



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

October 12, 2011

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

**Subject: 2011 Purple Loosestrife Report for 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:

Attached is a copy of the 2011 Purple Loosestrife Monitoring Report for the above-referenced hydro projects. Pursuant to the Exotics Control Plan of the operating license for each project, Xcel Energy (Licensee) is required to annually monitor and eradicate pioneering purple loosestrife plants on company-owned shorelines. There was no purple loosestrife documented on Chippewa Falls Flowage or Dells Pond, and only four plants were observed on Lake Wissota. These results are similar with past monitoring efforts. Cornell and Old Abe flowages both showed a general increase in loosestrife infestation while Lake Holcombe experienced a marked decrease.

The Federal Energy Regulatory Commission (Commission) issued a letter on February 23, 2011 commenting on Licensee's 2010 Purple Loosestrife Report. In response to the significant increase in loosestrife on Lake Holcombe in 2010, the Commission directed Licensee to consult with the Wisconsin Department of Natural Resources (WDNR) and U.S. Fish and Wildlife Service (USFWS) in an effort to enhance or modify its loosestrife control methods. Licensee consulted with said agencies via letter dated April 18, 2011 (Attachment A); however, neither agency responded with comments. Nonetheless, the loosestrife population on Lake Holcombe showed a dramatic decrease this year, which indicates the variability of loosestrife populations from year to year in response to both weather conditions and the ongoing impacts of loosestrife beetles.

The Lake Holcombe Improvement Association (LHIA) had a purple loosestrife bio-control program from approximately 1991-2004 in which loosestrife beetles were introduced on Lake Holcombe. Since then, the beetle population has been self-sustaining and their population is verified annually by an LHIA member. Licensee spoke with Mr. Brian Guthman, the former LHIA loosestrife coordinator, just prior to filing the 2010 report and his opinion was that weather related factors were the cause of

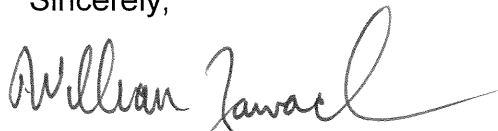
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the 2010 increase in loosestrife. He believes that additional bio-control efforts are not needed as Lake Holcombe already has a viable beetle population.

Beginning in 2010, Xcel Energy partnered with Beaver Creek Reserve to introduce purple loosestrife beetles into the main spillway of the Jim Falls Hydro Project. The beetles were introduced in early July at several locations in the spillway channel where loosestrife concentrations were greatest. River flows were extremely high throughout the summer of 2010 and at least five significant runoff events occurred on the lower Chippewa River between July and October. It is unknown what impact, if any, the high water conditions had upon the beetles in 2010. Licensee and Beaver Creek Reserve partnered again this year and introduced a second population of beetles into the spillway channel. Future monitoring should help determine the long-term success of our bio-control efforts.

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

Sincerely,



William Zawacki
Director, Hydro Plants

Attachment: 2011 Purple Loosestrife Report

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

PURPLE LOOSESTRIFE ASSESSMENT – 2011

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

Prepared for:

**Xcel Energy
P.O. Box 8
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Prepared by:



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September 23, 2011

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 has 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 has 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 once again introduced into the same area this past summer. 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 in certain areas. The locations and density of loosestrife within the Jim Falls spillway channel are therefore being mapped 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 Lake, Cornell Flowage and Lake Holcombe was performed by boat. The surveys were conducted between August 15 and September 15, 2011. 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 saved 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 the area but did not comprise a large percentage of the 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 vegetation.

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. Through past work, it has been determined that herbicide application can be used as an effective treatment for small loosestrife populations, but 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 the 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 basemaps (Wisconsin DNR 24K Hydrography version 6 and ESRI StreetMap USA). Locations of purple loosestrife are noted on the maps using green for present and red for abundant. Due the scale of the maps, locations covering less than 20 feet of shoreline are denoted by a dot; areas covering 20 feet of shoreline or more are denoted by a line drawn to scale. By using a combination of GPS, laser rangefinder, visual estimates, and GIS, a total distance of shoreline affected by purple loosestrife was calculated for each flowage (Table 1). Appendix A provides detailed information regarding each loosestrife location.

A purple loosestrife survey 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 large numbers which prompted the introduction of purple loosestrife bio-control beetles. A comprehensive mapping effort of the area was started in 2010 to monitor the spread of the loosestrife and the success of the beetle introduction. This portion of the task 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 number of feet of shoreline infested by purple loosestrife is presented for each flowage in Table 1. 2009 was the first year where an effort was made to tabulate abundance and shoreline coverage so a direct comparison may be made from year-to-year. The three most recent years of survey are summarized below in Table 1. This year's survey revealed a marked decrease in purple loosestrife infestation on Holcombe Flowage while a slight increase was observed on the three other flowages in which loosestrife was found. This is an exact reversal of the changes in loosestrife populations that were noted from 2009 to 2010.

Table 1. Summary of Purple Loosestrife Infestations on Six Lower Chippewa River Hydroelectric Projects, 2009-2011

	Number of purple loosestrife locations						Shoreline Affected (ft)					
	Present			Abundant			Present			Abundant		
	2009	2010	2011	2009	2010	2011	2009	2010	2011	2009	2010	2011
Holcombe	62	115	106	2	2	2	379	1806	886	135	160	145
Cornell	5	6	17	0	0	1	44	8	40	0	0	55
Old Abe	6	8	14	1	0	1	27	31	61	20	0	20
Wissota	0	1	4	0	0	0	0	1	14	0	0	0
Chippewa Falls	0	0	0	0	0	0	0	0	0	0	0	0
Dells	1	0	0	0	0	0	2	0	0	0	0	0

There was no purple loosestrife found on the Chippewa Falls Flowage in 2011 which is consistent with findings from previous years. Dell's Pond was also absent from any loosestrife infestation this year, even though one plant was observed in 2009.

The number of purple loosestrife plants found on Lake Wissota has increased from one in 2010 to four in 2011. These locations are all minor infestations with one or two plant clumps at each location and are all located on the upper portion of the flowage (see map of Lake Wissota). Total shoreline affected on Lake Wissota has increased from one foot in 2010 to 14 feet in 2011.

Holcombe Flowage contained the most purple loosestrife among the six impoundments surveyed. 106 locations were noted as present and two locations were noted as abundant (see Holcombe Flowage Map 1). While a few new plants were found during the survey, the majority of the infested areas have been noted in previous years. New infestation

is 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 only grow during select years. This may be the case on Holcombe Flowage with new plants growing this year, while other previously noted plants did not.

The majority of plants on Lake Holcombe were again found in the area on and around Pine Island and along Highway 27; however, a comparison to the 2010 surveys show a clear decrease in the overall loosestrife populations in this area (see Holcombe Map 2). One of these areas was classified as abundant. Several small infestations and one abundant location were found just to the east of the Highway 27 Bridge. This also shows a general decrease from last year's survey. No purple loosestrife was found in Main Creek, Jump River, Pine Lake, or Cranberry Lake.

Several plant clumps were found scattered along the north and south shores 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 shore of the main flowage contain several plants. Overall, there was a general decrease in plant density in the main flowage area.

The upstream reach of the flowage (see Holcombe Map 5) also contains a number of purple loosestrife plants that have been noted in past surveys. While a few new plant locations were noted in this year's survey (especially in the lower end of the riverine reach, see Map 6), overall plant density is lower than what was noted in 2010.

In total, approximately 1,031 feet of shoreline was found to contain purple loosestrife compared to 1,966 feet in 2010. A total of 145 feet was classified as abundant while the remaining 886 feet was classified as present. In 2010, 160 feet and 1,806 feet were reported as abundant and present respectively.

Cornell Flowage was found to contain 17 small infestations of purple loosestrife (classified as present) and one location classified as abundant (see map of Cornell Flowage). A number of these were new isolated locations that had not been noted in previous surveys. The one abundant location was found in a low lying area on an island just upstream from the State Highway 64 Bridge. While this location was classified as present last year, it has been

classified as abundant in several previous surveys. A total of 95 feet of shoreline was found to contain purple loosestrife in 2011, compared to eight feet in 2010 and 44 feet in 2009.

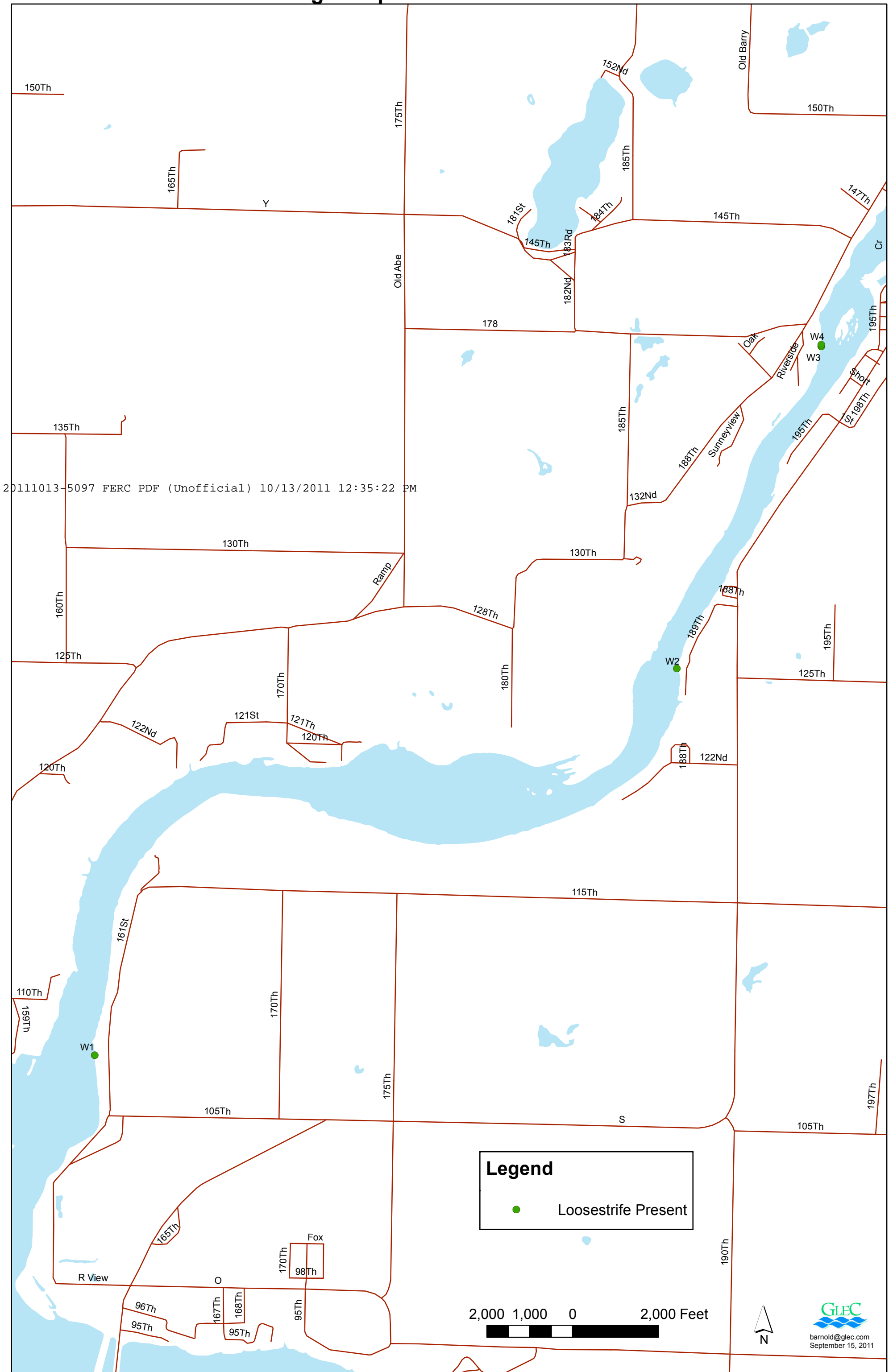
Fifteen areas of loosestrife infestation were found on Old Abe Lake (see map of Old Abe Flowage) of which all but one was classified as present. This represents an increase in plant abundance on Old Abe Flowage from last year. The abundant location that was found at the mouth of Bob Creek, consisting of a number of plants spread over approximately 20 feet of shoreline was classified as abundant in 2009 and 2011, but was classified as present in 2010. This again shows the habit of loosestrife plants growing less vigorously or not at all in select years. Eleven locations were noted in the upper reaches of the flowage that consisted of single plants or a few plant clumps, many of which had been noted in past surveys. Two locations in the middle of the flowage and one near the downstream end were noted for the first time in this year's survey. The total amount of shoreline infested by purple loosestrife this year on Old Abe Lake is approximately 81 feet. This compares to just 31 feet in 2010 and 47 feet in 2009.

The minimum flow channel at Jim Falls Hydro remains an area of high purple loosestrife infestation and an increase in the number of plants was noted this year. Loosestrife was found scattered throughout the channel, with the lower third of the channel being moderately infested (see maps of Jim Falls Spillway Channel). The area of greatest concentration occurs in the area just upstream from the CTH Y Bridge (see Jim Falls Spillway map 2). This area covers approximately 27,288 square feet (Table 2); however, the loosestrife is scattered throughout the area and therefore is not classified as abundant. Loosestrife was spread linearly along the shoreline in only two locations in 2011 versus five in 2010. Collectively, these amounted to 312 feet of infested shoreline versus 677 feet in 2010. 25 other areas of loosestrife were found in the spillway channel, which is an increase from 2010. Each of these were small plant clumps comprising between one and five feet of shoreline each. Only one year has passed since the introduction of the bio-control beetles, and it is too early to make a determination as to their success at controlling the loosestrife in this location.

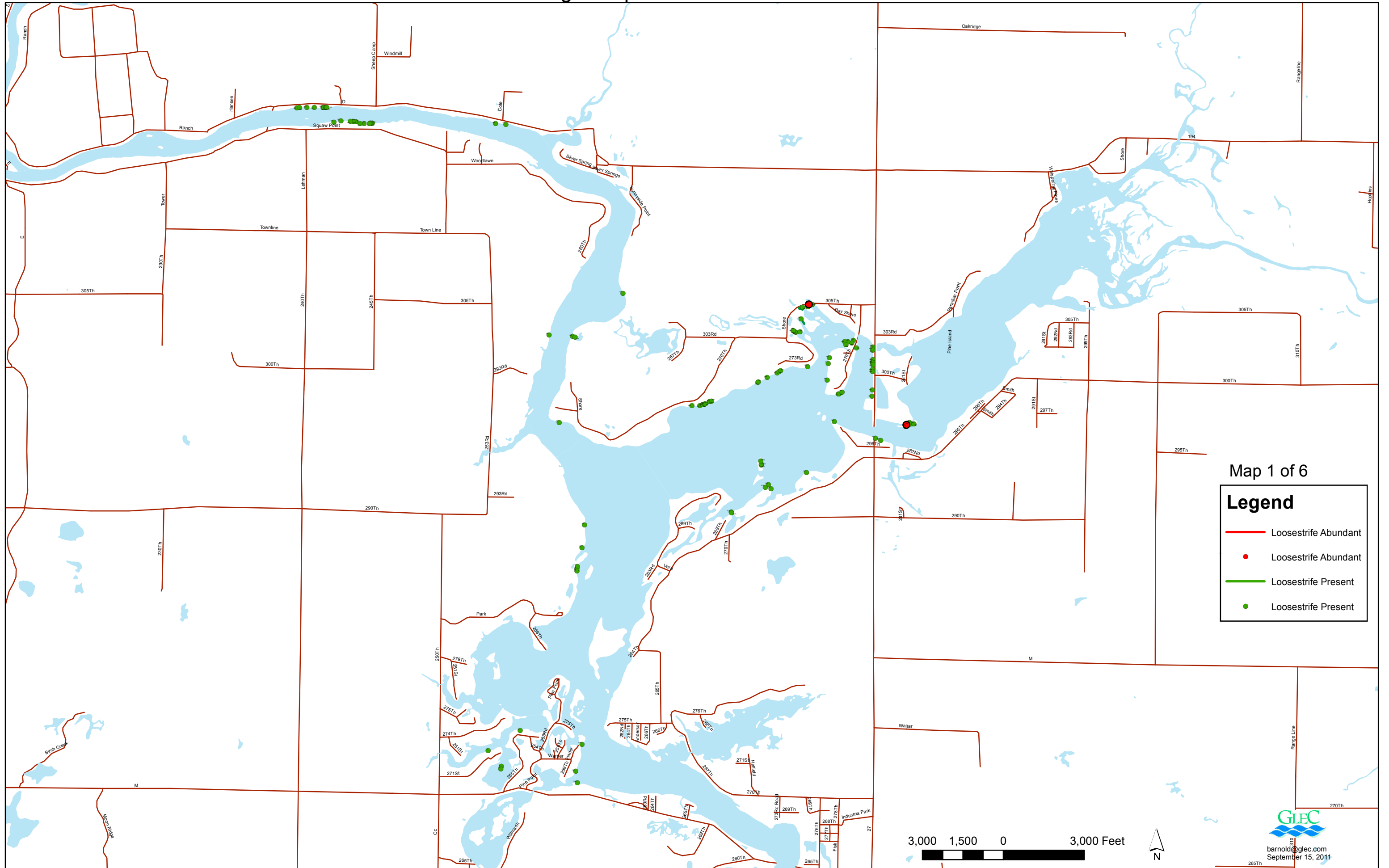
**Table 2. Summary of Purple Loosestrife Infestations in
Jim Falls Spillway Channel – 2011**

Map point	Abundant/ Present	Coverage type	Area covered
JF 1	Present	Aerial	27,288 sq ft
JF 2	Present	Point	2 ft
JF 3	Present	Point	3 ft
JF 4	Present	Point	4 ft
JF 5	Present	Point	4 ft
JF 6	Present	Point	1 ft
JF 7	Present	Point	1 ft
JF 8	Present	Point	5 ft
JF 9	Present	Point	3 ft
JF 10	Present	Point	1 ft
JF 11	Present	Point	2 ft
JF 12	Present	Point	3 ft
JF 13	Present	Point	2 ft
JF 14	Present	Point	3 ft
JF 15	Present	Point	3 ft
JF 16	Present	Point	4 ft
JF 17	Present	Point	2 ft
JF 18	Present	Point	3 ft
JF 19	Present	Point	4 ft
JF 20	Present	Point	3 ft
JF 21	Present	Point	5 ft
JF 22	Present	Line	244 ft
JF 23	Present	Point	2 ft
JF 24	Present	Point	2 ft
JF 25	Present	Point	3 ft
JF 26	Present	Line	68 ft
JF27	Present	Point	1 ft
JF28	Present	Point	3 ft

Wissota Flowage Purple Loosestrife Assessment - 2011



Holcombe Flowage Purple Loosestrife Assessment - 2011

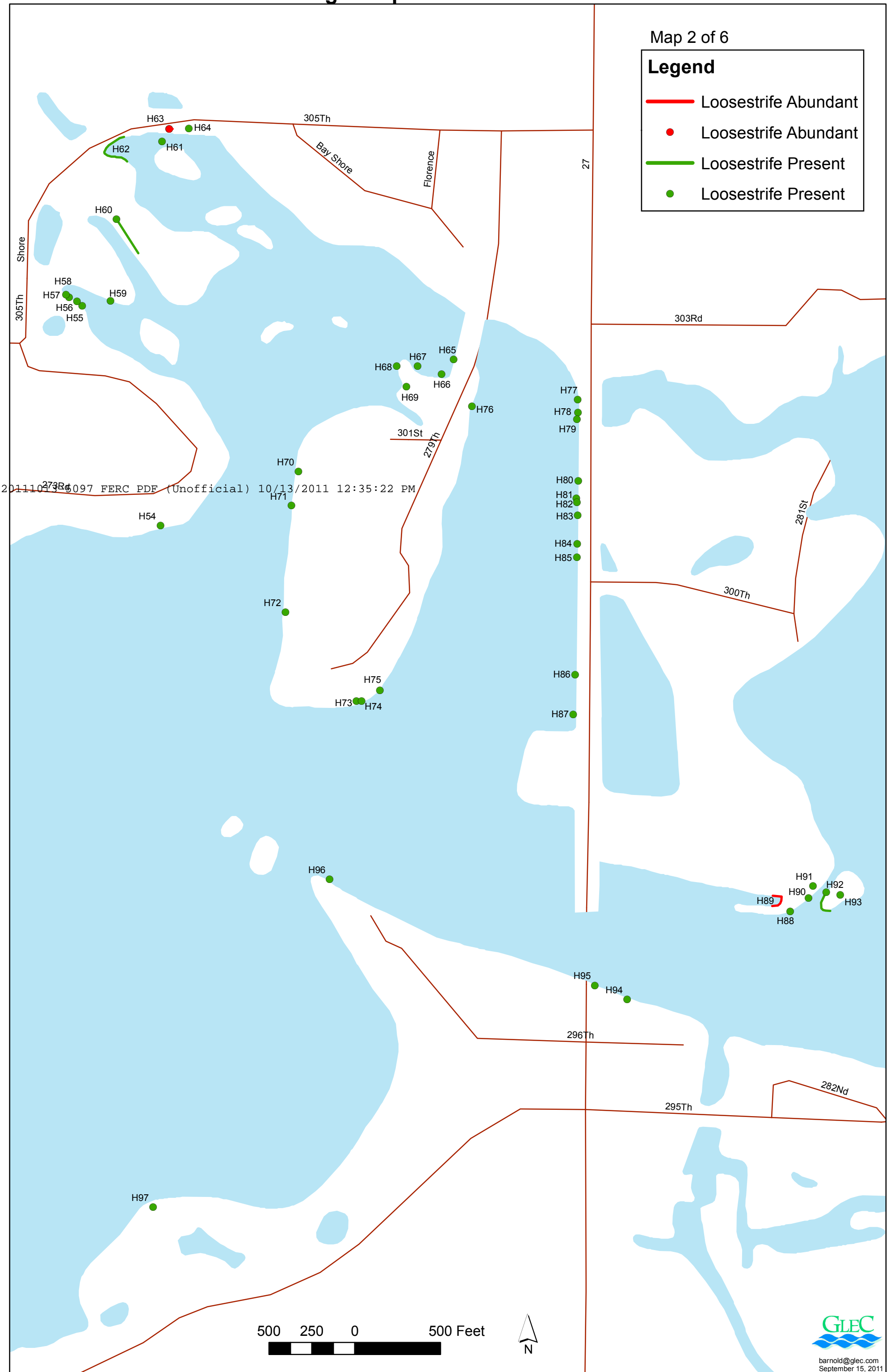


Holcombe Flowage Purple Loosestrife Assessment - 2011

Map 2 of 6

Legend

- Loosestrife Abundant
- Loosestrife Abundant
- Loosestrife Present
- Loosestrife Present

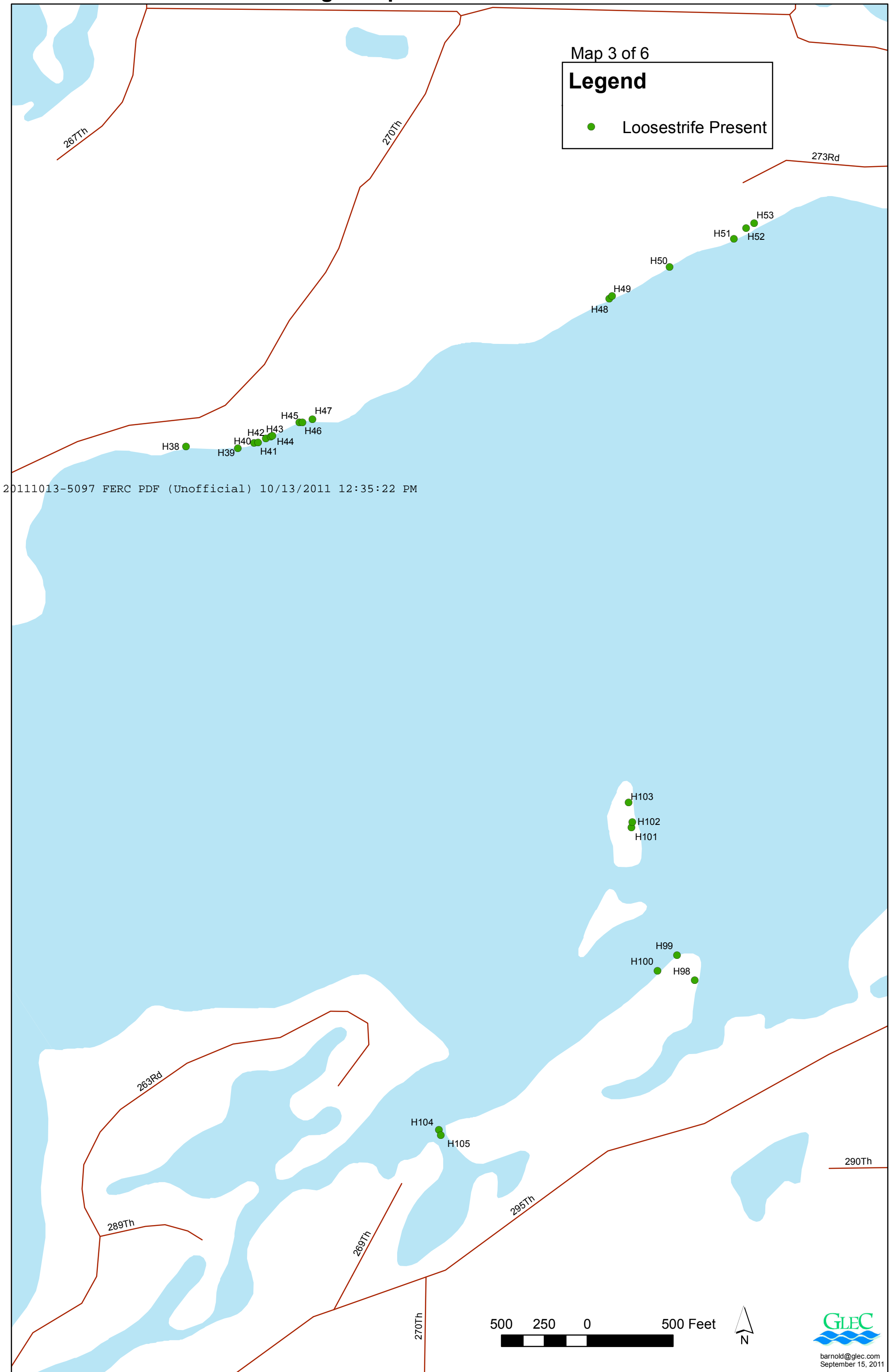


Holcombe Flowage Purple Loosestrife Assessment - 2011

Map 3 of 6

Legend

● Loosestrife Present



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Holcombe Flowage Purple Loosestrife Assessment - 2011

650 325 0 650 Feet



Map 4 of 6

Legend



Loosestrife Present

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Park

279Th

251St

275Th

274Th

H4

271St

H2

H3

M

H1

Pine Point

M

254Th

Skidmore

263Rd

255Th

Warner

Wright

257Th

258Th

259Th

Pine Point

275Th

275Th

275Th

275Th

275Th

275Th

275Th

275Th

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259Th

H107

H106

H108

Flader

259Th

259Th

259Th

259Th

259Th

H7

H6

H5

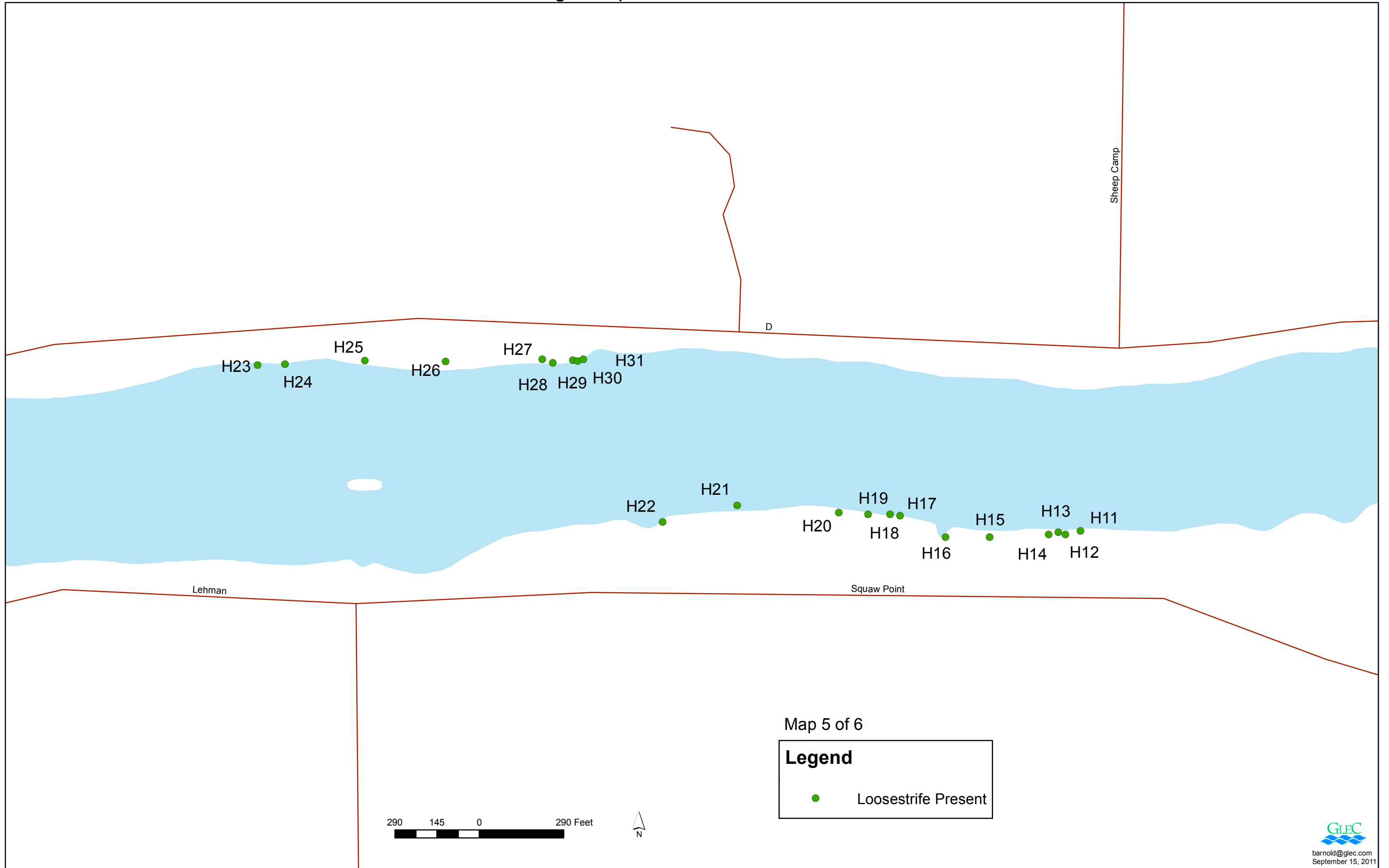
H8

H9

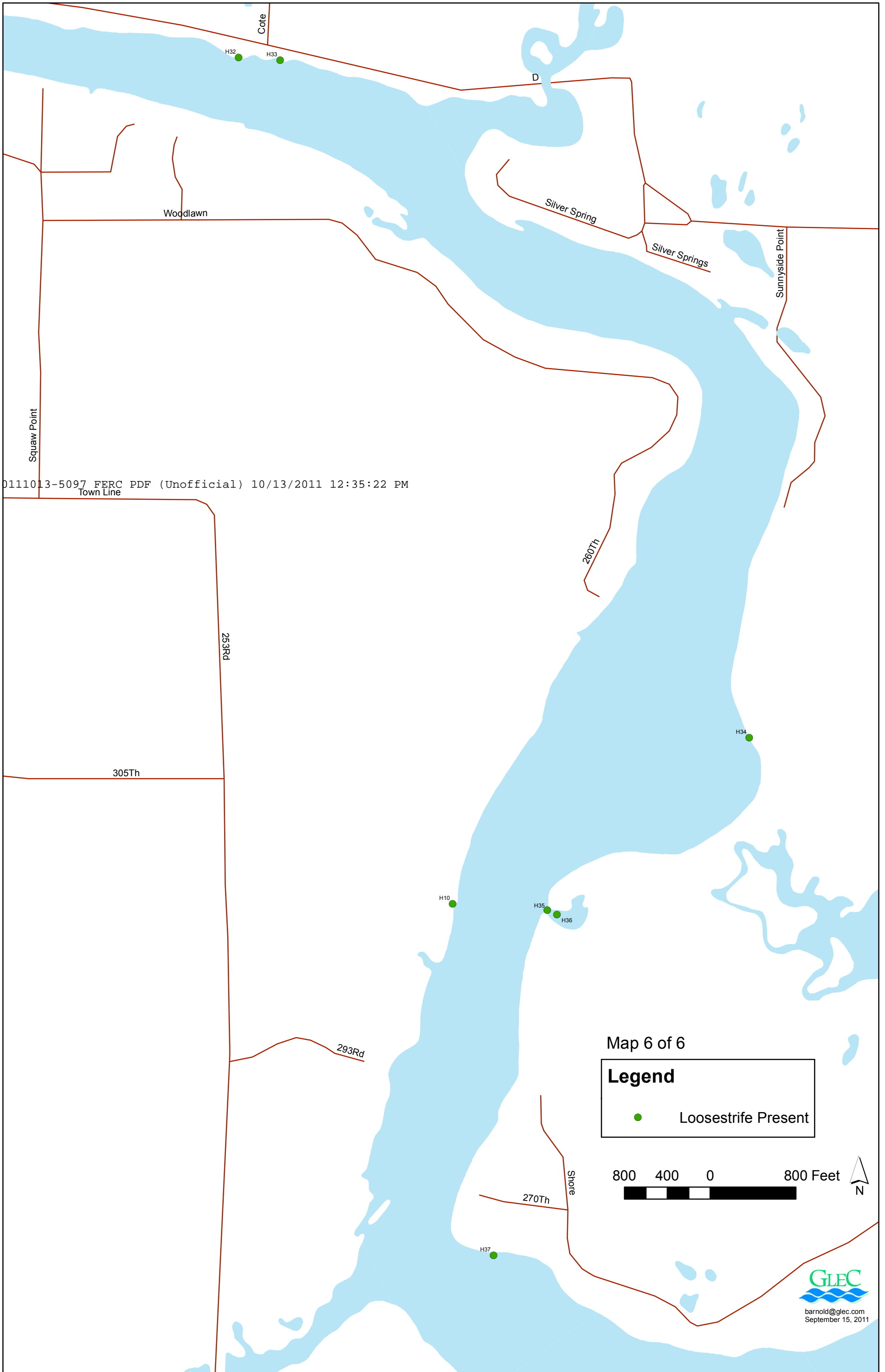


barnold@glec.com
November 16, 2010

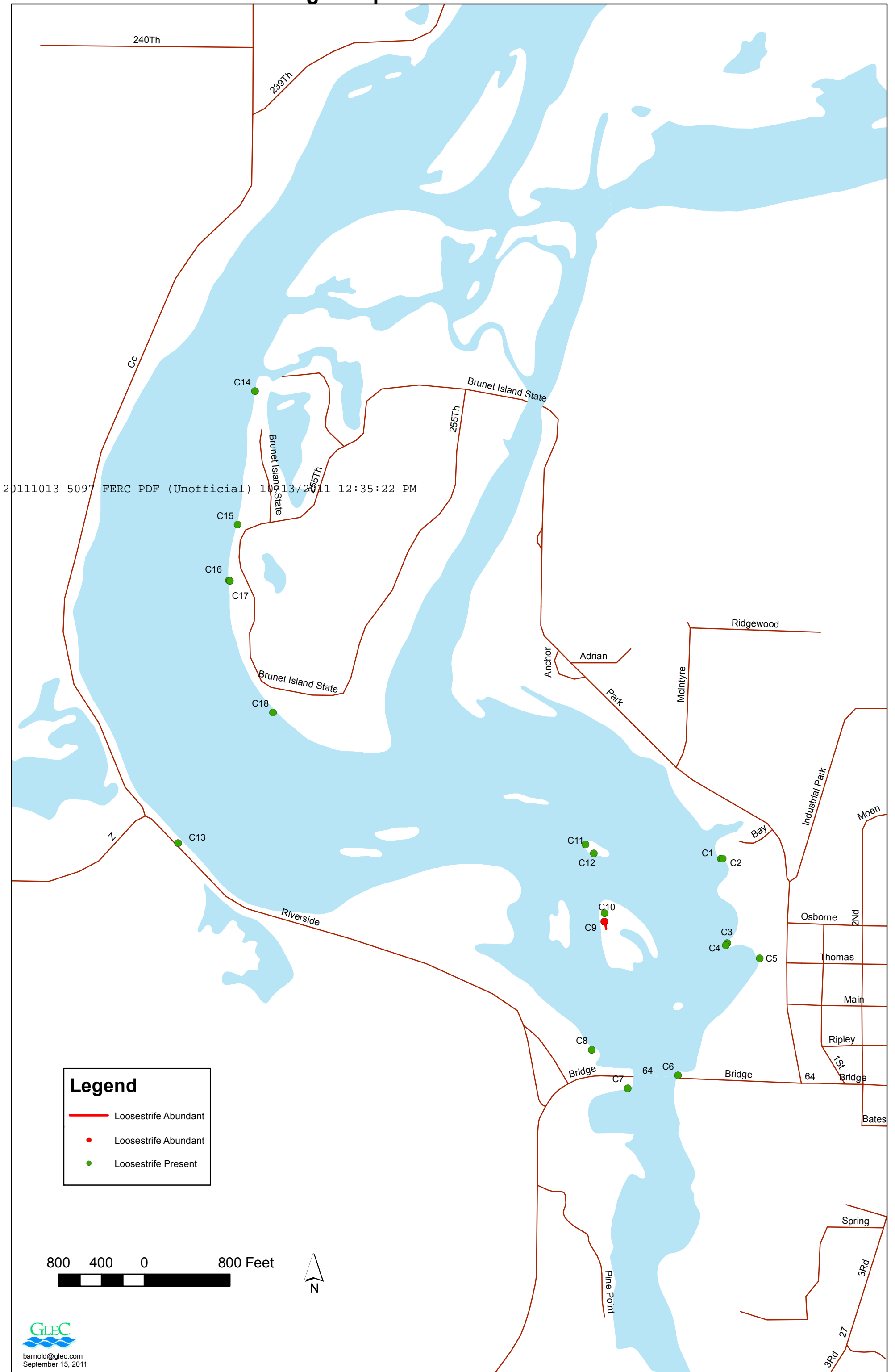
Holcombe Flowage Purple Loosestrife Assessment - 2011



Holcombe Flowage Purple Loosestrife Assessment - 2011

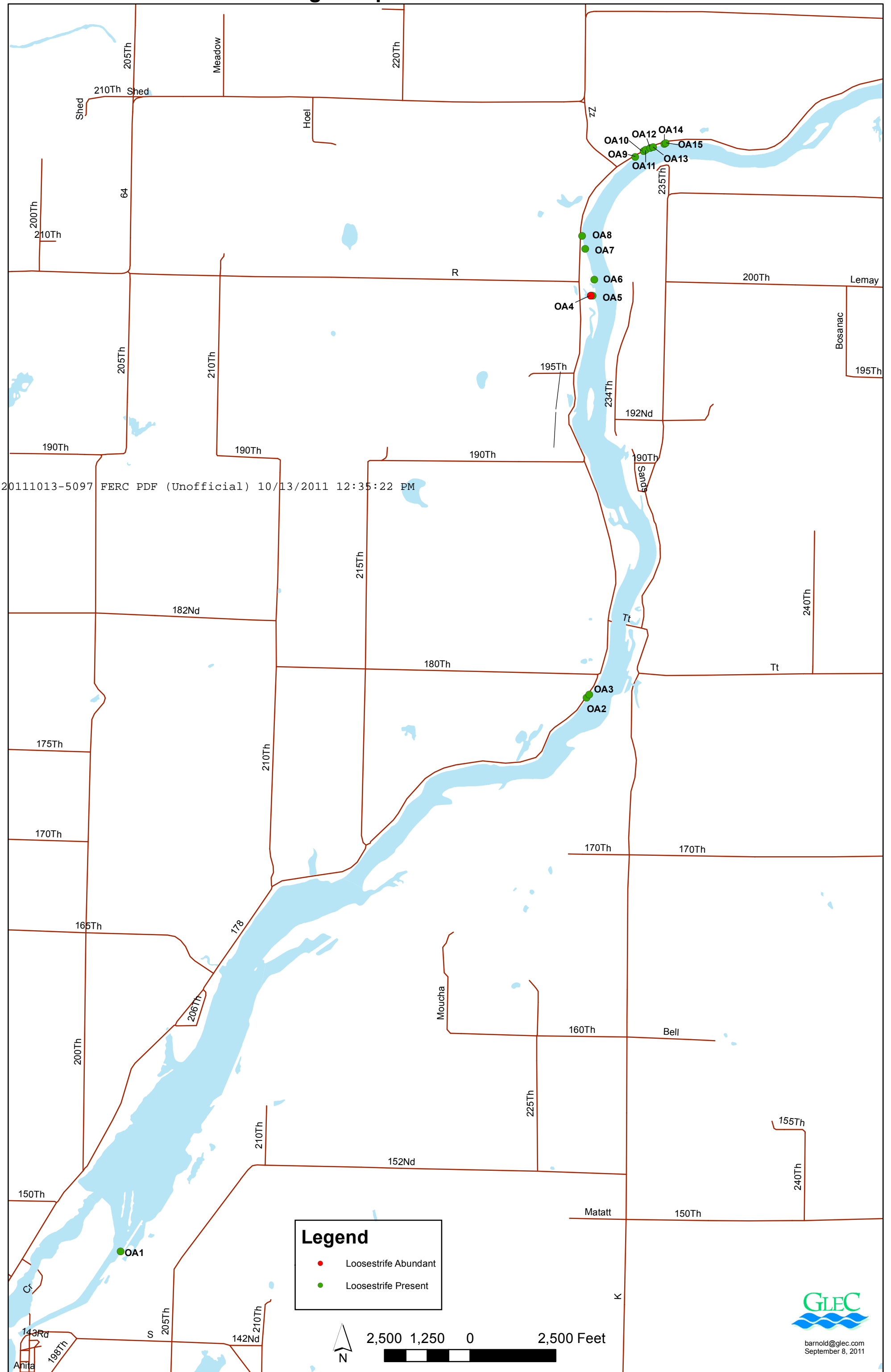


Cornell Flowage Purple Loosestrife Assessment - 2010



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Old Abe Flowage Purple Loosestrife Assessment - 2011



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Legend

- Loosestrife Abundant
- Loosestrife Present



Jim Falls Spillway Channel Purple Loosestrife Assessment – 2011 (Map 1 of 4)



Jim Falls Spillway Channel Purple Loosestrife Assessment – 2011 (Map 2 of 4)



Jim Falls Spillway Channel Purple Loosestrife Assessment – 2011 (Map 3 of 4)



Jim Falls Spillway Channel Purple Loosestrife Assessment – 2011 (Map 4 of 4)



Appendix A

Catalog of Purple Loosestrife Locations

2011

**NSP PURPLE LOOSESTRIFE LOCATIONS
2011
HOLCOMBE**

Location #	Degree of infestation	Single/Multiple	Coverage (ft)	Location #	Degree of infestation	Single/Multiple	Coverage (ft)
H1	Present	Single	2	H55	Present	Multiple	5
H2	Present	Multiple	3	H56	Present	Single	2
H3	Present	Single	2	H57	Present	Single	2
H4	Present	Single	1	H58	Present	Single	2
H5	Present	Multiple	2	H59	Present	Single	2
H6	Present	Multiple	3	H60	Present	Multiple	235
H7	Present	Single	1	H61	Present	Multiple	12
H8	Present	Single	1	H62	Present	Multiple	304
H9	Present	Single	1	H63	Abundant	Multiple	20
H10	Present	Multiple	3	H64	Present	Multiple	5
H11	Present	Multiple	6	H65	Present	Single	1
H12	Present	Single	2	H66	Present	Multiple	8
H13	Present	Single	2	H67	Present	Multiple	2
H14	Present	Multiple	6	H68	Present	Single	1
H15	Present	Multiple	10	H69	Present	Multiple	12
H16	Present	Multiple	5	H70	Present	Single	3
H17	Present	Single	3	H71	Present	Single	2
H18	Present	Single	3	H72	Present	Multiple	6
H19	Present	Single	3	H73	Present	Multiple	4
H20	Present	Single	2	H74	Present	Single	4
H21	Present	Single	3	H75	Present	Multiple	4
H22	Present	Single	3	H76	Present	Multiple	7
H23	Present	Multiple	6	H77	Present	Single	2
H24	Present	Single	3	H78	Present	Single	3
H25	Present	Single	1	H79	Present	Single	3
H26	Present	Multiple	5	H80	Present	Multiple	7
H27	Present	Multiple	4	H81	Present	Multiple	6
H28	Present	Single	2	H82	Present	Multiple	8
H29	Present	Single	2	H83	Present	Multiple	5
H30	Present	Single	3	H84	Present	Single	2
H31	Present	Single	2	H85	Present	Multiple	12
H32	Present	Single	2	H86	Present	Single	2
H33	Present	Single	3	H87	Present	Single	2
H34	Present	Single	3	H88	Present	Single	1
H35	Present	Multiple	3	H89	Abundant	Multiple	125
H36	Present	Single	1	H90	Present	Single	3
H37	Present	Single	3	H91	Present	Single	1
H38	Present	Single	2	H92	Present	Multiple	18
H39	Present	Single	1	H93	Present	Multiple	6
H40	Present	Single	4	H94	Present	Single	2
H41	Present	Single	1	H95	Present	Single	4
H42	Present	Single	1	H96	Present	Single	2
H43	Present	Single	2	H97	Present	Single	3
H44	Present	Single	1	H98	Present	Single	2
H45	Present	Single	1	H99	Present	Single	1
H46	Present	Single	1	H100	Present	Single	2
H47	Present	Single	1	H101	Present	Single	2
H48	Present	Single	2	H102	Present	Single	1
H49	Present	Single	1	H103	Present	Single	2
H50	Present	Single	2	H104	Present	Single	2
H51	Present	Single	2	H105	Present	Single	1
H52	Present	Single	4	H106	Present	Single	4
H53	Present	Multiple	5	H107	Present	Single	3
H54	Present	Single	3	H108	Present	Multiple	7

**NSP PURPLE LOOSESTRIFE LOCATIONS
2011
CORNELL**

Location #	Degree of infestation	Single/ Multiple	Coverage (ft)
C1	Present	Single	4
C2	Present	Single	2
C3	Present	Single	1
C4	Present	Single	4
C5	Present	Single	1
C6	Present	Single	2
C7	Present	Single	1
C8	Present	Single	4
C9	Abundant	Multiple	55
C10	Present	Single	3
C11	Present	Single	2
C12	Present	Single	3
C13	Present	Single	2
C14	Present	Single	3
C15	Present	Single	2
C16	Present	Single	3
C17	Present	Single	1
C18	Present	Single	2

**NSP PURPLE LOOSESTRIFE LOCATIONS
2011
OLD ABE**

Location #	Degree of infestation	Single/ Multiple	Coverage (ft)
OA1	Present	Single	2
OA2	Present	Single	3
OA3	Present	Single	2
OA4	Abundant	Multiple	20
OA5	Present	Single	2
OA6	Present	Multiple	10
OA7	Present	Single	2
OA8	Present	Single	2
OA9	Present	Single	2
OA10	Present	Multiple	6
OA11	Present	Multiple	15
OA12	Present	Multiple	4
OA13	Present	Multiple	5
OA14	Present	Single	1
OA15	Present	Multiple	5

**NSP PURPLE LOOSESTRIFE LOCATIONS
2011
WISSOTA**

Location #	Degree of infestation	Single/ Multiple	Coverage (ft)
W1	Present	Single	5
W2	Present	Single	3
W3	Present	Single	1
W4	Present	Multiple	5

ATTACHMENT A
Agency Consultation



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

April 18, 2011

Mr. Brock Woods
Wisconsin Dept. of Natural Resources
2801 Progress Road
Madison, WI 53716

Mr. Nick Utrup
U.S. Fish & Wildlife Service
2661 Scott Tower Drive
New Franken, WI 54229-9565

Dear Mr. Woods and Mr. Utrup:

Xcel Energy annually monitors for purple loosestrife at its six lower Chippewa River hydro projects. Our consultant's monitoring of Lake Holcombe last year indicated a significant increase in purple loosestrife infestation. The Federal Energy Regulatory Commission (FERC) reviewed our 2010 loosestrife report and recommended that we consult with the Wisconsin Department of Natural Resources (WDNR) and U.S. Fish & Wildlife Service (USFWS) to discuss possible additional control methods.

Xcel Energy has cooperated in the past with the Lake Holcombe Improvement Association (LHIA) to stock loosestrife beetles on Lake Holcombe. According to Mr. Brian Guthman, LHIA member & loosestrife coordinator, loosestrife beetles were stocked from 1991-2004. The population remains viable and Mr. Guthman indicated last year that no further stocking was warranted. Mr. Guthman continues to remain active in purple loosestrife control on Lake Holcombe and he or another member of the LHIA verifies the beetle population each year. We agree with Mr. Guthman that last year's wet summer, following years of extreme drought, provided optimal germination conditions for new loosestrife plants and may help explain the recent resurgence in loosestrife.

Please review the enclosed FERC letter at your convenience and provide me with any recommendations you may have concerning additional loosestrife control methods. I've also enclosed a copy of our 2010 monitoring report for your convenience. Any assistance you can offer would be greatly appreciated. If you feel that our current efforts are sufficient, please indicate that as well.

Sincerely,

Matthew J. Miller

Matthew J. Miller
Hydro Licensing Specialist

Enclosures

c: Mr. Brian Guthman – Lake Holcombe Improvement Association (via email)

Document Content(s)

Final Report.PDF.....1-29