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1414 West Hamilton Avenue
P.O. Box 8
Eau Claire, WI 54702-0008

November 4, 2016

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

**Subject:** **2016 Purple Loosestrife Monitoring Report**
**Holcombe Hydro (P-1982), Cornell Hydro (P-2639), Jim Falls Hydro (P-2491), Wissota Hydro (P-2567), Chippewa Falls Hydro (P-2440) and Dells Hydro (P-2670)**

Dear Secretary:

Enclosed is the 2016 Purple Loosestrife Monitoring Report for the above-referenced hydro projects. Pursuant to the 2001 Lower Chippewa River Settlement Agreement, Xcel Energy (licensee) is required to annually monitor for the presence of loosestrife at each impoundment and eradicate pioneering plants on company-owned shoreline.

This year there was a marked decline in loosestrife coverage on Holcombe Flowage compared to last year despite the fact that the number of loosestrife locations remaining essentially the same. Cornell and Jim Falls also showed a decrease in loosestrife populations from last year while Wissota had a minor increase. Chippewa Falls Flowage remains free of purple loosestrife while only a few plants were documented on Dells Pond.

Should you have any questions regarding this report, please contact Matthew Miller of this office at (715) 737-1353 or at matthew.j.miller@xcelenergy.com.

Sincerely,

William Zawacki
Director, Hydro Plants

Enclosure

c: Nick Utrup - USFWS (via e-mail)
Cheryl Laatsch – WDNR (via e-mail)
Brian Guthman - LHIA (via e-mail)
Jeanette Kelly – Beaver Creek Reserve (via e-mail)

# *PURPLE LOOSESTRIFE ASSESSMENT – 2016*

**Dells Pond, Chippewa Falls Flowage, Lake Wissota, Old Abe Flowage, Cornell Flowage, Holcombe Flowage, and Jim Falls Spillway Channel**

**Prepared for:**

**Xcel Energy**
**P.O. Box 8**
**Eau Claire, WI 54702**

**Prepared by:**

GLEC
Great Lakes Environmental Center

**739 Hastings Street**
**Traverse City, MI 49686**

**Principal contact:**
**Christopher J. Turner**
**Ph.: 715/829-3737**
**Fax: 715/874-5389**
**Email: cturner@glec.com**

**October 24, 2016**

## INTRODUCTION

Purple loosestrife (*Lythrum salicaria* L.) is an erect, herbaceous perennial of Eurasian origin that became established in the estuaries of northeastern North America by the early 1800's. Since then, this highly invasive species has spread throughout much of the United States, including most of Wisconsin's counties. As purple loosestrife expands its local distribution and becomes more widespread, it poses a serious threat to native emergent vegetation in shallow-water marshes and shorelines by displacing native food and cover plants in the waterways.

As part of the 2001 Lower Chippewa River Settlement Agreement, Xcel Energy agreed to monitor for the presence and spread of purple loosestrife at its six Lower Chippewa River hydroelectric projects. The surveys are to take place each year in the late summer when loosestrife blooms are easily detectable. Additionally, Xcel Energy committed to treating any small clusters of pioneering plants which occur on company-owned lands with an approved aquatic herbicide.

In 2010, Xcel Energy partnered with Beaver Creek Reserve to introduce European beetles (*Galerucella calmariensis* and/or *Galerucella pusilla*) into the main spillway channel adjacent to the Jim Falls Hydro. Beetles were again introduced into the same area during the summer of 2011. The beetles are commonly referred to as "Cella" foliage beetles or purple loosestrife bio-control beetles and they feed specifically on purple loosestrife plants. Their use has shown to be successful at decreasing the overall population of purple loosestrife. The locations and density of loosestrife within the Jim Falls spillway channel are therefore being monitored to determine the success of the beetle introduction.

## METHODS

Following the same approach as previous surveys, an inspection of the entire shoreline of Dells Pond, Chippewa Falls Flowage, Lake Wissota, Old Abe Flowage, Cornell Flowage and Holcombe Flowage was performed by boat. The surveys were conducted between August 15 and September 20, 2016. The surveyor motored slowly around the shoreline looking for purple loosestrife plants. When loosestrife was discovered, the location was

marked on a map and coordinates were entered into a handheld GPS unit. Loosestrife infestations were classified as either "present" or "abundant" and marked on the map with a specific color. "Present" was defined as a few plants that sparsely inhabited an area but did not comprise a large percentage of the overall vegetation in that area. "Abundant" indicated that denser loosestrife growth existed and that the loosestrife made up a significant portion of the shoreline's overall vegetative cover.

By referencing the location of purple loosestrife plants with land ownership maps provided by Xcel Energy, the surveyor determined if the plants were on company-owned land. If the plants were on Xcel Energy land, and if it was only a minor infestation, the plants were sprayed with Rodeo® (an aquatic herbicide) from a backpack sprayer. From past work, it has been determined that herbicide application can be used as an effective treatment for small loosestrife populations, however, it is much less effective at controlling larger infestations. If major infestations were noted on Xcel Energy land, they were not to be treated, but documented for the possibility of a different eradication method in the future.

Using field maps, GPS coordinates, and notations made by the surveyor, the locations of purple loosestrife infestation were noted on the field maps and catalogued in a spreadsheet. The locations were then digitized onto GIS base maps (Wisconsin DNR 24K Hydrography version 6 and ESRI StreetMap USA). Locations of purple loosestrife are depicted on the maps using green for present and red for abundant. Due to the scale of the maps, locations covering less than 20 feet of shoreline are denoted by a dot while areas covering 20 feet of shoreline or greater are denoted by a line drawn to scale. Through the combined use of GPS, laser rangefinder, visual estimates, and GIS, the total length of shoreline infested by purple loosestrife was calculated for each flowage (Table 1). Appendix A includes survey maps for each flowage infested with loosestrife along with a corresponding catalog of each loosestrife location.

A survey of purple loosestrife was also conducted in the Jim Falls spillway channel adjacent to the downstream powerhouse. This area has been known to contain purple loosestrife in locally high densities which prompted the introduction of purple loosestrife bio-control beetles. A comprehensive mapping effort of the area began in 2010 to monitor the spread of loosestrife and the success of the beetle introduction. This portion of the fieldwork

was completed on foot using GPS and maps to identify the locations and densities of the loosestrife within the channel.

## RESULTS AND DISCUSSION

The number of purple loosestrife locations and the total length of shoreline infested for each flowage over the last three years are summarized below in Table 1. A standardized approach used to calculate abundance and shoreline coverage allows for a direct comparison from year-to-year. This year's survey revealed a decrease in purple loosestrife infestation on Holcombe Flowage for the second year in a row. Decreases in purple loosestrife from the previous year were also noted at Cornell and Old Able flowages. A slight increase in loosestrife was seen at Lake Wissota while Chippewa Falls again remained free of infestation. Purple loosestrife was noted on Dells Pond for the first time in several years. Collectively, the amount of loosestrife infestation in the five flowages has decreased since 2015 by roughly 30 percent. Table 2 includes a summary of the total number of loosestrife infestations and the total length of shoreline infested for all six hydro projects over the past three years.

**Table 1. Summary of Purple Loosestrife Infestations on Six Lower Chippewa River Hydroelectric Projects, 2014-2016**

| | Number of purple loosestrife locations | | | | | | Shoreline Affected (ft) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Present | | | Abundant | | | Present | | | Abundant | | |
| | 2014 | 2015 | 2016 | 2014 | 2015 | 2016 | 2014 | 2015 | 2016 | 2014 | 2015 | 2016 |
| Holcombe | 185 | 167 | 170 | 0 | 1 | 1 | 1685 | 1193 | 812 | 0 | 137 | 120 |
| Cornell | 18 | 25 | 29 | 1 | 0 | 0 | 67 | 151 | 80 | 60 | 0 | 0 |
| Old Abe | 13 | 27 | 26 | 0 | 0 | 0 | 85 | 134 | 100 | 0 | 0 | 0 |
| Wissota | 3 | 5 | 9 | 0 | 0 | 0 | 9 | 21 | 27 | 0 | 0 | 0 |
| Chippewa Falls | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dells | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 |

**Table 2. Total Purple Loosestrife Infestations on Six Lower Chippewa River Hydroelectric Projects, 2013-2015**

| | 2014 | 2015 | 2016 |
|---|---|---|---|
| Total number of loosetrife points at Impoundments | 220 | 225 | 238 |
| Total shoreline affected in Impoundments | 1906 | 1636 | 1147 |

Holcombe Flowage contained the most purple loosestrife among the six impoundments surveyed. There were 170 locations categorized as present and one location categorized as abundant (see Holcombe Flowage Map 1). While the number of infestations increased slightly, the amount of shoreline affected decreased significantly from the previous year's survey. While a few new plants were found during the survey, the majority of the infested areas have been documented in previous years. New infestations are generally associated with areas where the native vegetation has been disturbed. This disturbance can come from urbanization (clearing for home sites, swimming areas or fishing areas), road improvements, or erosion. It is also common to have plants grow only during select years. This may be the case on Holcombe Flowage, with new plants growing this year, while previously observed plants did not.

The majority of plants on Holcombe Flowage were again found in the area on and near Pine Island and along Highway 27. A comparison to the 2014 and 2015 surveys show much similarity with the overall loosestrife populations in this area (see Holcombe Map 2). Several small infestations were again found just to the east of the Highway 27 Bridge. This area had a similar degree of infestation last year. The only area of abundant plant growth this year was also classified as abundant in 2015. No purple loosestrife was found on the Pine Lake or Cranberry Lake areas of Lake Holcombe.

Several plant clumps were found scattered along the north and south shores of the main flowage (see Holcombe Map 3 and 4) with many of these plants having been documented in the past. The large islands near the south shore of the main flowage also contain several plants. Overall, the plant density in the main basin remained fairly consistent with last year’s survey.

The upstream reach of the flowage (see Holcombe Maps 5 and 6) also contains a number of purple loosestrife plants that have been noted in past surveys. The overall plant density in these areas was slightly more than what was documented in 2015.

In total, approximately 932 feet of shoreline was found to contain purple loosestrife on Lake Holcombe compared to 1,330 feet in 2015. As stated above, all infestations but one were classified as present.

Cornell Flowage includes 29 infestations classified as present and none as abundant (see map of Cornell Flowage). Many of the infested sites had been noted in surveys from the

last several years. An area classified as abundant in previous surveys, located in a low lying area on an island just upstream from the State Highway 64 Bridge, is now classified as present. While the overall number of loosestrife locations increased slightly from 2015, the amount of shoreline affected decreased from 151 feet to 80 feet.

Twenty-six areas of loosestrife infestation were found on Old Abe Flowage (see map of Old Abe Flowage) all of which were classified as present. This is nearly identical to the plant abundance from last year. Most of the locations consisted of single plants or a few plant clumps, many of which had been documented in past surveys. The total amount of shoreline infested by purple loosestrife this year was approximately 100 feet. This compares to 134 feet in 2015.

The minimum flow channel at Jim Falls Hydro remains infested with a relatively high concentration of purple loosestrife plants. A significant decrease in the number of plants was noted in 2012 followed by a rebound in 2013 and 2014. Over the past two years, the degree of infestation has decreased steadily (Table 3). Loosestrife was found scattered throughout the channel, with the lower third being moderately infested (see maps of Jim Falls Spillway Channel). The area of greatest concentration occurs just upstream from the County Highway Y Bridge (see Jim Falls Spillway map 2). The coverage of loosestrife in this area has decreased from approximately 9,461 square feet in 2015 to 6,695 square feet in 2016 (Table 4). The loosestrife is scattered throughout the area and therefore is not classified as abundant. It also appears to be less dense overall than in previous years. Small areas of loosestrife in both the upper and lower portions of the spillway channel increased in both number and amount of shoreline affected. Collectively, these locations accounted for 313 feet of infested shoreline versus 217 feet in 2015. Most of these locations were comprised of small plant clumps infesting between one and ten feet of shoreline, with a few more significant areas of infestation.

Six years have passed since the introduction of the bio-control beetles into the minimum flow channel. While it is difficult to make a determination as to their success, the fact that the density of loosestrife in the lower area of the spillway channel is continuing to decrease, and the fact that loosestrife infestation in the remaining portion of the channel appears to be stabilizing are encouraging.

The number of purple loosestrife sites found on Lake Wissota increased from five in 2015 to nine in 2016,. The highest number of plants documented was ten in 2013. These locations are all minor infestations with small plant clumps at each location (see map of Lake Wissota). Total shoreline infested on Lake Wissota increased from 21 feet in 2015 to 27 feet in 2016. Very little variability has been documented over the last three years.

Loosestrife was documented on Dells Pond for the first time in several years. Only three loosestrife plants observed and each one was chemically treated with herbicide. Next year's survey will help determine the effectiveness of the treatment.

## Table 3. Comparison of Purple Loosestrife Infestations in Jim Falls Spillway Channel – 2014 – 2016

| | 2014 | 2015 | 2016 |
|---|---|---|---|
| Total number of loosetrife points at Jim Falls Spillway | 42 | 42 | 69 |
| Sq feet of Fim Falls Spillway infestation near Hwy Y | 11,064 | 9,461 | 6,695 |
| Total other shoreline affected at Jim Falls Spillway | 239 | 217 | 313 |

## Table 4. Summary of Purple Loosestrife Infestations in Jim Falls Spillway Channel – 2016

| Location # | Degree of Infestation | Single / Multiple | Coverage (ft) | |
|---|---|---|---|---|
| JF1 | Present | Multiple | 6695 | sq ft |
| JF2 | Present | Multiple | 4 | ft |
| JF3 | Present | Multiple | 5 | ft |
| JF4 | Present | Multiple | 8 | ft |
| JF5 | Present | Multiple | 12 | ft |
| JF6 | Present | Single | 3 | ft |
| JF7 | Present | Multiple | 7 | ft |
| JF8 | Present | Multiple | 6 | ft |
| JF9 | Present | Multiple | 18 | ft |
| JF10 | Present | Multiple | 17 | ft |
| JF11 | Present | Single | 2 | ft |
| JF12 | Present | Single | 1 | ft |
| JF13 | Present | Single | 3 | ft |
| JF14 | Present | Single | 1 | ft |
| JF15 | Present | Single | 1 | ft |
| JF16 | Present | Multiple | 10 | ft |
| JF17 | Present | Single | 1 | ft |
| JF18 | Present | Single | 2 | ft |
| JF19 | Present | Single | 3 | ft |
| JF20 | Present | Single | 1 | ft |
| JF21 | Present | Single | 2 | ft |
| JF22 | Present | Single | 3 | ft |
| JF23 | Present | Single | 1 | ft |
| JF24 | Present | Multiple | 6 | ft |
| JF25 | Present | Multiple | 4 | ft |
| JF26 | Present | Single | 2 | ft |
| JF27 | Present | Single | 2 | ft |
| JF28 | Present | Multiple | 6 | ft |
| JF29 | Present | Multiple | 3 | ft |
| JF30 | Present | Multiple | 9 | ft |
| JF31 | Present | Multiple | 8 | ft |
| JF32 | Present | Single | 4 | ft |
| JF33 | Present | Single | 2 | ft |
| JF34 | Present | Multiple | 6 | ft |
| JF35 | Present | Single | 1 | ft |

| Location # | Degree of Infestation | Single / Multiple | Coverage (ft) | |
|---|---|---|---|---|
| JF36 | Present | Single | 1 | ft |
| JF37 | Present | Single | 3 | ft |
| JF38 | Present | Single | 1 | ft |
| JF39 | Present | Single | 1 | ft |
| JF40 | Present | Single | 4 | ft |
| JF41 | Present | Single | 5 | ft |
| JF42 | Present | Single | 3 | ft |
| JF43 | Present | Single | 1 | ft |
| JF44 | Present | Single | 3 | ft |
| JF45 | Present | Single | 2 | ft |
| JF46 | Present | Single | 3 | ft |
| JF47 | Present | Single | 5 | ft |
| JF48 | Present | Multiple | 7 | ft |
| JF49 | Present | Single | 4 | ft |
| JF50 | Present | Multiple | 5 | ft |
| JF51 | Present | Single | 2 | ft |
| JF52 | Present | Multiple | 6 | ft |
| JF53 | Present | Multiple | 7 | ft |
| JF54 | Present | Multiple | 6 | ft |
| JF55 | Present | Multiple | 12 | ft |
| JF56 | Present | Single | 2 | ft |
| JF57 | Present | Single | 1 | ft |
| JF58 | Present | Multiple | 4 | ft |
| JF59 | Present | Multiple | 6 | ft |
| JF60 | Present | Single | 3 | ft |
| JF61 | Present | Multiple | 10 | ft |
| JF62 | Present | Single | 3 | ft |
| JF63 | Present | Single | 2 | ft |
| JF64 | Present | Multiple | 14 | ft |
| JF65 | Present | Multiple | 10 | ft |
| JF66 | Present | Multiple | 5 | ft |
| JF67 | Present | Single | 2 | ft |
| JF68 | Present | Multiple | 4 | ft |
| JF69 | Present | Single | 2 | ft |

# Appendix A

# Survey Maps and Catalog of Purple Loosestrife Locations at Surveyed Flowages

# 2016

# Holcombe Flowage Purple Loosestrife Assessment - 2016

Map 1 of 6

**Legend**

- Loosestrife Abundant
- Loosestrife Present
- Loosestrife Present

N

3,000 1,500 0 3,000 Feet

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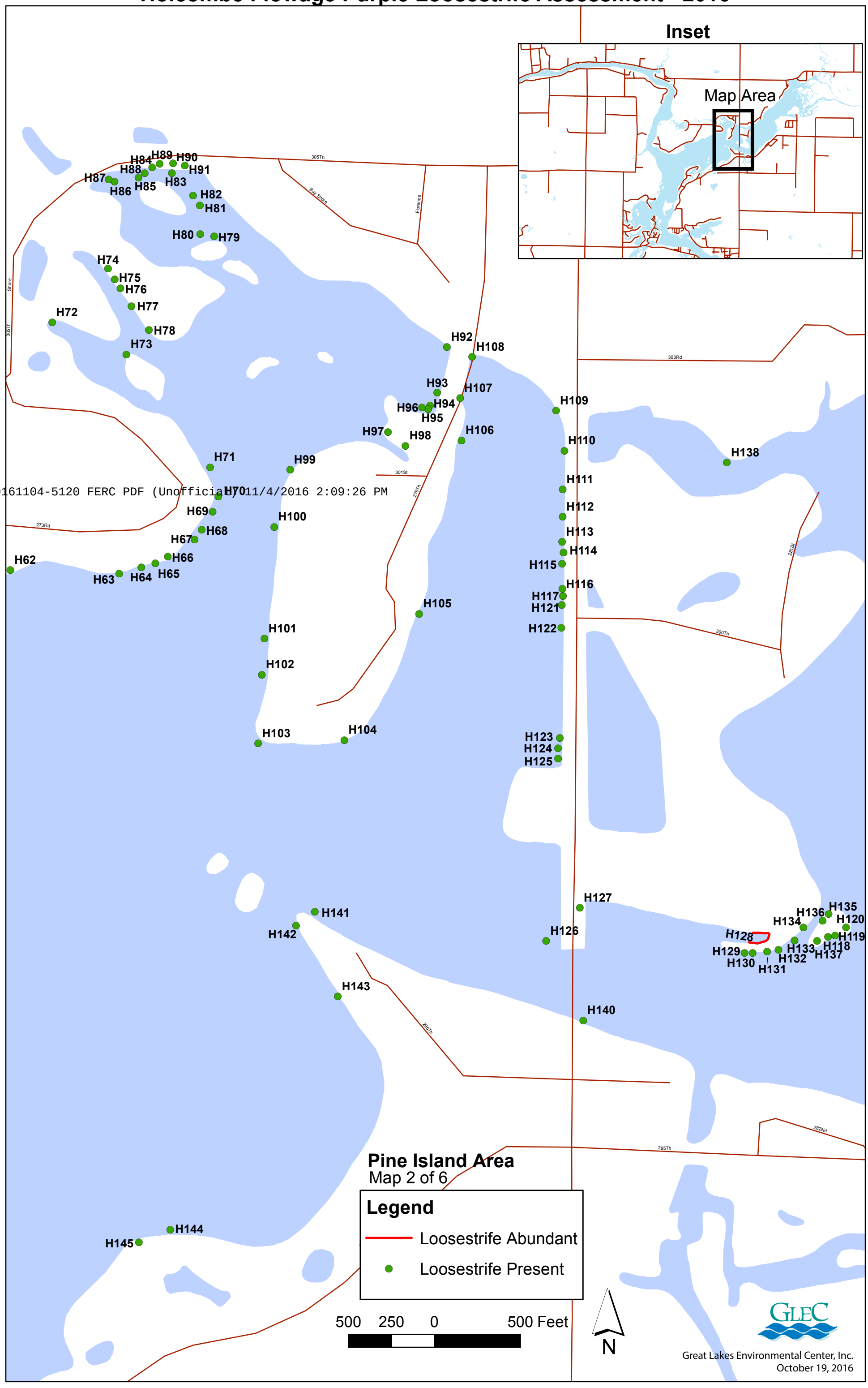
October 18, 2016

# Holcombe Flowage Purple Loosestrife Assessment - 2016

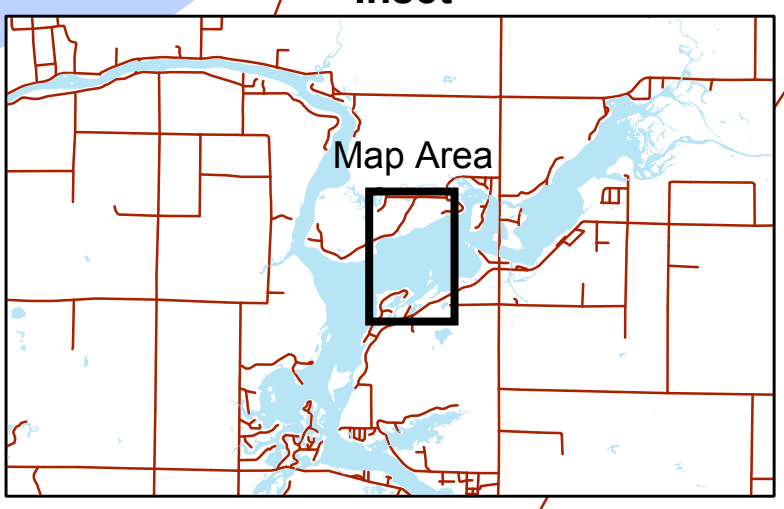


# Holcombe Flowage Purple Loosestrife Assessment - 2016



**Main Basin**
Map 3 of 6

**Inset**




**Legend**

- Loosestrife Present

H45
H46
H47
H48
H49
H50
H51
H52
H53
H54
H55
H56
H57
H58
H59
H60
H61
H62
H147
H148
H149
H150
H151
H152
H153
H154
H155
H156
H157
H158
H159
H160
H161
H162
H163
H164
H165
H166
H167
H168

303Rd
273Rd
270Th
295Th
290Th
289Th
285Th
270Th
286Th
Vera
263Rd
265Th

600 300 0 600 Feet

N

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October 19, 2016

# Holcombe Flowage Purple Loosestrife Assessment - 2016

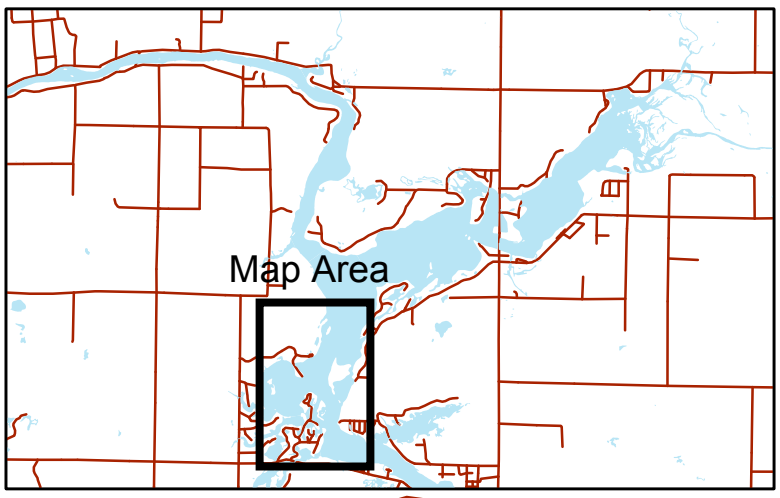
## Lower Basin

Map 4 of 6

### Legend

- Loosestrife Present
- Loosestrife Present

### Inset






H22
H21
H20
H16
H15
H14
H13
H12
H11
H19
H18
H17
H10
H9
H163
H164
H165
H166
H167
H168
H8
H2
H1
H171
H7
H170
H169
H6
H5
H3
H4

293Rd
253Rd
290Th
Park
279Th
251St
275Th
274Th
271St
255Th
Pine Point
Willmarth
Skidmore
Wright
Warner
Fiddler
257Th
259Th
269Th
254Th
263Rd
286Th
Vera
285Th
265Th
264Th
262Nd
Anderson
268Th
276Th
M

800 400 0 800 Feet

N

GLEC

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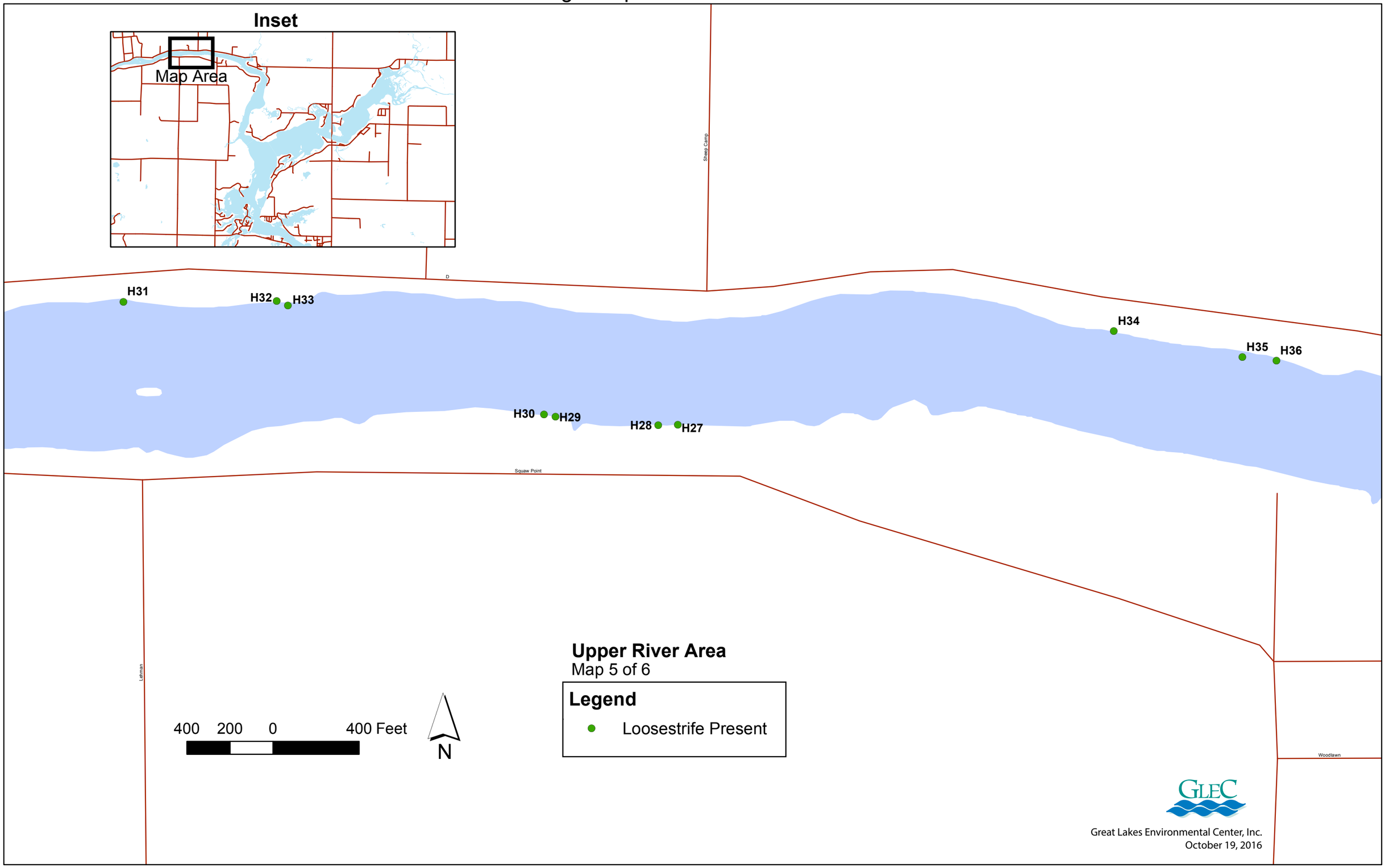
October 19, 2016

# Holcombe Flowage Purple Loosestrife Assessment - 2016



# Holcombe Flowage Purple Loosestrife Assessment - 2016



H37
H38
H39
H40
H41
H42
H43
H25
H26
H44
H45
H46
H47
H48
H49

Cote
Woodlawn
Silver Spring
Silver Springs
Sunnyside Point
D
260Th
255Rd
305Th
267Th
303Rd
293Rd
Shore
270Th

## Inset

Map Area

## Lower River Area

Map 6 of 6

**Legend**

- Loosestrife Present

800 400 0 800 Feet

N

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# Cornell Flowage Purple Loosestrife Assessment - 2016



C14
C15
C17
C18
C19
C20
C21
C22
C23
C24
C25
C26
C16
C27
C28
C29
C1
C12
C11
C13
C8
C9
C10
C2
C7
C6
C5
C4
C3

240Th
239Th
243Rd
255Th
Brunet Island State
Ridgewood
Adrian
Anchor
Park
McIntyre
Industrial Park
Bay
Riverside
Osborne
Thomas
Main
Ripley
1St
Bridge
64
Pine Point
Spring

**Legend**

Loosestrife Present

Loosestrife Present

800 400 0 800 Feet

N

GLEC

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October 18, 2016

# Old Abe Flowage Purple Loosestrife Assessment - 2016



OA20
OA22
OA19
OA23
OA18
OA21
OA16
OA17
OA15
OA14
OA13
OA12
OA11
OA24
OA10
OA8
OA9
OA7
OA25
OA6
OA5
OA4
OA3
OA2
OA1
OA26

Goller
205Th
Meadow
220Th
210Th
Shed
Shed
64
Hoel
ZZ
200Th
210Th
R
235Th
200Th
205Th
210Th
195Th
192Nd
Cushing
190Th
190Th
Badgerweiler
190Th
190Th
Sands
215Th
182Nd
Tt
240Th
180Th
Tt
175Th
210Th
170Th
170Th
170Th
165Th
160Th
206Th
200Th
Moucha
160Th
Bell
225Th
210Th
155Th
152Nd
240Th
150Th
Matatt
150Th
147Th
145Th
178
Cr
205Th
210Th
143Rd
William
S
Railroad
195Th
198Th
140Th
142Nd
K

## Legend

- Loosestrife Present

2,500 1,250 0 2,500

N

GLEC

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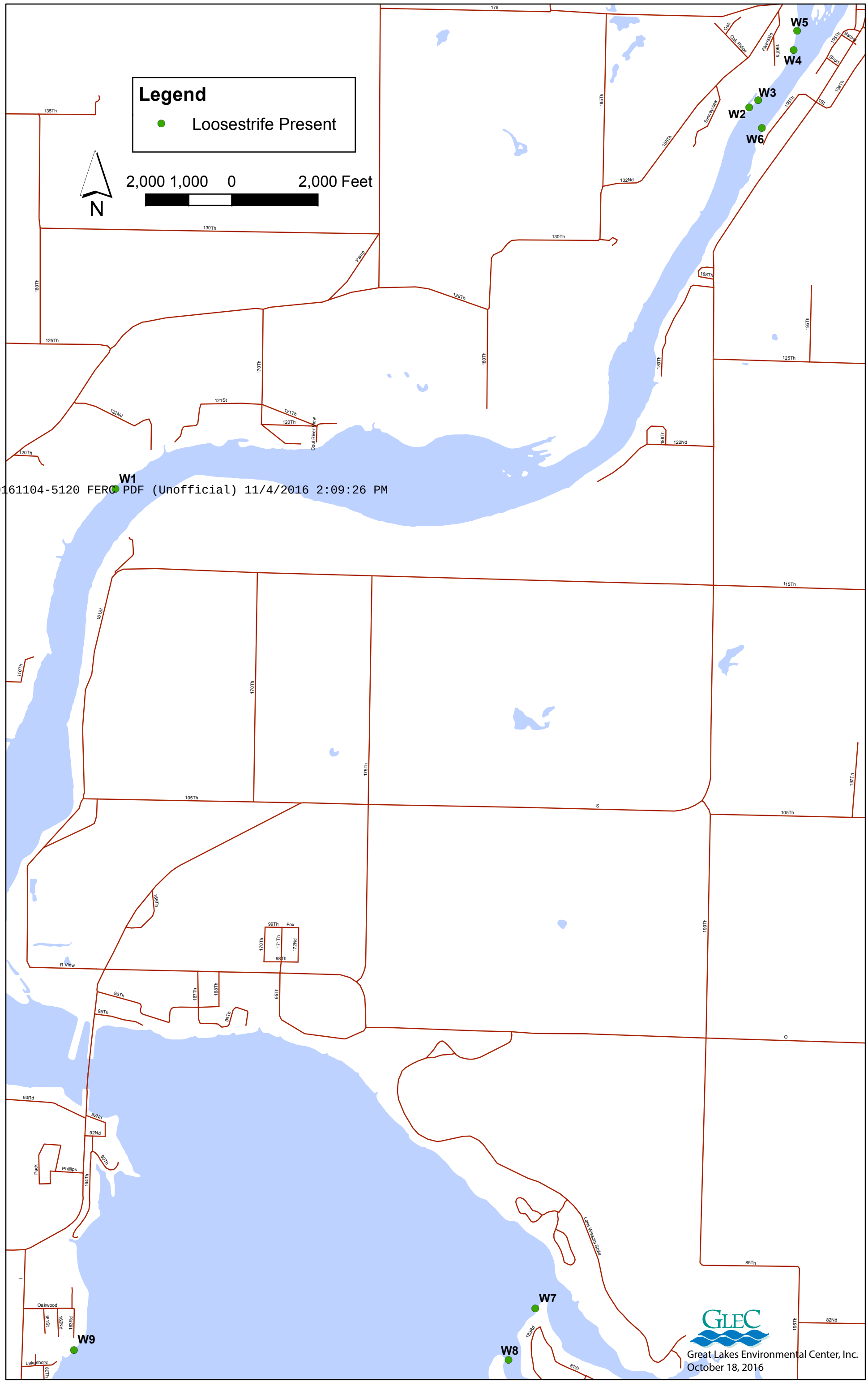
October 14, 2016

# Lake Wissota Purple Loosestrife Assessment - 2016



# Dells Pond Purple Loosestrife Assessment - 2016



D3

D2

D1

N

**Legend**

Loosestrife Present

1,000 500 0 1,000 Feet

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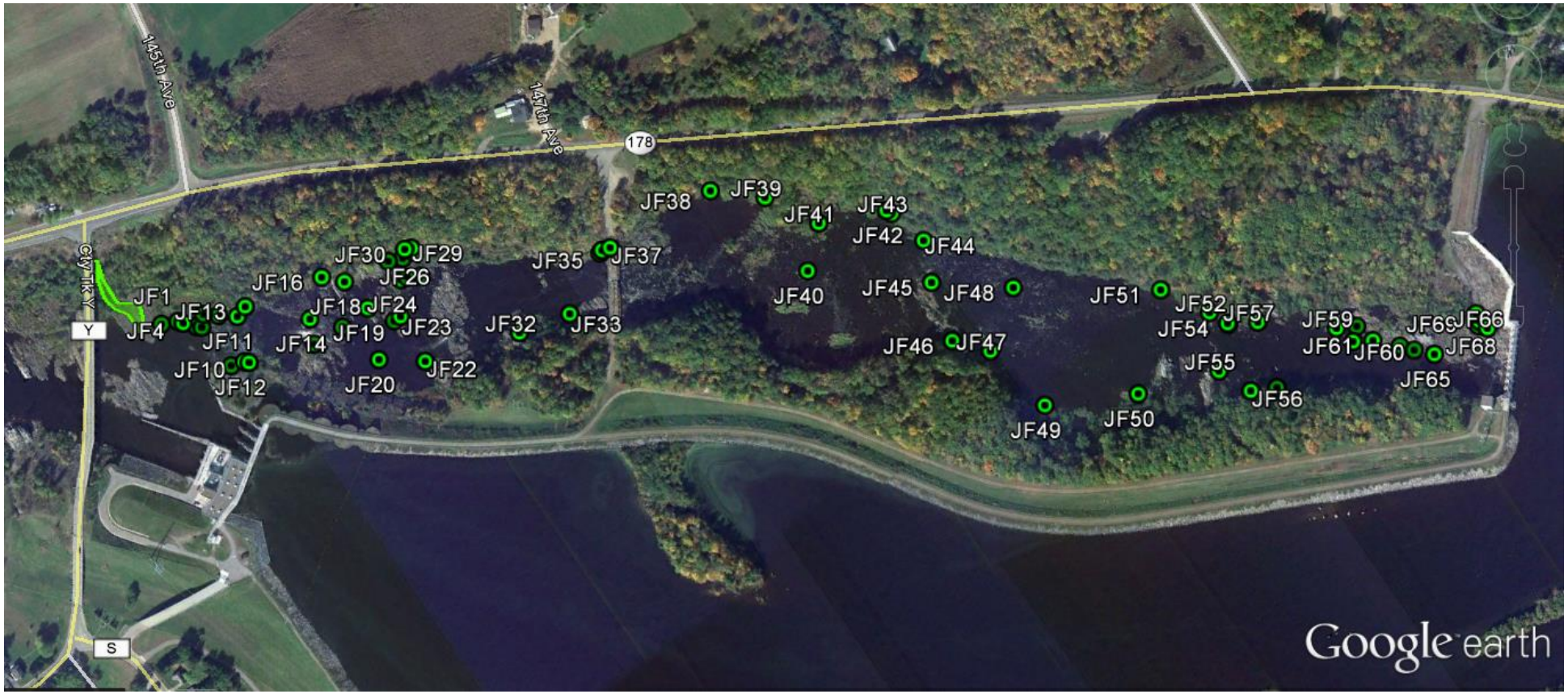
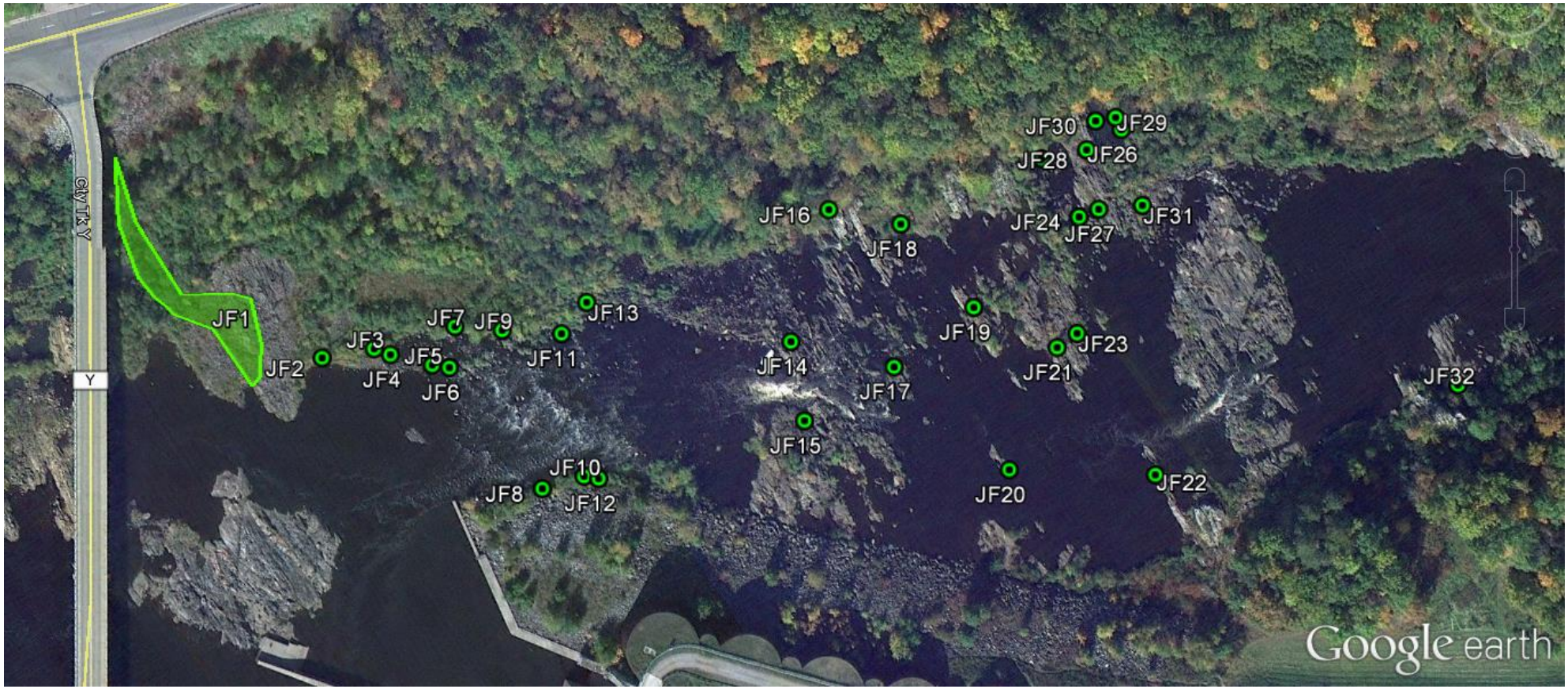
Jim Falls Spillway Channel Purple Loosestrife Assessment – 2016 (Map 1 of 4)

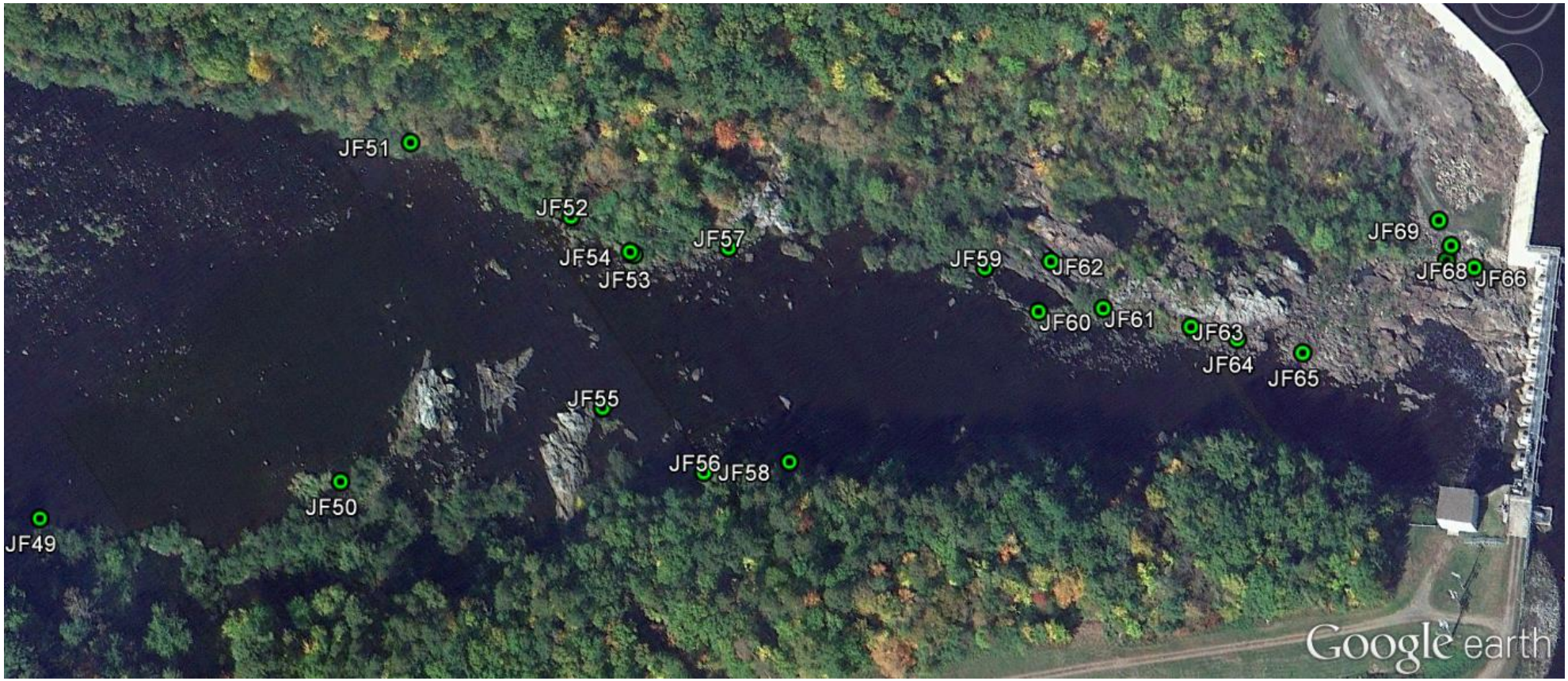


Jim Falls Spillway Channel Purple Loosestrife Assessment – 2016 (Map 2 of 4)



Jim Falls Spillway Channel Purple Loosestrife Assessment – 2016 (Map 3 of 4)

Jim Falls Spillway Channel Purple Loosestrife Assessment – 2016 (Map 4 of 4)



**XCEL PURPLE LOOSESTRIFE LOCATIONS**
**2016**
**HOLCOMBE FLOWAGE**

| Location # | Degree of Infestation | Single / Multiple | Coverage (ft) | Location # | Degree of Infestation | Single / Multiple | Coverage (ft) |
|---|---|---|---|---|---|---|---|
| H1 | Present | Multiple | 5 | H87 | Present | Multiple | 10 |
| H2 | Present | Single | 1 | H88 | Present | Single | 3 |
| H3 | Present | Single | 2 | H89 | Present | Multiple | 6 |
| H4 | Present | Multiple | 45 | H90 | Present | Multiple | 11 |
| H5 | Present | Single | 3 | H91 | Present | Multiple | 5 |
| H6 | Present | Single | 4 | H92 | Present | Multiple | 6 |
| H7 | Present | Multiple | 6 | H93 | Present | Multiple | 6 |
| H8 | Present | Single | 5 | H94 | Present | Multiple | 12 |
| H9 | Present | Multiple | 3 | H95 | Present | Single | 2 |
| H10 | Present | Multiple | 12 | H96 | Present | Multiple | 15 |
| H11 | Present | Single | 4 | H97 | Present | Multiple | 10 |
| H12 | Present | Multiple | 10 | H98 | Present | Single | 4 |
| H13 | Present | Single | 2 | H99 | Present | Single | 2 |
| H14 | Present | Single | 3 | H100 | Present | Multiple | 4 |
| H15 | Present | Single | 2 | H101 | Present | Single | 4 |
| H16 | Present | Multiple | 10 | H102 | Present | Single | 1 |
| H17 | Present | Multiple | 10 | H103 | Present | Single | 1 |
| H18 | Present | Multiple | 4 | H104 | Present | Multiple | 9 |
| H19 | Present | Single | 5 | H105 | Present | Single | 1 |
| H20 | Present | Single | 3 | H106 | Present | Multiple | 7 |
| H21 | Present | Single | 3 | H107 | Present | Single | 4 |
| H22 | Present | Single | 2 | H108 | Present | Single | 2 |
| H23 | Present | Single | 1 | H109 | Present | Single | 1 |
| H24 | Present | Single | 2 | H110 | Present | Single | 3 |
| H25 | Present | Single | 3 | H111 | Present | Single | 4 |
| H26 | Present | Multiple | 11 | H112 | Present | Multiple | 6 |
| H27 | Present | Single | 3 | H113 | Present | Single | 2 |
| H28 | Present | Multiple | 6 | H114 | Present | Multiple | 10 |
| H29 | Present | Single | 4 | H115 | Present | Single | 3 |
| H30 | Present | Multiple | 4 | H116 | Present | Single | 2 |
| H31 | Present | Single | 2 | H117 | Present | Multiple | 8 |
| H32 | Present | Single | 3 | H118 | Present | Multiple | 6 |
| H33 | Present | Single | 3 | H119 | Present | Single | 2 |
| H34 | Present | Single | 3 | H120 | Present | Multiple | 5 |
| H35 | Present | Single | 2 | H121 | Present | Single | 2 |
| H36 | Present | Single | 2 | H122 | Present | Multiple | 14 |
| H37 | Present | Multiple | 1 | H123 | Present | Single | 2 |
| H38 | Present | Single | 3 | H124 | Present | Single | 4 |
| H39 | Present | Single | 2 | H125 | Present | Multiple | 6 |
| H40 | Present | Single | 3 | H126 | Present | Single | 2 |
| H41 | Present | Single | 2 | H127 | Present | Single | 1 |
| H42 | Present | Single | 3 | H128 | Abundant | Multiple | 120 |
| H43 | Present | Single | 1 | H129 | Present | Multiple | 5 |
| H44 | Present | Single | 5 | H130 | Present | Multiple | 10 |
| H45 | Present | Single | 2 | H131 | Present | Multiple | 4 |
| H46 | Present | Single | 1 | H132 | Present | Single | 2 |

**XCEL PURPLE LOOSESTRIFE LOCATIONS**
**2016**
**HOLCOMBE FLOWAGE**

| Location # | Degree of Infestation | Single / Multiple | Coverage (ft) | Location # | Degree of Infestation | Single / Multiple | Coverage (ft) |
|---|---|---|---|---|---|---|---|
| H47 | Present | Single | 2 | H133 | Present | Single | 4 |
| H48 | Present | Multiple | 10 | H134 | Present | Multiple | 13 |
| H49 | Present | Multiple | 6 | H135 | Present | Multiple | 7 |
| H50 | Present | Single | 3 | H136 | Present | Single | 4 |
| H51 | Present | Multiple | 6 | H137 | Present | Single | 4 |
| H52 | Present | Multiple | 8 | H138 | Present | Multiple | 4 |
| H53 | Present | Multiple | 4 | H139 | Present | Single | 3 |
| H54 | Present | Single | 2 | H140 | Present | Single | 3 |
| H55 | Present | Multiple | 5 | H141 | Present | Single | 2 |
| H56 | Present | Single | 3 | H142 | Present | Single | 4 |
| H57 | Present | Single | 1 | H143 | Present | Single | 3 |
| H58 | Present | Multiple | 6 | H144 | Present | Single | 2 |
| H59 | Present | Single | 1 | H145 | Present | Single | 4 |
| H60 | Present | Single | 2 | H146 | Present | Multiple | 6 |
| H61 | Present | Multiple | 14 | H147 | Present | Multiple | 7 |
| H62 | Present | Single | 2 | H148 | Present | Single | 4 |
| H63 | Present | Single | 1 | H149 | Present | Multiple | 4 |
| H64 | Present | Single | 2 | H150 | Present | Single | 1 |
| H65 | Present | Single | 1 | H151 | Present | Multiple | 5 |
| H66 | Present | Single | 3 | H152 | Present | Multiple | 7 |
| H67 | Present | Single | 1 | H153 | Present | Multiple | 11 |
| H68 | Present | Single | 1 | H154 | Present | Multiple | 5 |
| H69 | Present | Multiple | 5 | H155 | Present | Multiple | 3 |
| H70 | Present | Multiple | 5 | H156 | Present | Multiple | 7 |
| H71 | Present | Single | 3 | H158 | Present | Single | 2 |
| H72 | Present | Single | 4 | H157 | Present | Single | 1 |
| H73 | Present | Single | 3 | H159 | Present | Single | 2 |
| H74 | Present | Single | 1 | H160 | Present | Single | 1 |
| H75 | Present | Multiple | 8 | H161 | Present | Single | 3 |
| H76 | Present | Single | 3 | H162 | Present | Multiple | 8 |
| H77 | Present | Multiple | 7 | H163 | Present | Multiple | 12 |
| H78 | Present | Single | 2 | H164 | Present | Multiple | 11 |
| H79 | Present | Single | 2 | H165 | Present | Multiple | 5 |
| H80 | Present | Single | 3 | H166 | Present | Multiple | 6 |
| H81 | Present | Multiple | 5 | H167 | Present | Multiple | 10 |
| H82 | Present | Multiple | 4 | H168 | Present | Multiple | 16 |
| H83 | Present | Single | 2 | H169 | Present | Single | 4 |
| H84 | Present | Multiple | 5 | H170 | Present | Multiple | 5 |
| H85 | Present | Multiple | 8 | H171 | Present | Single | 4 |
| H86 | Present | Multiple | 6 | | | | |

**XCEL PURPLE LOOSESTRIFE LOCATIONS**
**2016**
**CORNELL FLOWAGE**

| Location # | Degree of Infestation | Single / Multiple | Coverage (ft) |
|---|---|---|---|
| C1 | **Present** | Single | 1 |
| C2 | **Present** | Single | 3 |
| C3 | **Present** | Single | 1 |
| C4 | **Present** | Single | 4 |
| C5 | **Present** | Single | 2 |
| C6 | **Present** | Single | 3 |
| C7 | **Present** | Single | 1 |
| C8 | **Present** | Single | 1 |
| C9 | **Present** | Single | 3 |
| C10 | **Present** | Multiple | 18 |
| C11 | **Present** | Single | 3 |
| C12 | **Present** | Single | 1 |
| C13 | **Present** | Single | 2 |
| C14 | **Present** | Single | 1 |
| C15 | **Present** | Single | 3 |
| C16 | **Present** | Single | 2 |
| C17 | **Present** | Single | 2 |
| C18 | **Present** | Single | 1 |
| C19 | **Present** | Single | 2 |
| C20 | **Present** | Single | 3 |
| C21 | **Present** | Single | 2 |
| C22 | **Present** | Single | 1 |
| C23 | **Present** | Single | 2 |
| C24 | **Present** | Single | 1 |
| C25 | **Present** | Single | 1 |
| C26 | **Present** | Single | 1 |
| C27 | **Present** | Single | 2 |
| C28 | **Present** | Multiple | 10 |
| C29 | **Present** | Multiple | 3 |

**XCEL PURPLE LOOSESTRIFE LOCATIONS**
**2016**
**OLD ABE FLOWAGE**

| Location # | Degree of Infestation | Single / Multiple | Coverage (ft) |
|---|---|---|---|
| OA1 | **Present** | Single | 2 |
| OA2 | **Present** | Single | 3 |
| OA3 | **Present** | Single | 4 |
| OA4 | **Present** | Single | 3 |
| OA5 | **Present** | Multiple | 5 |
| OA6 | **Present** | Multiple | 20 |
| OA7 | **Present** | Single | 2 |
| OA8 | **Present** | Multiple | 10 |
| OA9 | **Present** | Single | 2 |
| OA10 | **Present** | Single | 4 |
| OA11 | **Present** | Single | 3 |
| OA12 | **Present** | Single | 2 |
| OA13 | **Present** | Single | 3 |
| OA14 | **Present** | Multiple | 4 |
| OA15 | **Present** | Single | 2 |
| OA16 | **Present** | Single | 2 |
| OA17 | **Present** | Single | 1 |
| OA18 | **Present** | Multiple | 5 |
| OA19 | **Present** | Multiple | 6 |
| OA20 | **Present** | Single | 2 |
| OA21 | **Present** | Single | 2 |
| OA22 | **Present** | Single | 1 |
| OA23 | **Present** | Multiple | 5 |
| OA24 | **Present** | Single | 2 |
| OA25 | **Present** | Single | 3 |
| OA26 | **Present** | Single | 2 |

**XCEL PURPLE LOOSESTRIFE LOCATIONS**
**2016**
**LAKE WISSOTA**

| Location # | Degree of Infestation | Single / Multiple | Coverage (ft) |
|---|---|---|---|
| W1 | **Present** | Single | 2 |
| W2 | **Present** | Single | 1 |
| W3 | **Present** | Single | 4 |
| W4 | **Present** | Multiple | 4 |
| W5 | **Present** | Multiple | 5 |
| W6 | **Present** | Single | 3 |
| W7 | **Present** | Single | 3 |
| W8 | **Present** | Single | 2 |
| W9 | **Present** | Single | 3 |

**XCEL PURPLE LOOSESTRIFE LOCATIONS**
**2016**
**DELLS POND**

| Location # | Degree of Infestation | Single / Multiple | Coverage (ft) |
|---|---|---|---|
| D1 | **Present** | Single | 2 |
| D2 | **Present** | Single | 2 |
| D3 | **Present** | Single | 4 |

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