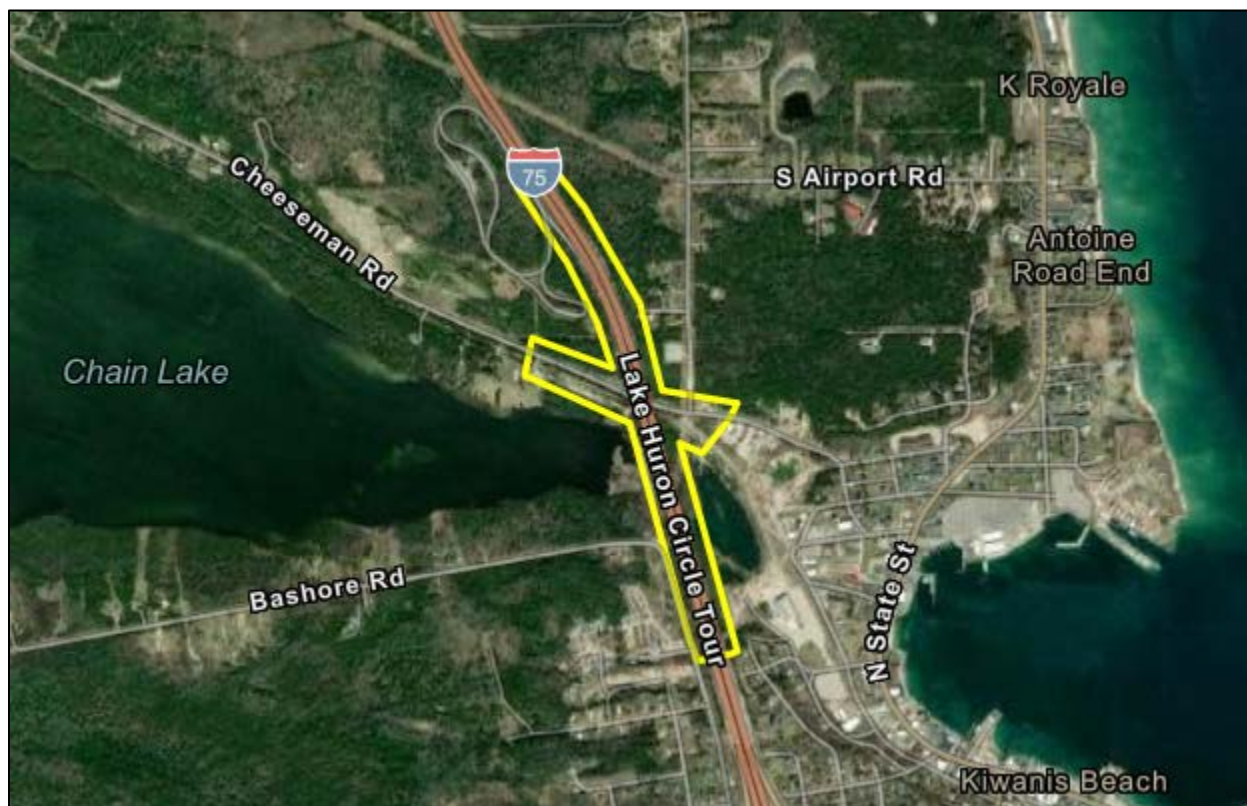
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# Abstract

MDOT Project 215063 was surveyed for rare plant species in the 2022 field season to assess potential impacts of road improvement projects. The project area spans portions of I-75 in the St. Ignace area, Mackinac County, Michigan. The surveys revealed that the rights-of-way have both heavily vegetated areas as well as some open gravelly areas, with a mix of native and non-native vegetation including non-native invasive species present throughout the entire project area. *Daphne* (*Daphne mezereum*) was observed in two locations and is recommended to be eradicated. No rare plant species were found during the survey.

## Introduction and Methods

This report provides a summary of rare plant surveys conducted along portions of I-75 and Cheeseman Road in Mackinac County. The project area includes all rights-of-way and starts about 1.8 miles north of the Mackinac bridge and extends north along I-75 for 0.8 miles, ending at the mid-point of Rest Area #241. It also includes 0.4 miles east and west along Cheeseman Road at the I-75 bridge (Fig. 1.) These surveys were conducted to ensure compliance for MDOT Project #215063, which includes bridge replacements, bridge approaches and associated roadwork, and trail realignment.



**Figure 1.** Overview map of the project area highlighted in yellow.



A review of the Michigan Natural Heritage database was conducted for natural communities, federal and state listed plants, and state special concern plants<sup>1</sup> that have been previously documented within a two-mile radius of the project area.

Two state-threatened species have been previously documented in the proximity of the project corridor (Table 1). Pine-drops (*Pterospora andromedea*) occurs in coniferous woods with well-developed needle duff. Prairie golden alexanders (*Zizia aptera*) generally occurs on dry open hillsides in the Upper Peninsula and can be found in disturbed clearings. Surveyors focused on suitable habitat for these species, but also surveyed suitable for any rare plants in case other listed species are present that have yet to be documented.

**Table 1.** Documented occurrences of rare plant species within a two-mile radius of the project area.

Latin name	Common name	State status	Target season
<i>Pterospora andromedea</i>	pine-drops	Threatened	June - Sept
<i>Zizia aptera</i>	prairie golden alexanders	Threatened	June - July

Satellite maps showing the survey boundaries and all documented rare species within the two-mile radius were developed using Field Maps. These were georeferenced and loaded onto a Samsung tablet with the Field Maps application for use in the field. This enabled surveyors to view their location and occurrences of natural features while surveying.

The entire corridor was walked using the meander survey method. Surveys were timed to coincide with sufficient-to-optimal survey periods for these species and only one mid-season survey was needed. This was conducted on August 2, 2022. General habitat conditions, dominant plant species, non-native invasive species, and any other notable features were recorded. For reporting purposes, the survey area was divided into segments as shown in Figure 2.

Rare species were documented using Survey 123, and isolated, high impact invasive species were entered into the Midwest Invasive Species Information Network (MISIN). Shapefiles for these data were provided to MDOT.



**Figure 2.** Survey segments used for reporting.

<sup>1</sup> State and federal threatened and endangered status are codified under Part 365 of PA 451, 1994 Michigan Natural Resources and Environmental Protection Act. State special concern status is a NatureServe designation for species that appear to be declining but has no legal protection.

# Results

## Overview

The project area sits where cedar swamp swaths and beech-maple-hemlock forest expanses with a narrow strip of exposed bedrock historically occurred, and where present-day Cheeseman Road runs. The current habitat closely resembles a fragmented young white cedar (*Thuja occidentalis*) forest over limestone bedrock and includes disturbed gravelly openings south of and along Cheeseman Road. These areas are suitable habitat for pine drops and prairie golden alexanders.

The area is generally sloped throughout, with a mix of native and non-native vegetation, including areas with abundant invasive plant species (Table 2). The shallow calcareous soils over the limestone bedrock are very hospitable to white cedar which is the dominant tree species throughout the entire project area, forming extremely dense thickets in places (Fig. 3).

**Table 2.** The most common non-native invasive species observed in the project area.

Latin name	Common name	Origin	Habit
<i>Bromus inermis</i>	smooth brome	frequent	widespread
<i>Centaurea stoebe</i>	spotted knapweed	frequent	widespread
<i>Daphne mezereum</i> *	daphne	scarce	one occurrence
<i>Frangula alnus</i>	glossy buckthorn	frequent	widespread
<i>Hypericum perforatum</i>	St. Johns-wort	scattered	widespread
<i>Lapsana communis</i>	nipplewort	frequent	widespread
<i>Lolium arundinaceum</i>	tall fescue	frequent	widespread
<i>Melilotus albus</i>	white sweet clover	common	widespread
<i>Pastinaca sativa</i>	wild-parsnip	frequent	widespread
<i>Securigera varia</i>	crown-vetch	frequent	widespread
<i>Tanacetum vulgare</i>	tansy	frequent	widespread
*Not listed as invasive but is concerning.			



Although suitable habitat occurs in the project area, no rare plant species were observed during surveys. The vegetation of each survey segment is discussed separately below.

**Figure 3.** Dense thickets of white cedar (*Thuja occidentalis*) are common throughout the project area.



## Segment 1: North I-75 extending to the bridge over Cheeseman Road

From the north end, the interstate cuts through the bedrock forming steep rock inclines to a terraced right-of-way. These steep gravelly slopes are dotted with dense white cedar and bearberry (*Arctostaphylos uva-ursi*) (Fig. 4). The vegetation varies depending on available light and disturbance (Figs. 5, 6). White cedar is generally dominant and accompanied by balsam fir (*Abies balsamea*), trembling aspen (*Populus tremuloides*), paper birch (*Betula papyrifera*), white pine (*Pinus strobus*), and white spruce (*Picea glauca*).



**Figure 4.** Steep bedrock slopes along I-75 in the north end of the project.



**Figure 5.** Dense white cedar and opening with spotted knapweed (*Centaurea stoebe*).



**Figure 6.** Heavily vegetated areas with mixed vegetation layers.

Common shrubs include round-leaved dogwood (*Cornus rugosa*), Labrador-tea (*Rhododendron groenlandicum*), bearberry, glossy buckthorn (*Frangula alnus*), and poison ivy (*Toxicodendron radicans*). Ground layer species include starry false Solomon-seal (*Maianthemum stellatum*), big-leaved aster (*Eurybia maculata*), meadow rue (*Thalictrum dioicum*), wild sarsaparilla (*Aralia nudicaulis*), nodding trillium (*Trillium cernuum*), ebony sedge (*Carex eburnea*), and poverty grass (*Danthonia spicata*),

At the base of the slope adjacent to the highway there is a disturbed weedy zone with a mix of native and non-native forbs and grasses including trembling aspen, goldenrods (*Solidago* spp.), Queen-Anne's-lace (*Daucus carota*), bent grass (*Agrostis* spp.), Kentucky bluegrass (*Poa pratensis*), and tall fescue (*Lolium arundinaceum*) (Fig.7).





**Figure 7.** Weedy roadside habitat approaching the Bridge over Cheeseman Road.

Other common invasive species observed in this segment include crown vetch, spotted knapweed, glossy buckthorn, and nipplewort (*Lapsana communis*).

Daphne (*Daphne mezereum*) was observed in the wooded thickets. This non-native species is has become invasive in several states and provinces and is cause for concern.

## **Segment 2: East and west along Cheeseman Rd. including all trails.**

This section contains many open gravelly areas with meandering road-sized trails on both sides of the I-75 Bridge (Fig. 8). There is also a powerline right of way on the east side of I-75.



**Figure 8.** Open gravelly areas in Segment 2, bordered by dense white cedar.

These disturbed successional meadows are dominated by non-native and invasive species including white sweet clover, wild-parsnip, common tansy, nipplewort, smooth brome, chicory (*Cichorium intybus*), and spotted hawkweed (*Hieracium maculatum*). Large white sweet clover (*Melilotus albus*) plants appears to be limited to the west side of the bridge.

Native species are scattered throughout including goldenrods (*Solidago nemoralis*, *S. spp.*), little bluestem (*Schizachyrium scoparium*), bee balm (*Monarda fistulosa*), and black-eyed Susan. Several woody species are common as well including trembling aspen (*Populus tremuloides*), staghorn sumac (*Rhus typhina*), and poison ivy, which is very dense in spots.





Under the bridge the dominant species are goldenrods, common tansy, spotted knapweed, Queen-Anne's-lace, chicory, wild parsnip, crown vetch, and smooth brome (Fig. 9).

**Figure 9.** Dominant weedy species under the I-75 Bridge at Cheeseman Road.

White cedar dominates outside of the meadows, with similar associates to those found in Segment 1. Other species observed in this segment include leatherleaf (*Dirca palustris*), pinesap (*Hypopitys monotropa*), wintergreen (*Gaultheria procumbens*), Canada mayflower (*Maianthemum canadense*), fringed polygala (*Polygala paucifolia*), harebell (*Campanula rotundifolia*), dwarf scouring rush (*Equisetum scirpoides*), and long-stalked sedge (*Carex pedunculata*).

Numerous yellow lady-slippers (*Cypripedium parviflorum*) were observed on the north side of Cheeseman Rd. under white cedar (Fig. 10), and a large population of non-native daphne shrubs was recorded close-by (Fig. 11).

At the very southwest end of Cheeseman Rd there is a private residence within the project area as shown in Figure 12.



**Figure 10.** Lady-slipper orchids on the north side of Cheeseman Rd.





**Figure 11.** *Daphne* (*Daphne mezereum*) on the north side of Cheeseman Road; left photo taken on-site by A.K. Klain; right photo by A.A. Reznicek, Michiganflora.net.



**Figure 12.** Segment 2, west side, showing location of private property.

### Segment 3. I-75 South of Cheeseman Road.

This segment runs close to water bodies on both sides of I-75, Chain Lake on the west and a small pond on the east. Most of this segment is a steep descent to the right-of-way fence, with dense white cedar thickets along the slope and as narrow open strips at the fence with successional vegetation. Common species include balsam poplar (*Populus balsamifera*), dogwoods (*Cornus* spp.), common and glossy buckthorn, horsetail (*Equisetum* sp.), milkweed, black-eyed Susan, and goldenrods.

On the east side of the interstate the slope descends nearly to the pond's edge (Fig. 13). There are brush-hogged areas on both sides of the interstate that have facilitated glossy buckthorn and common buckthorn (*Rhamnus cathartica*) growth as well as dense white cedar regeneration

(Fig. 14). In addition to the herbaceous species noted above, this open zone contains mixed grasses including switchgrass (*Panicum virgatum*), little bluestem, three-awned grass (*Aristida* sp.), and smooth brome. There appears to be pesticide damage to the native vegetation directly adjacent to the interstate.

There are also gravelly open areas just south of the bridge which are disturbed with scattered little bluestem and milkweed (*Asclepias syriaca*) and many non-native species including bent grass, crown vetch, spotted knapweed, and black-eyed Susan



**Figure 13.** The right-of-way at the pond's edge on the east side of I-75.



**Figure 14.** Brush-hogged areas with dense woody regeneration.

## Discussion

While there is suitable habitat for both pine drops and prairie golden alexanders in the project area, there is an abundance of invasive species throughout, and they were not found during surveys. It is recommended that all construction equipment be cleaned when moving from site to site to limit the spread of the invasive species. It is best to spot-treat invasive species in locations where there is good representation of native species, instead of broadcast spraying, so that native plants and animals are not injured.

It is also recommended that the two populations of daphne documented in Survey Segments 1 and 2 be eradicated. *Daphne mezereum* is listed as an invasive species in Alaska and has been documented in Minnesota, Michigan, and several states in the northeastern United States (Invasive Plant Atlas 2022). It reproduces by seeds and root suckers and is known to be adaptable to a variety of climates and soils, preferring shady, well-drained habitats. Other species of daphne are posing ecological threats in the Pacific northwest (Eddy 2006).



## References

Eddy, Thomas L. 2006. *Daphne Mezereum* L. (*Thymelaeaceae*) in Wisconsin. Great Lakes Botanist. Volume 45 (1).

Invasive Plant Atlas. <https://www.invasiveplantatlas.org/subject.html?sub=13986> [Accessed November 2022].

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