PURPLE LOOSESTRIFE ASSESSMENT – 2019

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

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October 27, 2019

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 small clusters of pioneering plants which occur on company-owned property 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 27 and September 16, 2019. 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 property. If the plants were on Xcel Energy property, 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 property, they were not to be treated, but documented for the possibility of a different eradication method in the future.

Using GPS coordinates and notations made by the surveyor, the locations of purple loosestrife infestation were noted on 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 slight increase in purple loosestrife infestation on Lake Wissota and Dells Pond and decreases in the amount of loosestrife on all the other flowages. Chippewa Falls Flowage again remained free of loosestrife infestation. Collectively, the amount of loosestrife infestation on the five flowages has decreased approximately 23 percent since 2018. 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 (2017-2019).

	Number of purple loosestrife locations						Shoreline Affected (ft)					
	Present			Abundant			Present			Abundant		
	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Holcombe	189	152	157	1	1	1	1007	704	456	40	40	55
Cornell	25	20	13	0	0	0	76	72	23	0	0	0
Old Abe	30	42	45	0	0	0	118	176	139	0	0	0
Wissota	10	5	7	0	0	0	30	16	34	0	0	0
Chippewa Falls	0	0	0	0	0	0	0	0	0	0	0	0
Dells	2	1	1	0	0	0	6	2	3	0	0	0

Table 2. Total Purple Loosestrife Infestations (2017-2019).

	2017	2018	2019
Total number of loosetrife points at Impoundments	257	221	224
Total feet of shoreline affected in Impoundments	1277	1010	710

Holcombe Flowage again contained the most purple loosestrife among the six impoundments surveyed. There were 157 locations categorized as present and one location categorized as abundant (see Holcombe Flowage Map 1). This represents a slight increase in

the number of infestations but a significant decrease in the amount of shoreline affected 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 of the current survey results to the 2017 and 2018 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 several previous surveys (the length of which grew somewhat from 40 feet to 55 feet). 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 shoreline of the main flowage (see Holcombe Maps 3 and 4) with many of these plants having been documented in the past. The large islands near the south shoreline of the main flowage also contain several plants. Overall, the plant density in the main basin decreased somewhat from 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 less than what was documented in 2018.

In total, approximately 511 feet of shoreline was found to contain purple loosestrife on Lake Holcombe compared to 744 feet in 2018 and 1,047 feet in 2017. As stated above, all infestations but one were classified as present.

Cornell Flowage includes 13 infestations classified as present and none as abundant (see map of Cornell Flowage). Many of the infested sites have been noted in surveys from the last several years. An area classified as abundant in earlier surveys (but present in more recent survey), located in a low lying area on an island just upstream from the State Highway

64 Bridge, is again classified as present. Both the overall number of loosestrife locations and the amount of shoreline affected decreased from 2018.

Forty-five 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 only slightly higher than the plant abundance from last year. Most of the locations consisted of single plants or a few plant clumps, many of which have been documented in past surveys. The total amount of shoreline infested by purple loosestrife this year was approximately 139 feet. This compares to 176 feet in 2018.

The number of purple loosestrife sites found on Lake Wissota increased from five in 2018 to seven in 2019. 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 16 feet in 2018 to 34 feet in 2019. Very little variability has been documented over the last three years.

A single loosestrife location was again documented on Dells Pond in 2019 (the same location as found in 2018). This single plant location amounted to just three feet of shoreline.

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 and another decline in 2015 and increase in 2016. In 2017, the amount of loosestrife again was seen to decrease and the 2018 survey revealed almost no change from the previous year (Table 3). In 2019, the area again saw somewhat of a rebound in loosestrife infestation. 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 steadily decreased, however, from approximately 5,431 square feet in 2017 to 3,600 square feet in 2018, and now 2,556 square feet in 2019 (Table 4). The loosestrife is scattered throughout the area and therefore is not classified as abundant. A steady decline in the overall density of the plants in this area has also been noted over the last several years. The number of loosestrife sites and length of infected shoreline in both the upper and lower portions of the spillway channel increased slightly from last year. Collectively, these locations accounted for 329 feet of infested shoreline versus 262 feet in 2018. 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.

Nine years have passed since the introduction of the bio-control beetles into the Jim Falls 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 continues to decrease, and the fact that loosestrife infestation in the remaining portion of the channel appears to be stabilizing are encouraging.

Table 3. Purple Loosestrife Infestations in the Jim Falls Spillway Channel (2017 – 2019).

	2017	2018	2019
Total number of loosetrife points at Jim Falls Spillway	45	43	67
Sq feet of Fim Falls Spillway infestation near Hwy Y	5,431	3,600	2,556
Total other shoreline affected at Jim Falls Spillway	222	262	329

Table 4. 2019 Summary of Purple Loosestrife Infestations in Jim Falls Spillway Channel

Location #	Degree of Infestation	Single / Multiple	Coverage (ft)	
JF1	Present	Multiple	2556	sq ft
JF2	Present	Single	1	ft
JF3	Present	Single	1	ft
JF4	Present	Multiple	2	ft
JF5	Present	Multiple	3	ft
JF6	Present	Multiple	12	ft
JF7	Present	Single	2	ft
JF8	Present	Multiple	8	ft
JF9	Present	Multiple	20	ft
JF10	Present	Multiple	16	ft
JF11	Present	Multiple	7	ft
JF12	Present	Multiple	10	ft
JF13	Present	Single	4	ft
JF14	Present	Multiple	5	ft
JF15	Present	Single	3	ft
JF16	Present	Single	1	ft
JF17	Present	Multiple	9	ft
JF18	Present	Single	4	ft
JF19	Present	Multiple	14	ft
JF20	Present	Single	1	ft
JF21	Present	Single	1	ft
JF22	Present	Single	2	ft
JF23	Present	Single	2	ft
JF24	Present	Single	2	ft
JF25	Present	Multiple	6	ft
JF26	Present	Single	4	ft
JF27	Present	Single	2	ft
JF28	Present	Multiple	6	ft
JF29	Present	Single	3	ft
JF30	Present	Single	8	ft
JF31	Present	Single	1	ft
JF32	Present	Multiple	6	ft
JF33	Present	Multiple	4	ft
JF34	Present	Single	4	ft
JF35	Present	Single	1	ft

Location #	Degree of Infestation	Single / Multiple	Coverage (ft)	
JF36	Present	Multiple	25	ft
JF37	Present	Single	3	ft
JF38	Present	Multiple	4	ft
JF39	Present	Multiple	3	ft
JF40	Present	Multiple	2	ft
JF41	Present	Multiple	4	ft
JF42	Present	Single	3	ft
JF43	Present	Single	4	ft
JF44	Present	Multiple	8	ft
JF45	Present	Single	3	ft
JF46	Present	Multiple	8	ft
JF47	Present	Multiple	6	ft
JF48	Present	Multiple	8	ft
JF49	Present	Multiple	6	ft
JF50	Present	Multiple	5	ft
JF51	Present	Single	3	ft
JF52	Present	Single	1	ft
JF53	Present	Single	4	ft
JF54	Present	Single	1	ft
JF55	Present	Multiple	6	ft
JF56	Present	Multiple	4	ft
JF57	Present	Multiple	4	ft
JF58	Present	Single	1	ft
JF59	Present	Single	1	ft
JF60	Present	Single	2	ft
JF61	Present	Multiple	10	ft
JF62	Present	Single	1	ft
JF63	Present	Multiple	5	ft
JF64	Present	Single	3	ft
JF65	Present	Single	4	ft
JF66	Present	Single	2	ft
JF67	Present	Multiple	10	ft

Appendix A

Survey Maps and Catalog of Purple Loosestrife Locations at Surveyed Flowages

2019

Holcombe Flowage Purple Loosestrife Assessment - 2019

Map 1 of 6

Legend

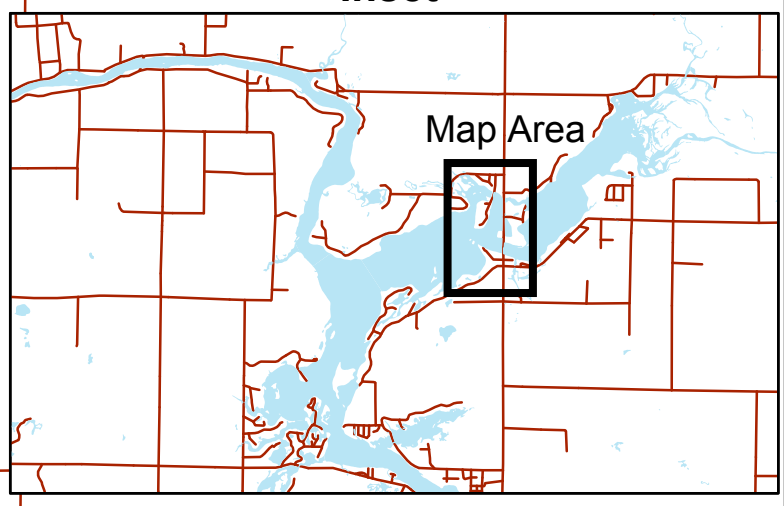
- Loosestrife Abundant
- Loosestrife Present
- Loosestrife Present

3,000 1,500 0 3,000 Feet

N

Great Lakes Environmental Center, Inc.
September 17, 2019

Holcombe Flowage Purple Loosestrife Assessment - 2019



H69 H72 H73 H74 H68 H71 H75 H67 H63 H66 H70 H64 H62 H65 H61 H59 H58 H60 H76 H55 H56 H57 H53 H52 H54 H51 H50 H49 H48 H47 H46 H45 H44 H43 H42 H41 H40 H39 H38 H37 H82 H83 H84 H85 H86 H87 H77 H78 H79 H81 H80 H91 H92 H90 H89 H88 H93 H127 H94 H95 H128 H96 H97 H98 H99 H100 H101 H102 H103 H104 H105 H106 H107 H108 H109 H110 H111 H112 H133 H134 H114 H113 H115 H117 H116 H118 H119 H120 H122 H124 H123 H126 H125 H121 H132 H131 H130 H129

305Th
Bay Shore
Florence
Shore
305Th
303Rd
303Rd
301St
279Th
273Rd
281St
300Th
Pine Island
286Th
282Nd
295Th

Pine Island Area

Map 2 of 6

Legend

- Loosestrife Abundant
- Loosestrife Present

600 300 0 600 Feet

N

GLEC

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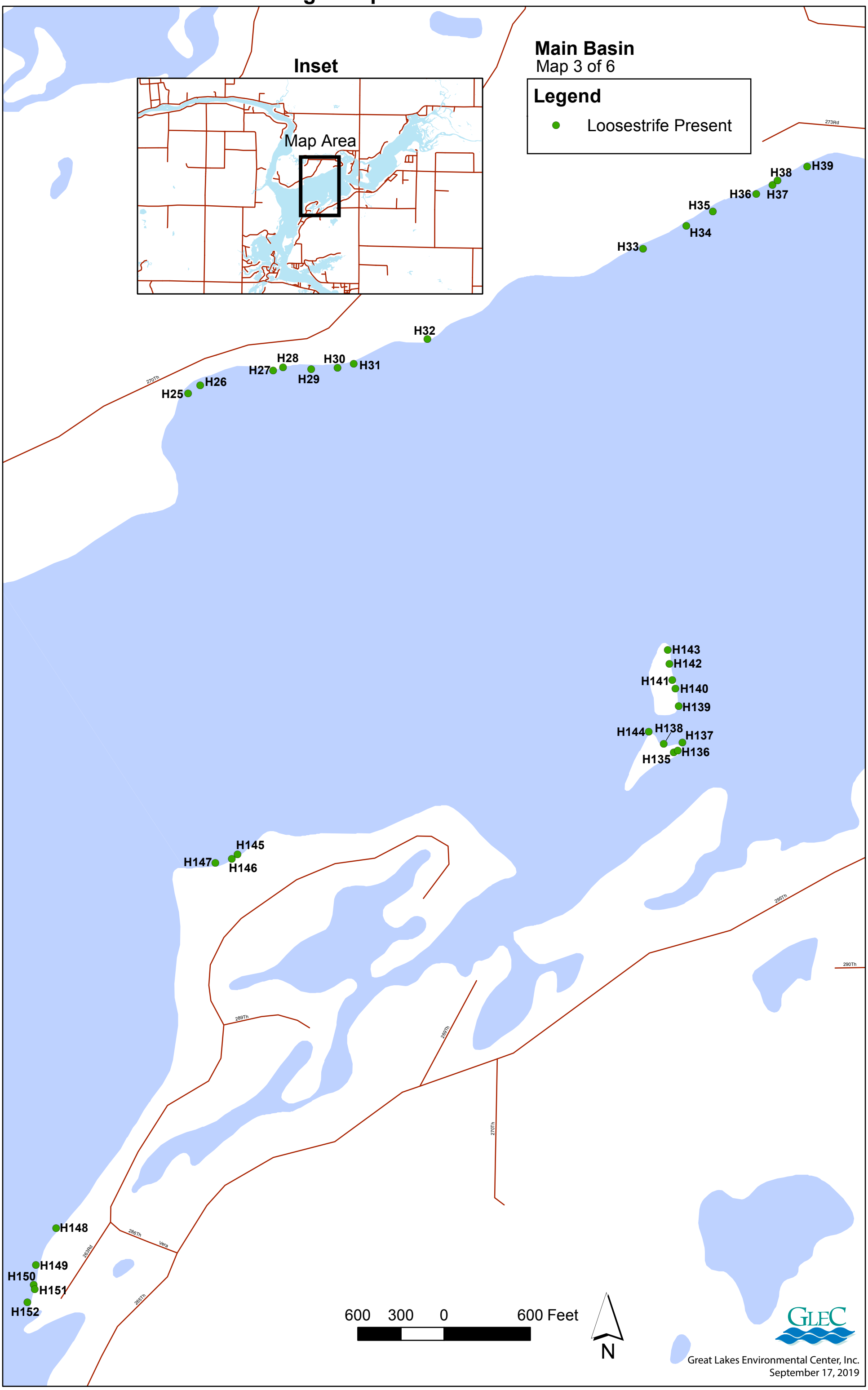
September 17, 2019

Holcombe Flowage Purple Loosestrife Assessment - 2019



Holcombe Flowage Purple Loosestrife Assessment - 2019

H143
H142
H141
H140
H139
H144
H138
H137
H135
H136
H147
H145
H146
H148
H149
H150
H151
H152
H10
H9
H158
H157
H153
H8
H7
H155
H156
H154
H6
H5
H4
H1
H2
H3

Lower Basin
Map 4 of 6

Legend

- Loosestrife Present
- Loosestrife Present

Inset

Map Area

1,200 600 0 1,200 Feet

N

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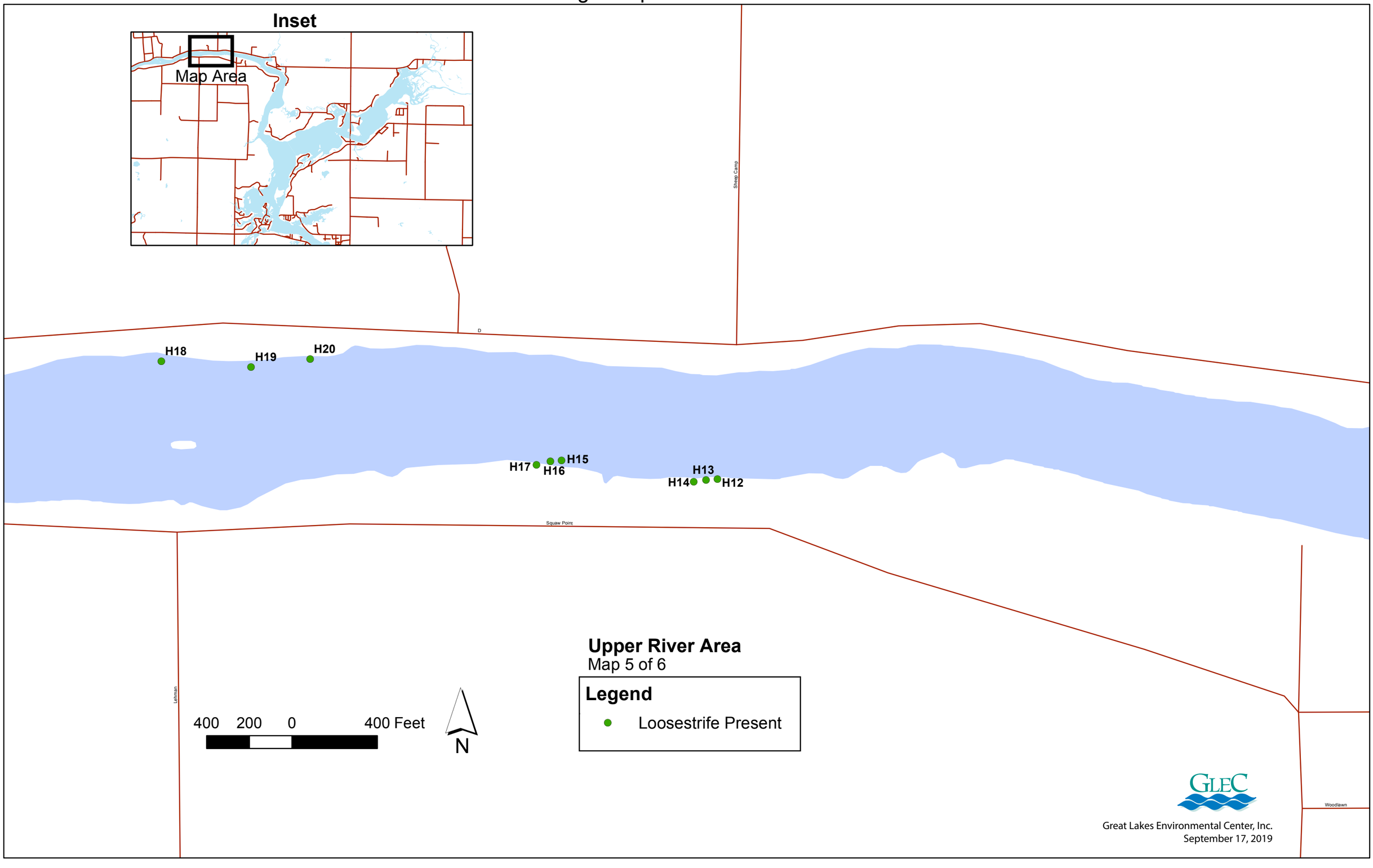
Holcombe Flowage Purple Loosestrife Assessment - 2019



Holcombe Flowage Purple Loosestrife Assessment - 2019

Cote

Woodlawn

Silver Spring

Silver Springs

Sunnyside Point

D

H11

H21

H22

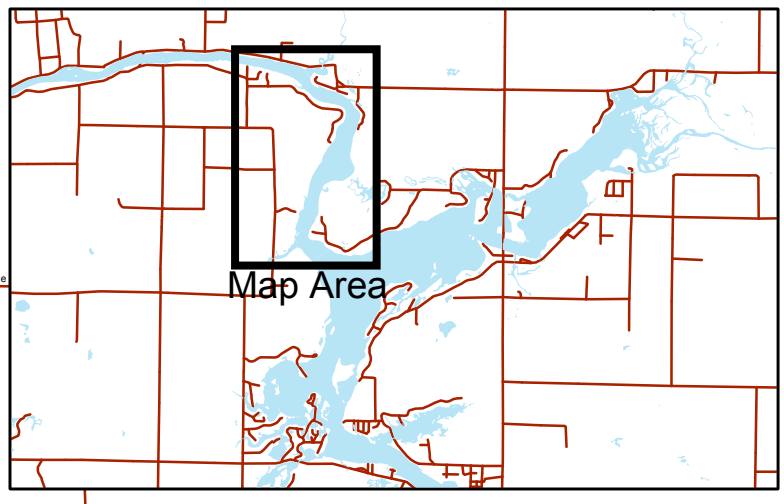
H23

H24

H25

H26

Inset



260Th

265Rd

305Th

293Rd

Shore

270Th

267Th

Lower River Area

Map 6 of 6

Legend

Loosestrife Present

N

800 400 0 800 Feet

GLEC

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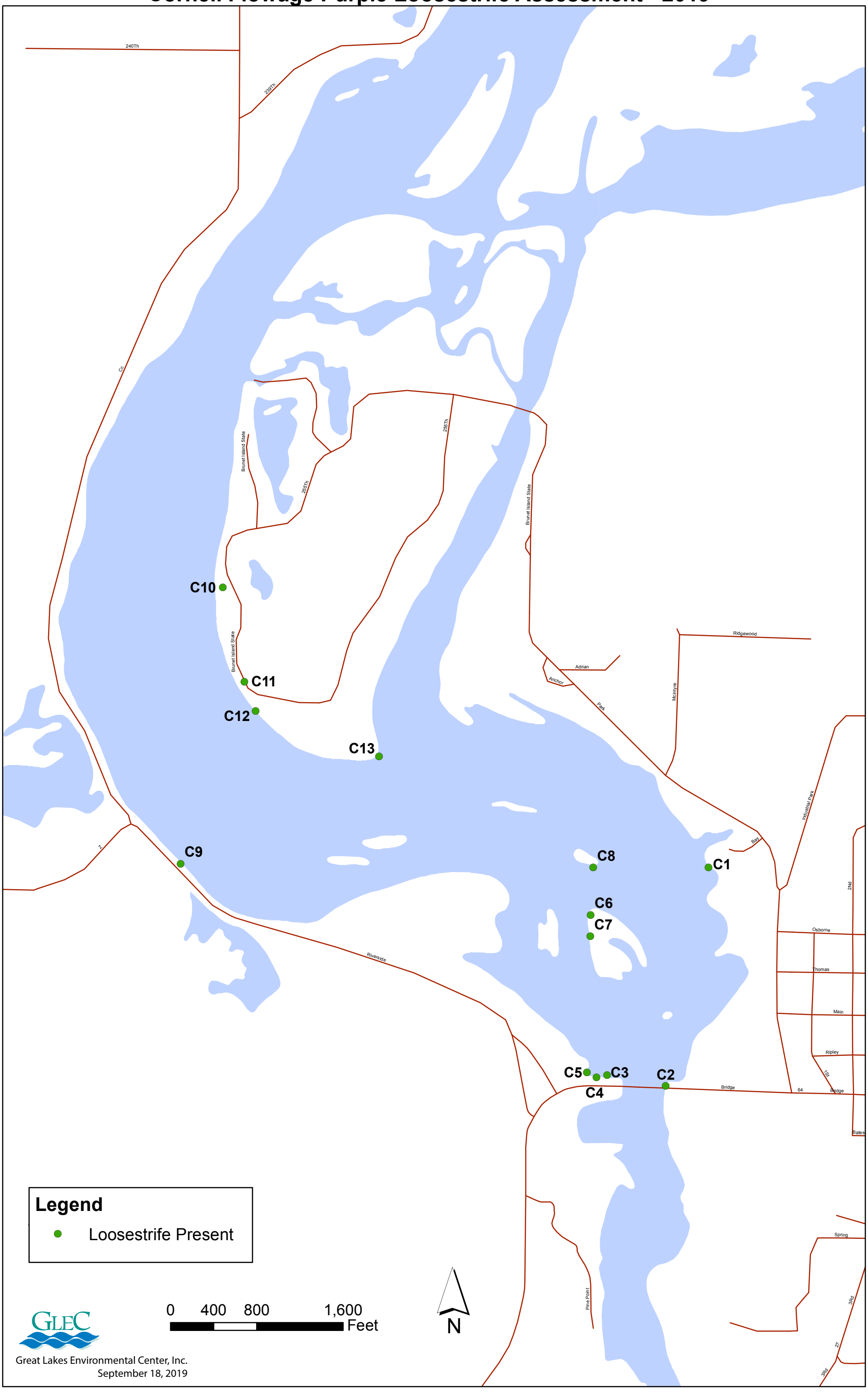
September 17, 2019

Cornell Flowage Purple Loosestrife Assessment - 2019



Old Abe Flowage Purple Loosestrife Assessment - 2019

OA1
OA2
OA3
OA4
OA5
OA6
OA7
OA8
OA9
OA10
OA11
OA12
OA13
OA14
OA15
OA16
OA17
OA18
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OA32
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OA34
OA35
OA36
OA37
OA38
OA39
OA40
OA41
OA42
OA43
OA44
OA45

64
220Th
Hoel
ZZ
R
K
235Th
200Th
195Th
234Th
192Nd
Cushing
190Th
Waldeshweiler
215Th
Sands
Tt
182Nd
180Th
210Th
178
170Th
Mourha

Legend

Loosestrife Present

1,600 800 0 1,600 Feet

N

GLEC

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September 17, 2019

Lake Wissota Purple Loosestrife Assessment - 2019

Legend

- Loosestrife Present

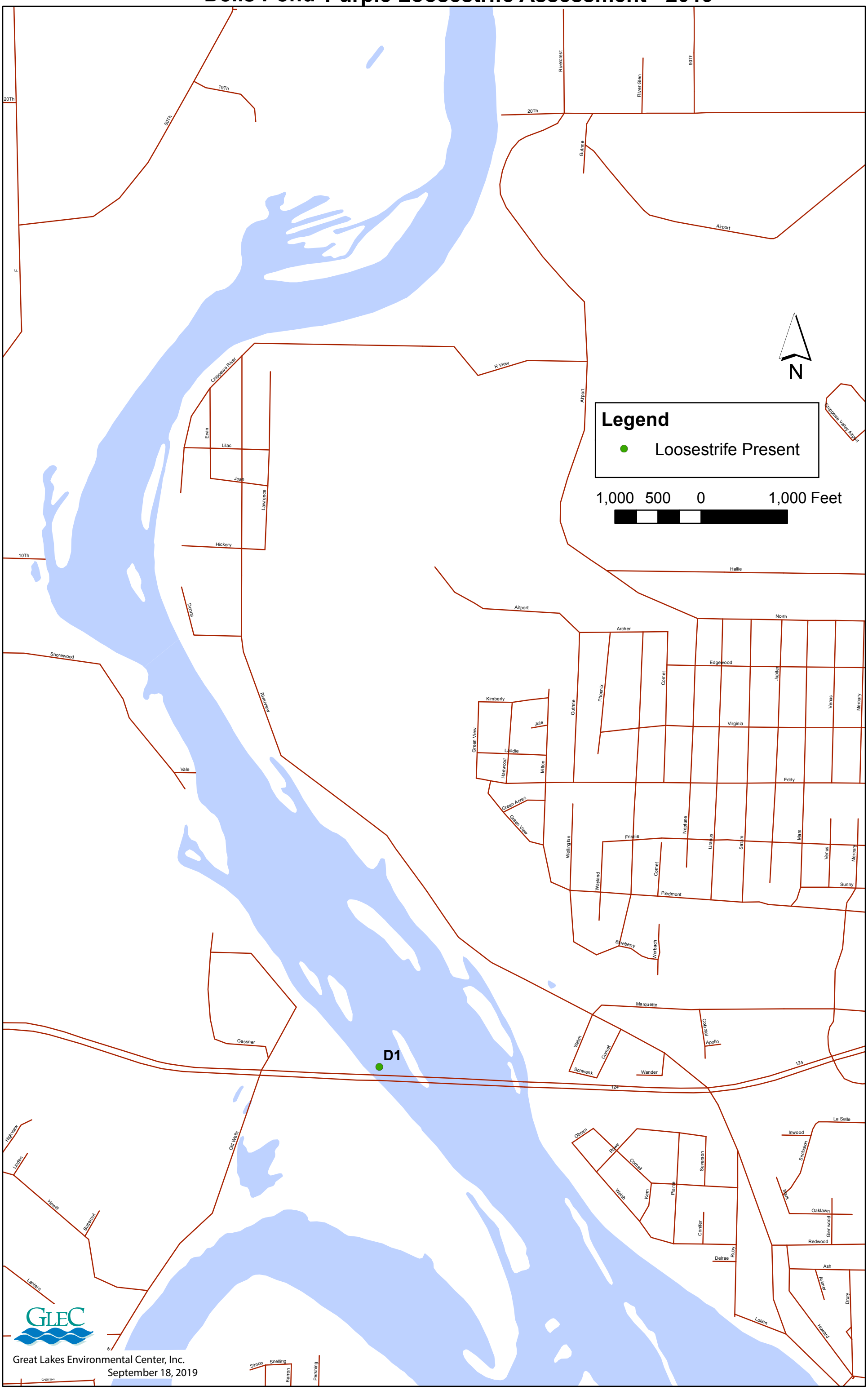
N

0 1,100 2,200 4,400 Feet

W1
W2
W3
W4
W5
W6
W7

Great Lakes Environmental Center, Inc.
September 18, 2019

Dells Pond Purple Loosestrife Assessment - 2019



Jim Falls Spillway Channel Purple Loosestrife Assessment – 2019 (Map 1 of 4)

Jim Falls Spillway Channel Purple Loosestrife Assessment – 2019 (Map 2 of 4)

Jim Falls Spillway Channel Purple Loosestrife Assessment – 2019 (Map 3 of 4)

Jim Falls Spillway Channel Purple Loosestrife Assessment – 2019 (Map 4 of 4)

XCEL PURPLE LOOSESTRIFE LOCATIONS
2019
HOLCOMBE FLOWAGE

Location #	Degree of Infestation	Single / Multiple	Coverage (ft)	Location #	Degree of Infestation	Single / Multiple	Coverage (ft)	Location #	Degree of Infestation	Single / Multiple	Coverage (ft)
H1	Present	Single	1	H54	Present	Single	2	H107	Present	Single	2
H2	Present	Single	1	H55	Present	Multiple	12	H108	Present	Multiple	8
H3	Present	Multiple	45	H56	Present	Single	2	H109	Present	Single	4
H4	Present	Single	1	H57	Present	Single	3	H110	Present	Single	3
H5	Present	Single	3	H58	Present	Multiple	6	H111	Present	Single	1
H6	Present	Single	2	H59	Present	Multiple	4	H112	Present	Single	2
H7	Present	Multiple	5	H60	Present	Single	1	H113	Present	Single	2
H8	Present	Multiple	2	H61	Present	Multiple	16	H114	Present	Multiple	5
H9	Present	Multiple	3	H62	Present	Multiple	5	H115	Abundant	Multiple	55
H10	Present	Multiple	2	H63	Present	Single	1	H116	Present	Multiple	6
H11	Present	Single	2	H64	Present	Multiple	5	H117	Present	Multiple	7
H12	Present	Single	1	H65	Present	Multiple	4	H118	Present	Multiple	5
H13	Present	Single	1	H66	Present	Multiple	7	H119	Present	Single	3
H14	Present	Multiple	8	H67	Present	Multiple	4	H120	Present	Multiple	6
H15	Present	Single	1	H68	Present	Multiple	10	H121	Present	Multiple	5
H16	Present	Single	2	H69	Present	Multiple	8	H122	Present	Single	1
H17	Present	Single	2	H70	Present	Multiple	4	H123	Present	Multiple	3
H18	Present	Single	3	H71	Present	Multiple	12	H124	Present	Single	1
H19	Present	Single	1	H72	Present	Multiple	6	H125	Present	Single	1
H20	Present	Multiple	5	H73	Present	Multiple	10	H126	Present	Single	2
H21	Present	Single	2	H74	Present	Multiple	8	H127	Present	Single	2
H22	Present	Single	1	H75	Present	Multiple	3	H128	Present	Multiple	3
H23	Present	Single	1	H76	Present	Single	2	H129	Present	Single	2
H24	Present	Single	2	H77	Present	Multiple	11	H130	Present	Single	1
H25	Present	Single	1	H78	Present	Single	2	H131	Present	Single	1
H26	Present	Multiple	3	H79	Present	Single	1	H132	Present	Multiple	3
H27	Present	Multiple	6	H80	Present	Single	3	H133	Present	Multiple	4
H28	Present	Multiple	5	H81	Present	Single	1	H134	Present	Multiple	3
H29	Present	Single	2	H82	Present	Single	1	H135	Present	Single	2
H30	Present	Multiple	3	H83	Present	Multiple	4	H136	Present	Single	2
H31	Present	Multiple	5	H84	Present	Single	2	H137	Present	Multiple	7
H32	Present	Single	1	H85	Present	Multiple	4	H138	Present	Multiple	3
H33	Present	Single	1	H86	Present	Single	1	H139	Present	Multiple	5
H34	Present	Single	1	H87	Present	Single	2	H140	Present	Multiple	8
H35	Present	Single	1	H88	Present	Multiple	9	H141	Present	Multiple	14
H36	Present	Multiple	8	H89	Present	Single	2	H142	Present	Multiple	8
H37	Present	Single	1	H90	Present	Multiple	10	H143	Present	Multiple	3
H38	Present	Single	2	H91	Present	Multiple	6	H144	Present	Single	3
H39	Present	Single	1	H92	Present	Single	1	H145	Present	Multiple	4
H40	Present	Multiple	4	H93	Present	Multiple	3	H146	Present	Multiple	3
H41	Present	Single	1	H94	Present	Multiple	8	H147	Present	Single	3
H42	Present	Multiple	6	H95	Present	Multiple	5	H148	Present	Single	2
H43	Present	Multiple	6	H96	Present	Multiple	5	H149	Present	Multiple	11
H44	Present	Single	2	H97	Present	Single	1	H150	Present	Multiple	10
H45	Present	Multiple	4	H98	Present	Single	3	H151	Present	Multiple	4
H46	Present	Multiple	14	H99	Present	Multiple	7	H152	Present	Multiple	4
H47	Present	Single	2	H100	Present	Multiple	5	H153	Present	Single	4
H48	Present	Multiple	6	H101	Present	Single	2	H154	Present	Single	3
H49	Present	Multiple	3	H102	Present	Multiple	12	H155	Present	Single	1
H50	Present	Multiple	10	H103	Present	Multiple	5	H156	Present	Multiple	4
H51	Present	Multiple	4	H104	Present	Single	1	H157	Present	Single	3

XCEL PURPLE LOOSESTRIFE LOCATIONS
2019
CORNELL FLOWAGE

Location #	Degree of Infestation	Single / Multiple	Coverage (ft)
C1	**Present**	Single	1
C2	**Present**	Single	1
C3	**Present**	Single	1
C4	**Present**	Single	1
C5	**Present**	Single	2
C6	**Present**	Single	2
C7	**Present**	Multiple	8
C8	**Present**	Single	1
C9	**Present**	Single	2
C10	**Present**	Single	1
C11	**Present**	Single	1
C12	**Present**	Single	1
C13	**Present**	Single	1

XCEL PURPLE LOOSESTRIFE LOCATIONS
2019
OLD ABE FLOWAGE

Location #	Degree of Infestation	Single / Multiple	Coverage (ft)
OA1	**Present**	Single	2
OA2	**Present**	Single	2
OA3	**Present**	Single	2
OA4	**Present**	Single	3
OA5	**Present**	Multiple	4
OA6	**Present**	Single	1
OA7	**Present**	Single	3
OA8	**Present**	Multiple	6
OA9	**Present**	Single	1
OA10	**Present**	Single	2
OA11	**Present**	Single	3
OA12	**Present**	Single	1
OA13	**Present**	Single	2
OA14	**Present**	Single	1
OA15	**Present**	Multiple	5
OA16	**Present**	Multiple	5
OA17	**Present**	Single	1
OA18	**Present**	Multiple	2
OA19	**Present**	Multiple	4
OA20	**Present**	Single	1
OA21	**Present**	Single	1
OA22	**Present**	Single	1
OA23	**Present**	Multiple	5
OA24	**Present**	Multiple	3
OA25	**Present**	Single	1
OA26	**Present**	Multiple	2
OA27	**Present**	Single	2
OA28	**Present**	Multiple	4
OA29	**Present**	Multiple	10
OA30	**Present**	Multiple	12
OA31	**Present**	Multiple	6
OA32	**Present**	Multiple	6
OA33	**Present**	Single	1
OA34	**Present**	Single	1
OA35	**Present**	Single	2
OA36	**Present**	Single	3
OA37	**Present**	Multiple	7
OA38	**Present**	Single	1
OA39	**Present**	Multiple	5
OA40	**Present**	Single	2
OA41	**Present**	Multiple	4
OA42	**Present**	Single	3
OA43	**Present**	Single	3
OA44	**Present**	Single	2
OA45	**Present**	Single	1

XCEL PURPLE LOOSESTRIFE LOCATIONS
2019
LAKE WISSOTA

Location #	Degree of Infestation	Single / Multiple	Coverage (ft)
W1	**Present**	Single	1
W2	**Present**	Multiple	15
W3	**Present**	Single	2
W4	**Present**	Multiple	6
W5	**Present**	Multiple	5
W6	**Present**	Single	3
W7	**Present**	Single	2

XCEL PURPLE LOOSESTRIFE LOCATIONS
2019
DELLS POND

Location #	Degree of Infestation	Single / Multiple	Coverage (ft)
D1	**Present**	Single	3