

Rare Plant Surveys for the Michigan Department of Transportation: M-134 Hessel Area to De Tour, Chippewa and Mackinac Counties, MI.



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Prepared For:

Michigan Department of Transportation

December 19, 2019

MNFI Report No. 2019-36

Suggested Citation:

Spieles, J.B. and P.J. Higman. 2019. Rare Plant Surveys for the Michigan Department of Transportation: M-134 Hessel Area to De Tour, Chippewa and Mackinac Counties, MI. Michigan Natural Features Inventory, Report No. 2019-36. Lansing, MI. 11pp.

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Cover: Butterwort (*Pinguicula vulgaris*) and Houghton's goldenrod (*Solidago houghtonii*) in the M-134 right-of-way, Eastern Upper Peninsula, Michigan. Photos by Jodi B. Spieles.

Table of Contents

Introduction	1
Methods	1
Results	2
Hessel to Cedarville	2
County Line to De Tour Village	2
Waypoints and Descriptions	4
Discussion	10
Acknowledgements	14

List of Tables

Table 1. Species targeted during early season surveys	1
Table 2. Species targeted during late-season surveys	1
Table 3. Species observed during surveys	3

List of Figures

Figure 1. Survey areas along M-134 in the Eastern Upper Peninsula, Michigan	2
Figure 2. Rare species occurrences observed during 2019 surveys	4
Figure 3. Butterwort at Waypoint 002	4
Figure 4. Butterwort at Waypoint 003	4
Figure 5. Houghton's goldenrod at Waypoint 006	4
Figure 6. Houghton's goldenrod between Waypoints 007 and 008	5
Figure 7. Houghton's goldenrod at Waypoint 009	5
Figure 8. Houghton's goldenrod at Waypoint 010	5
Figure 9. Houghton's goldenrod at Waypoint 011	6
Figure 10. Houghton's goldenrod at Waypoint 012	6
Figure 11. Houghton's goldenrod between Waypoints 014 and 016	6
Figure 12. Houghton's goldenrod at Waypoint 017	7
Figure 13. Houghton's goldenrod at Waypoint 018	7

Figure 14. Houghton's goldenrod at Waypoint 019	7
Figure 15. Houghton's goldenrod between Waypoints 020 and 024	8
Figure 16. Houghton's goldenrod at Waypoint 025	8
Figure 17. Houghton's goldenrod between Waypoints 026 and 028	8
Figure 18. Houghton's goldenrod between Waypoints 029 and 030	9
Figure 19. Houghton's goldenrod at Waypoint 031	9
Figure 20. Houghton's goldenrod between Waypoints 032 and 033	9
Figure 21. Houghton's goldenrod between Waypoints 034 and 036	10
Figure 22. Houghton's goldenrod between Waypoints 037 and 038	10
Figure 23. Houghton's goldenrod between Waypoint 039 and 040	10
Figure 24. Houghton's goldenrod between Waypoints 041 and 042	11
Figure 25. Houghton's goldenrod between Waypoint 043 and 044	11

Introduction

Rare plant species surveys were conducted along two segments of M-134 in Chippewa and Mackinac Counties totaling approximately 16 miles. The survey area was conducted 20 ft (6 m) off the edge of the existing gravel shoulder on both sides of the 26 ft (8 m) two-lane highway and includes 500-ft buffers at the start and end of each road segment. These surveys are required for regulatory compliance prior to the planned road widening along M-134 and ADA ramp upgrades with possible curb and gutter replacement in De Tour village (Project 1320350).

Methods

The Natural Heritage database was queried to identify species with potential to occur in the survey area that are listed as endangered, threatened or state special concern. Eight early blooming and three late-blooming species were identified and are shown in Tables 1 and 2.

Table 1. Species targeted during early-season surveys.

Scientific Name	Common Name	Listing Status
<i>Amerorchis rotundifolia</i>	round leaf orchis	E
<i>Calypso bulbosa</i>	calypso orchid	T
<i>Coptidium lapponicum</i>	Lapland buttercup	T
<i>Cypripedium arietinum</i>	ram's-head orchis	SC
<i>Iris lacustris</i>	dwarf-lake iris	LT, T
<i>Pinguicula vulgaris</i>	butterwort	SC
<i>Platanthera unalascensis</i>	Alaska orchid	SC
<i>Pterospora andromedea</i>	pine drops	T

*E: state endangered; LT: federal threatened; T: state threatened; SC: state special concern

Table 2. Species targeted during late-season surveys.

Scientific Name	Common Name	Listing Status
<i>Solidago houghtonii</i>	Houghton's goldenrod	LT, T
<i>Cirsium pitcheri</i>	Pitcher's thistle	LT, T
<i>Tanacetum huronense</i>	Lake Huron tansy	T

*LT: federal threatened; T: state threatened; SC: state special concern

Surveys were conducted by meander survey throughout the survey area, focusing on suitable habitat for the target species. Early-season surveys were conducted during June 2019 and late season surveys were conducted during August and September 2019. A Garmin-64 GPS unit was used to record points of listed species observed and dominant species were recorded on paper.

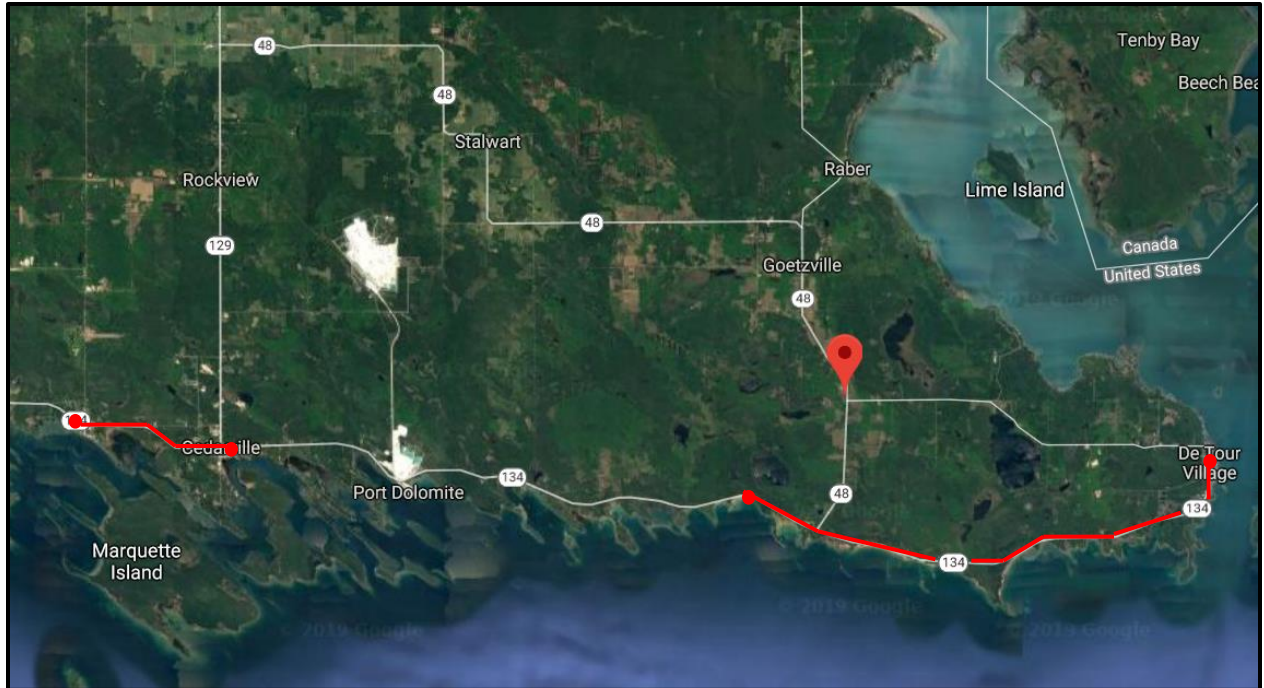


Figure 1. Survey areas (in red) along M-134 in the eastern Upper Peninsula of Michigan.

Results

Hessel to Cedarville (June 25-26, August 28, September 4, 2019)

No endangered, threatened or special concern plant species were observed within the road right-of-way along highway M-134, between Hessel and Cedarville. Outside of the right-of way, in the area of the Mackinac Bay Preserve and the Michigan Nature Association Preserve, there is a greater diversity and abundance of native plant species.

Plants in the right-of-way are dominated by non-native species such as white sweet clover (*Melilotus albus*), ragweed (*Ambrosia artemisiifolia*), leafy spurge (*Euphorbia esula*), bird's foot trefoil (*Lotus corniculatus*), and queen Anne's lace (*Daucus carota*). Abundant native plant species in the right-of-way include jointed rush (*Juncus articulatus*), large-leaved aster (*Eurybia macrophylla*), bastard toadflax (*Comandra umbellata*), Indian paintbrush (*Castilleja coccinea*), starry false solomon-seal (*Maianthemum stellatum*), grasses, and sedges.

A fairly large (80' x 20') patch of purple loosestrife (*Lythrum salicaria*) was observed on the north side of the highway in the first mile west of Cedarville.

County Line (just west of M-48) to De Tour Village (June 17-20, August 19-28, 2019)

Twenty-four occurrences of special concern and threatened plant species were observed within the M-134 right-of-way between the Chippewa/Mackinac County line (just west of M-48) and De Tour Village. The state special concern butterwort (*Pinguicula vulgaris*) accounts for two of these and state and federally threatened Houghton's goldenrod (*Solidago houghtonii*) accounts for 22 of these occurrences (Table 3). These occurrences are shown in Figure 2 and shapefiles are delivered with this report.

Table 3. Rare species observed during surveys.			
Scientific Name	Common Name	Listing Status	# of observations
<i>Solidago houghtonii</i>	Houghton's goldenrod	LT, T	22
<i>Pinguicula vulgaris</i>	Butterwort	SC	2

*LT: federal threatened; T: state threatened; SC: state special concern

Several of the Houghton's goldenrod populations extended hundreds of feet along the highway and are marked by two waypoints indicating the east and west boundary of the population. Many of the Houghton's goldenrod occurrences were located within areas along the highway that are currently identified as 'Protected Area' with signs. There are also several Little Traverse Conservancy Preserves outside of the right-of-way along this section of highway M-134 that contain intact and naturally functioning examples of northern Michigan natural communities.

Vegetation along this section of the M-134 right-of-way includes more native species than in the Hessel to Cedarville section. These include creeping juniper (*Juniperus horizontalis*), starry false solomon-seal (*Maianthemum stellatum*), large-leaved aster (*Eurybia macrophylla*), Bastard toadflax (*Comandra umbellata*), Bearberry (*Arctostaphylos uva-ursi*), wild sarsaparilla (*Aralia nudicaulis*) and grasses, sedges, and rushes such as little bluestem (*Schizachyrium scoparium*), *Carex garberi*, and Baltic rush (*Juncus balticus*). There are also sections of right-of-way that have an abundance of non-native plants including: spotted knapweed (*Centaurea stoebe*), white sweet clover (*Melilotus albus*), ragweed (*Ambrosia artemisiifolia*), leafy spurge (*Euphorbia esula*), bird's foot trefoil (*Lotus corniculatus*), and queen Anne's lace (*Daucus carota*).



Figure 2. Rare species occurrences observed during 2019 surveys.

Waypoints and Descriptions

Waypoint 002 - butterwort



Location: N45°58.977'
W084°06.815'

Population starts approximately 50 feet east of Mackinac County Sign located on highway edge.

Approximately 200 basal rosettes of plants extending 115 feet of highway M-134, 15 feet north of asphalt edge. Of the plants present, about 50% were observed in flower on survey date 6/17/19.

Figure 3. Special Concern butterwort at waypoint 002.

Waypoint 003 - butterwort

Location: N45°58.109'
W084°03.964'

North side of highway M-134 in wet ditch.

Approximately 80 basal rosettes of plants extending 100 feet of highway M-134, 15 feet north of asphalt edge. Additional patch of 25 basal rosettes in a 10-foot stretch, again 15 feet north of asphalt edge. Of the plants present, about 30% were observed in flower on survey date 6/18/19.

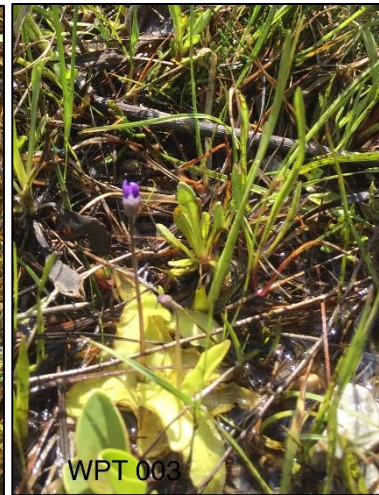


Figure 4. State special concern butterwort at waypoint 003.



Waypoint 006 - Houghton's goldenrod

Location: N45°58.123' W084°04.179'

North side of highway M-134 between highway and cement culvert.

Eleven flowering stalks counted in a patch approximately 15'x10' located 20 feet north of asphalt edge.

Figure 5. Federal and state threatened Houghton's goldenrod at waypoint 006.

Waypoint 007-008 - Houghton's goldenrod

Location: North side of highway M-134

West end WPT 007: N45°58.109' W084°03.975'

East end WPT 008: N45°58.097' W084°03.921'

Twelve flowering stalks are scattered along the highway about 15 feet north of asphalt edge.



Figure 6. Houghton's goldenrod between waypoints 007 and 008.

Waypoint 009 - Houghton's goldenrod



Location: N 45°58.084' W084°03.728'

South side of highway M-134, just south of mailbox with address 1450.

Plants located 5 feet south of asphalt edge in approximately 15 clumps that contain a total of 130 flowering stalks.

Figure 7. Houghton's goldenrod at waypoint 009.

Waypoint 010 - Houghton's goldenrod

Location: N 45°58.091' W084°03.716'

North side of highway M-134, directly across highway from WPT009.

Many plants (100-150 flowering stalks) scattered along highway, 12 feet north of asphalt edge.



Figure 8. Houghton's goldenrod at waypoint 010.



Waypoint 011 - Houghton's goldenrod

Location: N 45°57.878' W 084°02.635'

North side of highway M-134.

Approximately 50-150 flowering stalks scattered along highway, 30 feet north of asphalt edge along small creek.

Figure 9. Houghton's goldenrod at waypoint 011.

Waypoint 012 - Houghton's goldenrod

Location: N 45°58.051' W 084°03.285'

North side of highway M-134.

Approximately 5 flowering stalks 15 feet north of asphalt edge.



Figure 10. Houghton's goldenrod at waypoint 012.

Waypoints 014-016 - Houghton's goldenrod



Location:

West end WPT016: N45°58.019' W084°03.183

East end WPT 014: N45°58.037' W084°03.264'

South side of highway M-134

Estimated 50-100 flowering stalks are scattered along the highway about 15 feet south of asphalt edge. This is just outside mowed area. There are likely other Houghton's goldenrod plants closer to highway that are not identifiable.

Figure 11. Houghton's goldenrod between waypoints 014 and 016.

Waypoint 017 - Houghton's goldenrod

Location: N 45°57.968' W 084°02.996'

South side of highway M-134.

Approximately 6 flowering stalks 12 feet north of asphalt edge.



Figure 12. Houghton's goldenrod at waypoint 017.



Waypoint 018 - Houghton's goldenrod

Location: N 45°58.138' W 083°58.858'

South side of highway M-134.

Approximately 10-20 flowering stalks 25 feet south of asphalt edge. Many more (100+) plants further south toward lake in open dune/interdunal lowland area.

Figure 13. Houghton's goldenrod at waypoint 018.

Waypoint 019 - Houghton's goldenrod

Location: N 45°58.127' W 083°58.947'

North side of highway M-134. Directly across highway from WPT 018.

Approximately 20 flowering stalks scattered, 20 feet north of asphalt edge.



Figure 14. Houghton's goldenrod at waypoint 019.



Waypoints 020-024 - Houghton's goldenrod

Location:

West end WPT024: N45°58.225' W083°56.759'

East end WPT 020: N45°58.287' W083°56.458' South side of highway M-134 Near Seymour Bay Rd.

Estimated 100-200 flowering stalks are scattered along the highway from 5 to 15 feet south of asphalt edge for quite a long stretch

Figure 15. Houghton's goldenrod between waypoints 020 and 024.

Waypoint 025 - Houghton's goldenrod

Location: N 45°58.206' W 083°57.320'

South side of highway M-134.

Approximately 10 flowering stalks scattered along 12 feet of highway right-of-way, 9 feet south of asphalt edge.



Figure 16. Houghton's goldenrod at waypoint 025.



Waypoints 026-028 - Houghton's goldenrod

Location:

West end WPT026: N45°58.230' W083°56.792'

East end WPT 028: N45°58.269' W083°56.559'

North side of highway M-134 just outside mowed area. (Likely more in mowed area.)

Estimated 200-500 flowering stalks are scattered along 180 feet of highway right-of-way from 10 to 15 feet north of asphalt edge.

Figure 17. Houghton's goldenrod between waypoints 026 and 028.



Waypoints 029-030 - Houghton's goldenrod

Location:

West end WPT030: N45°58.292' W083°56.466'

East end WPT 029: N45°58.308' W083°56.559'

North side of highway M-134 just outside mowed area. (Likely more in mowed area.)

Approximately 30-60 flowering stalks are scattered throughout ditch 15 to 20 feet north of asphalt edge.

Figure 18. Houghton's goldenrod between waypoints 029 and 030.

Waypoint 031 - Houghton's goldenrod

Location: N 45°58.515' W 083°55.760'

North side of highway M-134.

Approximately 10 - 20 flowering stalks scattered along 20 feet of highway right-of-way, 15-20 feet north of asphalt edge.

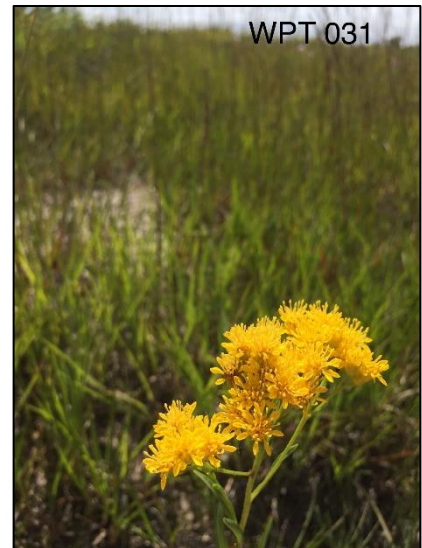


Figure 19. Houghton's goldenrod at waypoint 031.



Waypoints 032-033 - Houghton's goldenrod

Location:

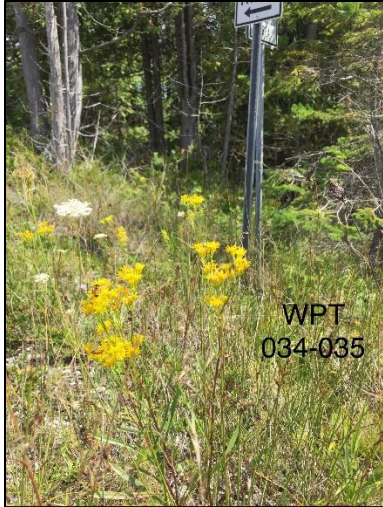
West end WPT033: N45°58.479' W083°55.924'

East end WPT 032: N45°58.503" W083°55.822'

North side of highway M-134 within Little Traverse Conservancy's Seymour Bay Nature Preserve.

Estimated 100-200 flowering stalks are scattered throughout ditch 15 to 20 feet north of asphalt edge.

Figure 20. Houghton's goldenrod between waypoints 032 and 033.



Waypoints 034-036 - Houghton's goldenrod

Location:

West end WPT034: N45°58.451' W083°55.976'

East end WPT 036: N45°58.507" W083°55.758'

South side of highway M-134 within 'Protected Area' signs.

Estimated 900-1200 flowering stalks are scattered along roadside 15 to 20 feet north of asphalt edge.

Figure 21. Houghton's goldenrod between waypoints 034 and 036.

Waypoints 037-038 - Houghton's goldenrod

Location:

West end WPT037: N45°58.571' W083°55.426'

East end WPT 038: N45°58.580" W083°55.363'

North side of highway M-134.

Approximately 70 flowering stalks are scattered along highway right-of-way 15 to 20 feet north of asphalt edge.



Figure 22. Houghton's goldenrod between waypoints 037 and 038.

Waypoints 039-040 - Houghton's goldenrod



Location:

West end WPT039: N45°58.561' W083°55.436'

East end WPT 040: N45°58.568' W083°55.385'

South side of highway M-134, directly across the highway from WPT 037-038.

Approximately 40 flowering stalks are scattered along highway right-of-way 15 to 20 feet south of asphalt edge.

Figure 23. Houghton's goldenrod between waypoints 039 and 040.



Waypoints 041-042 - Houghton's goldenrod

Location:

West end WPT042: N45°58.998' W084°06.912'

East end WPT 041: N45°58.947' W084°06.746'

North side of highway M-134 in the same general area as WPT002.

Estimated 200-250 flowering stalks are scattered along highway right-of-way 5 to 30 feet north of asphalt edge.

Figure 24. Houghton's goldenrod between waypoints 041 and 042.

Waypoints 043-044 - Houghton's goldenrod

Location:

West end WPT043: N45°58.962' W084°06.806'

East end WPT 044: N45°58.941' W084°06.749'

South side of highway M-134 directly across from WPT 041-042.

Approximately 80 flowering stalks are scattered along highway right-of-way 15 to 20 feet south of asphalt edge.

Figure 25. Houghton's goldenrod between waypoints 043 and 044.



Discussion

Twenty-two occurrences of federal and state threatened Houghton's goldenrod and two occurrences of state special concern butterwort were documented and mapped in the project area. Many are within identified Protected Areas but many are outside of these areas and are likely to be impacted by road work.

Acknowledgements

We thank David Schuen at MDOT for project funding and coordination. Ashley Adkins, Brian Klatt, and Nancy Toben provided administrative assistance.