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

December 17, 2010

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

Subject: **2010 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 2010 Purple Loosestrife Report for the above-referenced hydro projects. Pursuant to the Exotics Control Plan of the operating license for each project, Licensee (Xcel Energy) is required to annually monitor and eradicate pioneering purple loosestrife plants on company-owned shorelines.

There were no purple loosestrife infestations documented on Chippewa Falls Flowage or Dells Pond, and only a single plant was observed on Lake Wissota. These results are consistent with past observations. Cornell and Old Abe flowages both showed a general decline in loosestrife. Lake Holcombe, however, experienced a marked increase in loosestrife this year. This increase may have been attributed to an extremely wet summer and higher than normal water levels. These factors may have provided ideal growing conditions for seeds that had previously been dormant during the extreme drought conditions experienced over the last several years.

The Lake Holcombe Improvement Association (LHIA) had a purple loosestrife bio-control program from approximately 1991-2004 in which beetles were introduced on Lake Holcombe. The beetle population has been self-sustaining for the last six years and their population is verified by an LHIA member each year. Licensee spoke with Mr. Brian Guthman, the former LHIA loosestrife coordinator, just prior to filing this report and his opinion was that weather related factors were the cause of this year's increase. He believes that additional bio-control efforts are not needed as Lake Holcombe already has a viable beetle population that should respond to this years increase in loosestrife infestation.

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. Riverflows were high throughout the summer months following an extreme drought of several years. At least five significant runoff events occurred on the lower Chippewa River between July and October, 2010. Peak riverflows of approximately 40,000 cfs occurred in late September. It is unknown what impact, if any, the high water conditions had upon the beetles. Regardless of the impacts, Xcel Energy will partner with Beaver Creek Reserve in 2011 to introduce a second population of beetles at Jim Falls.

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

Attacment: 2010 Purple Loosestrife Report

c: Mr. Brian Guthman (LHIA)
Mr. Bob Baczynski (WDNR)
Mr. Nick Utrup (USFWS)

PURPLE LOOSESTRIFE ASSESSMENT – 2010

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

Prepared for:

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December 9, 2010

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 license agreement for the six Lower Chippewa River Hydroelectric Projects, Xcel Energy has agreed to monitor each of the impoundments created by these hydroelectric projects for the presence and spread of purple loosestrife. 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.

Beginning 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. The beetles are commonly referred to "Cella" foliage beetles or purple loosestrife bio-control beetles. The beetles consume purple loosestrife and have 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 also 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 from a boat. The surveys were conducted between August 15 and September 30, 2010. The surveyor used a boat and motored slowly around the shoreline looking for purple loosestrife plants. When loosestrife was discovered, the location was marked on a map of the waterbody. 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 the purple loosestrife plants with land ownership maps provided by Xcel Energy, the surveyor determined if the plants were on Xcel Energy-owned lands. 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 any 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 taken in the field with a handheld receiver, 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.

This year a survey was 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 the purple loosestrife bio-control beetles. A comprehensive mapping effort of the area was developed 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 affected 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. This year's survey revealed a marked increase in purple loosestrife infestation on Holcombe Flowage while a general decrease was observed on all other flowages.

Table 1. Summary of Purple Loosestrife Infestations on Six Lower Chippewa River Hydroelectric Projects, 2009-2010

	Number of purple loosestrife locations				Shoreline Affected (ft)			
	Present		Abundant		Present		Abundant	
	2009	2010	2009	2010	2009	2010	2009	2010
Holcombe	62	115	2	2	379	1806	135	160
Cornell	5	6	0	0	44	8	0	0
Old Abe	6	8	1	0	27	31	20	0
Wissota	0	1	0	0	0	1	0	0
Chippewa Falls	0	0	0	0	0	0	0	0
Dells	1	0	0	0	2	0	0	0

There was no purple loosestrife found on the Chippewa Falls Flowage in 2010 which is consistent with findings from previous years. Dell's Pond was also absent from any loosestrife infestation even though one plant was observed in 2009.

A single purple loosestrife plant was found on Lake Wissota on the upper portion of the flowage (see map of Lake Wissota). A plant in this area has been observed periodically over the last several years. It is common for purple loosestrife to grow some years and lie dormant during others.

Holcombe Flowage contained the most purple loosestrife among the six impoundments surveyed. 115 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 in some way. 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; new plants growing this year, while other plants that were previously noted did not grow at all this year. Increases in loosestrife populations this year may be due to the growing season being generally warm and wet.

The majority of plants on Lake Holcombe were again found in the area on and around Pine Island and along Highway 27; however, none of these areas were classified as abundant (see Holcombe Map 2). Several small infestations and two abundant locations were found just to the east of the Highway 27 Bridge. This also shows a general increase 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 Map 3) with many of these plants having been documented in the past. The large islands near the south shore of the main flowage contain numerous plants. Overall, there seems to be a slight increase in plant density in the main flowage area.

In total, approximately 1,966 feet of shoreline was found to contain purple loosestrife compared 514 feet in 2009. A total of 160 feet was classified as abundant while the remaining 1,806 feet was classified as present. In 2009, 135 feet and 379 feet were reported as abundant and present respectively.

Cornell Flowage was found to contain six small infestations of purple loosestrife, all of which were classified as present (see map of Cornell Flowage). Two infestations observed on the northwest shore of the main flowage in previous years were not evident in 2010. These plants were on the County Highway I right-of-way, which appeared to have been recently mowed. Five single plants were located in the main flowage; and a second single plant was in the side channel that runs south of the Brunet Island State Park island complex. A total of 8 feet of shoreline was found to contain purple loosestrife, compared to 44 feet in 2009.

Eight areas of loosestrife infestation (all noted as present) were found on the upper portion of Old Abe Lake (see map of Old Abe Flowage). This represents a slight increase in plant abundance on Old Abe Flowage from last year, but 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 in 2009, was now noted as present. Single plants that were found

immediately upstream and downstream of this location in 2009 were absent in 2010. Seven locations were noted near the upper reaches of the flowage that consisted of single plants or a few plant clumps spread over a total of 11 feet of shoreline. The total amount of shoreline affected by purple loosestrife on Old Abe Lake is approximately 31 feet versus 47 feet in 2009.

The minimum flow channel at the Jim Falls Hydro remains an area of high purple loosestrife infestation, though a decline in the number of plants has been noted over the last several years of surveys. 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 24,589 square feet (Table 2). Five locations where loosestrife was spread linearly along the shoreline were found. Collectively, these amounted to 677 feet of affected shoreline. Six other areas of loosestrife were found in the spillway channel. Each of these were single plants comprising one or two feet of shoreline each. It was noted during the survey that the vast majority of the loosestrife plants were small, non-flowering plants. It is possible that the growth and production of these plants were affected by the unseasonably high flows which occurred over the summer.

Table 2. Summary of Purple Loosestrife Infestations in

Map point	Abundant/ Present	Coverage type	Area covered
JF 1	Present	Aerial	24,589 sq ft
JF 2	Present	Point	2 ft
JF 3	Present	Shoreline	214 ft
JF 4	Present	Shoreline	197 ft
JF 5	Present	Shoreline	77 ft
JF 6	Present	Point	1 ft
JF 7	Present	Point	2 ft
JF 8	Present	Shoreline	81 ft
JF 9	Present	Point	2 ft
JF 10	Present	Point	2 ft
JF 11	Present	Shoreline	108 ft
JF 12	Present	Point	1 ft

Wissota Flowage Purple Loosestrife Assessment - 2010

Legend

Loosestrife Present

WI1

145Th
Cr
178
143Rd
William
142Nd
Stephen
Railroad
195Th
Anita
140Th
Main
2Nd
Phillips
139Th
Barber
Shaw
138Th
199Th
Short
198Th
1St
195Th
188Th
Riverside
190Th
Oak
Oak Ridge
Sunneyview
S

500 250 0 500 Feet

N

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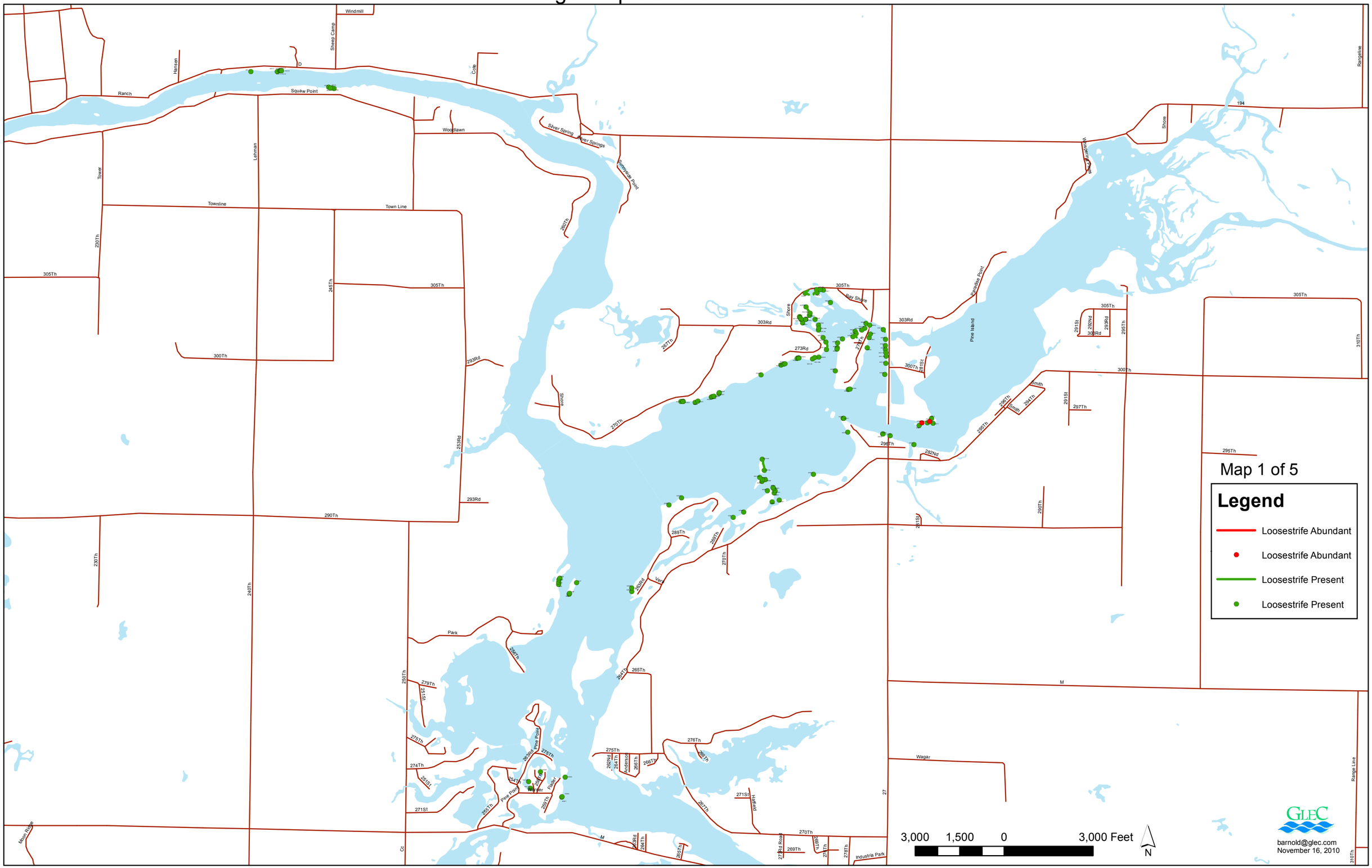
November 16, 2010

Holcombe Flowage Purple Loosestrife Assessment - 2010



Map 1 of 5

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Holcombe Flowage Purple Loosestrife Assessement - 2010

Map 2 of 5

Legend

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

HO107 HO107b HO47 HO46 HO48 HO45 HO106 HO106b HO41 HO43 HO40 HO44 HO105 HO39 HO105b HO42 HO38 HO104b HO104 HO37 HO103b HO103 HO52 HO53 HO54 HO55 HO49 HO108 HO108b HO50 HO109 HO51 HO62 HO110 HO61 HO60 HO63 HO64 HO65 HO59 HO111 HO111b HO112 HO66 HO34 HO35 HO36 HO33 HO102b HO102 HO56 HO58 HO57 HO78 HO77 HO72 HO70 HO68 HO69 HO71 HO67 HO79 HO75 HO74 HO76 HO73 HO80

305Th Bay Shore Florence 27 Shore 305Th 303Rd 301St 279Th 281St 300Th 296Th 282Nd 295Th

500 250 0 500 Feet

N

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November 16, 2010

Holcombe Flowage Purple Loosestrife Assessment - 2010

Map 3 of 5

Legend

Loosestrife Present

267Th
270Th
273Rd
HO42
HO34
HO35
HO33
HO32
HO31
HO30
HO29
HO28
HO27
HO26
HO25
HO24
HO23
HO22
HO21
HO20
HO19
HO114b
HO114
HO113b
HO113
HO89
HO88
HO86
HO85
HO87
HO84
HO83
HO82
HO81
HO92
HO93
HO90
HO91
263Rd
289Th
269Th
295Th
290Th
270Th

500 250 0 500 Feet

N

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November 16, 2010

Holcombe Flowage Purple Loosestrife Assessment - 2010

HO4
HO3
HO2
HO1
HO7
HO6
HO5
HO95
HO94
HO99
HO98
HO100
HO101
HO96
HO97

Park
256Th
263Rd
286Th
264Th
265Th
275Th
262Nd
264Th
Anderson
266Th
274Th
254Th
Skidmore
Pine Point
257Th
258Th
Wright
Warner
Flader
259Th

Map 4 of 5

Legend

Loosestrife Present

500 250 0 500 Feet

N

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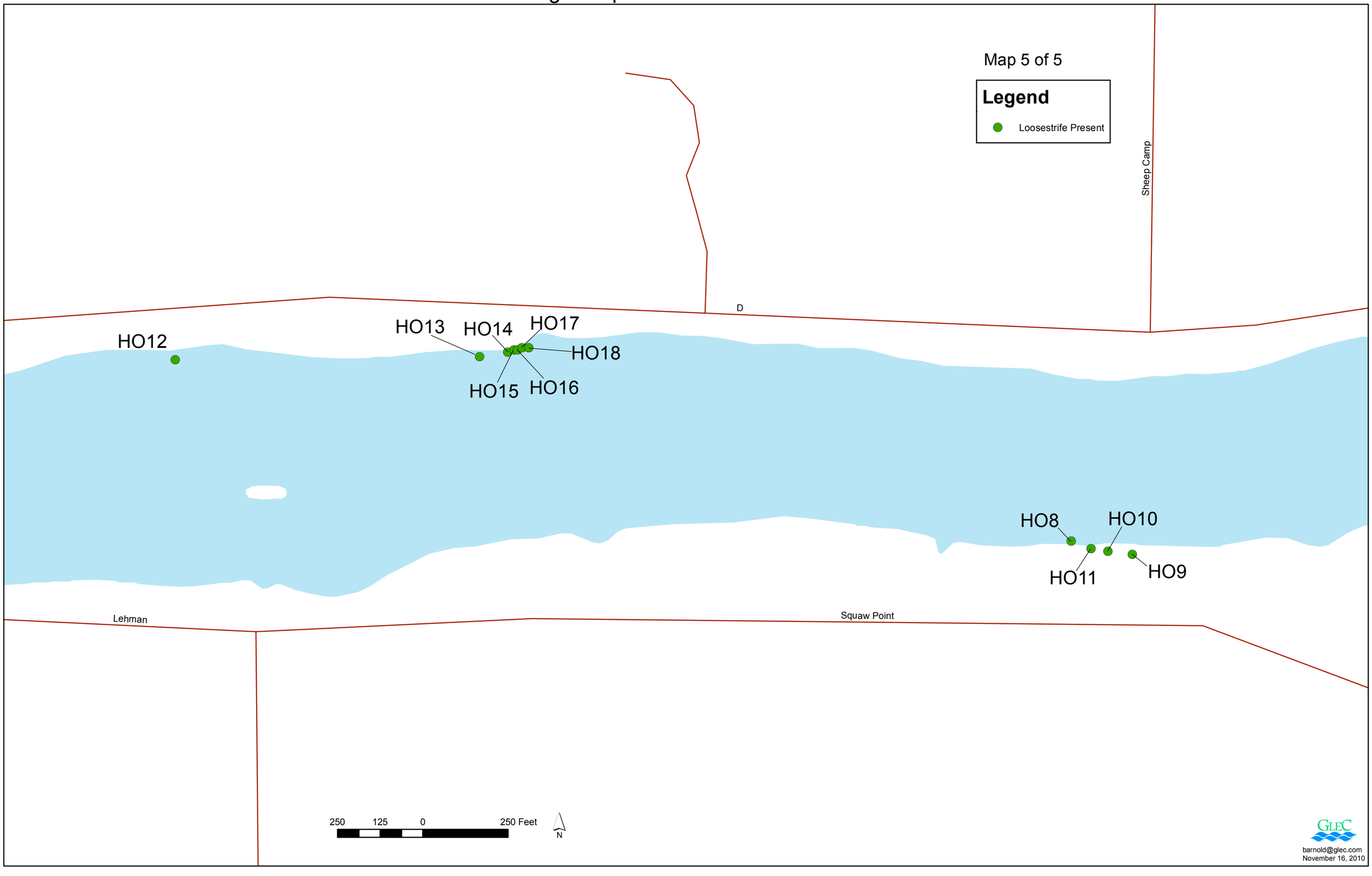
November 16, 2010

Holcombe Flowage Purple Loosestrife Assessment - 2010



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November 16, 2010

Cornell Flowage Purple Loosestrife Assessment - 2010

CO6

Legend

Loosestrife Present

Brunet Island State

255Th

255Th

Brunet Island State

Adrian

Anchor

Park

Mcintyre

Ridgewood

Industrial Park

Bay

CO5

CO4

CO1

CO3

CO2

Riverside

Osborne

Thomas

1St

Main

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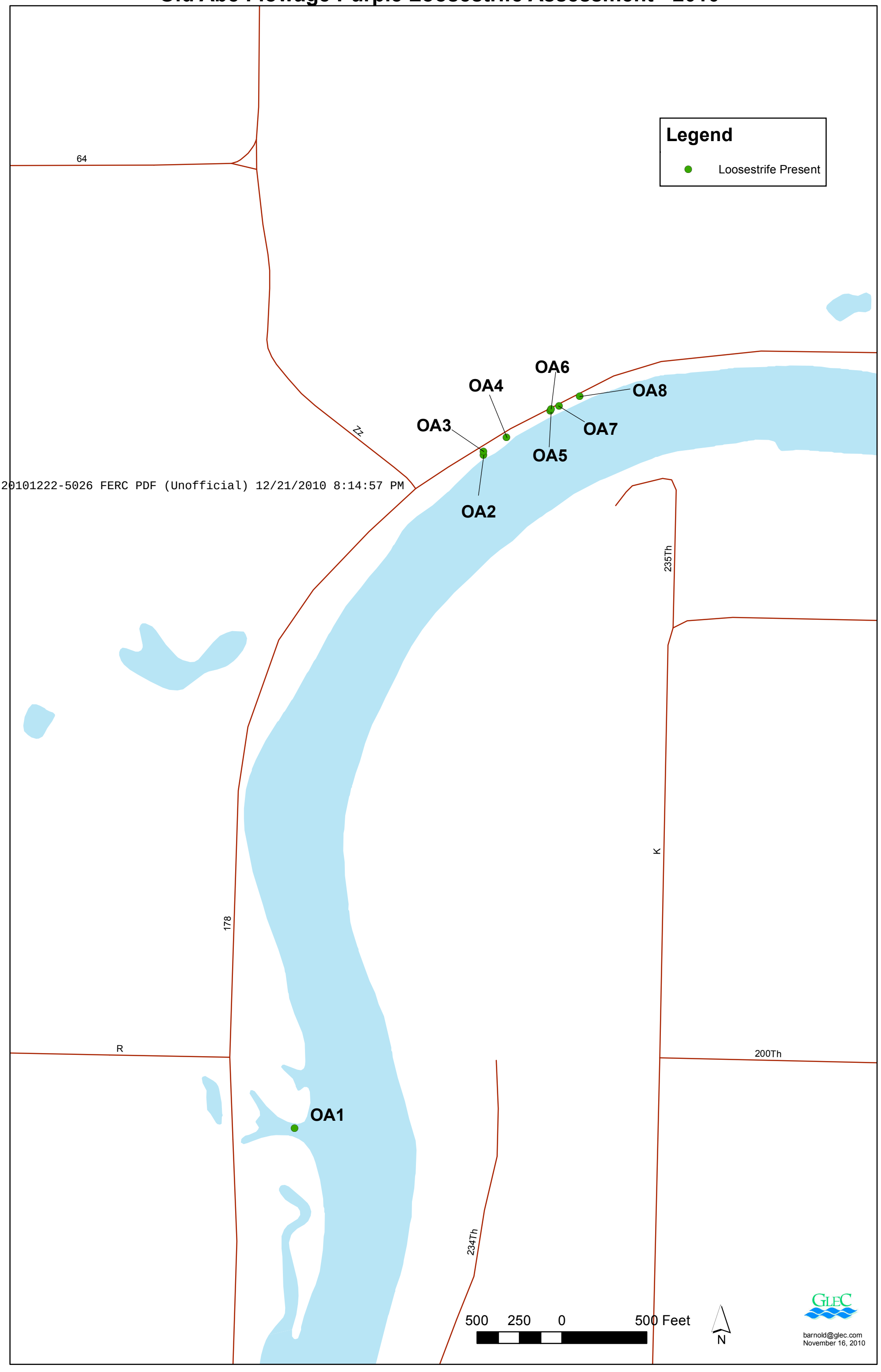
500 250 0 500 Feet

N

Old Abe Flowage Purple Loosestrife Assessment - 2010



Jim Falls Spillway Channel Purple Loosestrife Assessment – 2010 (Map 1 of 4)

Jim Falls Spillway Channel Purple Loosestrife Assessment – 2010 (Map 2 of 4)

Jim Falls Spillway Channel Purple Loosestrife Assessment – 2010 (Map 3 of 4)

Jim Falls Spillway Channel Purple Loosestrife Assessment – 2010 (Map 4 of 4)

NSP PURPLE LOOSESTRIFE LOCATIONS
2010
HOLCOMBE

Location #	Map	Degree of infestation	Coverage (ft)	Location #	Map	Degree of infestation	Coverage (ft)
	219	Present	3		285	Present	1
	221	Present	1		-	Present	1
	222	Present	1		287	Present	1
	223	Present	1		288	Present	1
	224	Present	1		289	Present	2
	225	Present	1		290	Present	1
	226	Present	1		291	Present	1
	227	Present	1		292	Present	2
	228	Present	1		293	Present	2
	229	Present	2		294	Present	2
	230	Present	1		295	Present	15
	231	Present	2		296	Present	3
	232	Present	1		297	Present	1
	233	Present	2		299	Present	2
	234	Present	2		300	Present	2
	235	Present	2		301	Present	2
	236	Present	1		305	Present	1
	237	Present	1		306	Present	1
	238	Present	2		-	Abundant	140
	239	Present	2		307	Present	6
	240	Present	1		308	Abundant	20
	241	Present	4		309	Present	3
	242	Present	1		310	Present	1
	243	Present	1		311	Present	2
	244	Present	3		312	Present	2
	245	Present	1		313	Present	1
	246	Present	1		314	Present	1
	247	Present	3		315	Present	1
	248	Present	1		316	Present	2
	249	Present	1		317	Present	2
	250	Present	1		318	Present	1
	251	Present	2		319	Present	1
	252	Present	1		320	Present	1
	253	Present	1		321	Present	1
	254	Present	3		322	Present	2
	255	Present	2		323	Present	1
	256	Present	2		324	Present	1
	257	Present	2		325	Present	2
	260	Present	6		326	Present	1
	263	Present	2		327	Present	40
	266	Present	1		332	Present	1
	267	Present	1		333	Present	1
	268	Present	1		334	Present	5
	269	Present	2		335	Present	2
	272	Present	1		336	Present	2
	273	Present	1		337	Present	2
	276	Present	2		338	Present	2
	277	Present	2		339	Present	3
	278	Present	150		340	Present	3
	281	Present	1		341	Present	2
	-	Present	320		342	Present	1
	282	Present	2		343	Present	2

lines

start	258	present	35		
stop	259	present			
start	261	present	45		
stop	262	present			
				TOTALS	
start	264	present	25	**Abundant**	**1806**
stop	265	present		**Present**	**160**
start	270	present	20		
stop	271	present			
start	274	present	100		
stop	275	present			
start	279	present	50		
stop	280	present			
start	283	present	80		
stop	284	present			
start	286	present	150		
stop	-	present			
start	298	present	85		
stop	-	present			
start	302	present	120		
stop	303	present			
start	304	present	30		
stop	-	present			
start	328	present	125		
stop	329	present			
start	330	present	250		

NSP PURPLE LOOSESTRIFE LOCATIONS
2010
CORNELL

Location #	Map	Degree of infestation	Lat Long	Coverage (ft)
	344	Present	N45.17100 W91.15580	2
	345	Present	N45.16945 W91.15516	2
	346	Present	N45.16951 W91.15999	1
	347	Present	N45.17103 W91.16029	1
	348	Present	N45.17131 W91.16079	1
	349	Present	N45.18640 W91.16078	1
		TOTALS		
		Present		**8**

NSP PURPLE LOOSESTRIFE LOCATIONS
2010
OLD ABE

Location #	Map	Degree of infestation	Lat Long	Coverage (ft)
	-	Present	-	20
	350	Present	N45.14410 W91.20780	1
	351	Present	N45.14416 W91.20780	1
	352	Present	N45.14439 W91.20728	1
	353	Present	N45.14483 W91.20629	1
	354	Present	N45.14486 W91.20627	1
	355	Present	N45.14491 W91.20609	5
	356	Present	N45.14507 W91.20562	1

TOTALS	
Present	**31**

NSP PURPLE LOOSESTRIFE LOCATIONS
2010
WISSOTA

Location #	Map	Degree of infestation	Lat Long	Coverage (ft)
	357	Present	N45.04531 W91.27986	1

NSP PURPLE LOOSESTRIFE LOCATIONS
2010
CHIPPEWA FALLS

Location #	Map	Degree of infestation	Lat Long	Coverage (ft)
NONE				

NSP PURPLE LOOSESTRIFE LOCATIONS
2010
DELLS

Location #	Degree of infestation	Coverage (ft)
NONE		

Document Content(s)