WAY.II.C.2.46
HEM.II.C.2.42
LPT.II.C.2.41
PEA.II.C.2.28
MCH.II.C.2.41
BRL.II.C.1.38
TWF.II.C.2.42
PIN.II.C.4.39
KFH.II.C.2.42
NEQ.II.C.2.41
CHP.II.C.1.39
WHR.II.C.1.39

We Energies
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Iron Mountain, MI 49801

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Refiled on January 7, 2015 at the request of the FERC as document initially filed was the incorrect one.

November 26, 2014

Ms. Kimberly Bose
Federal Energy Regulatory Commission
Division of Licensing and Compliance
888 First Street NE Washington, DC 20426

Dear Ms. Bose

RE: 2014 Reports on Purple Loosestrife and Nuisance Plants

Way Dam – FERC No. 1759, Article 413
Hemlock Falls – FERC No. 2074, Article 412
Lower Paint – FERC No. 2072, Article 411
Peavy Falls – FERC No. 11830, Article 411
Michigamme Falls – FERC No. 2073, Article 412
Brule – FERC No. 2431, Article 410
Twin Falls – FERC No. 11831, Article 412
Pine – FERC No. 2486, Article 413
Kingsford – FERC No. 2131, Article 412
Big Quinnesec Falls – FERC No. 1980, Article 412
Chalk Hill – FERC No. 2394, Article 410
White Rapids – FERC No. 2357, Article 410

The "Terrestrial Based Natural Resources Management Plan," filed in September of 1999 as part of the Wilderness Shores Settlement Agreement, which affects Way Dam (FERC No. 1759), Hemlock Falls (FERC No. 2074), Peavy Falls (FERC No. 11830), Michigamme Falls (FERC No. 2073), Lower Paint (FERC No. 2072), Twin Falls (FERC No. 11831), Kingsford (FERC No. 2131), and Big Quinnesec Falls (FERC No. 1980), and the "Order Modifying and Approving Purple Loosestrife and Eurasian Water Milfoil Monitoring Plan" issued on April 30, 1996, for the Pine (FERC No. 2486), August 14, 1997, for the Brule (FERC No. 2431), December 11, 1997, for the Chalk Hill (FERC No. 2394) and White Rapids (FERC No. 2357) projects, require We Energies to provide the final reports on the required annual and biennial monitoring for those projects no later than 30 days after the monitoring is completed. An annual extension for submitting these reports by the end of November was granted in 2010. Monitoring is scheduled each year for a portion of these twelve projects, with the field portion of the monitoring to be completed by August 7.

Report of 2014 AIS Monitoring

Please find attached a report of Purple Loosestrife (PL) monitoring activities completed in 2014 consistent with the proposed plan submitted earlier this year and Table 1. The results were presented by Mike Grisar of our environmental staff at our Annual Land Management Meeting held on October 23, 2014, with representatives from the Wisconsin and Michigan DNRs as well as some county and local agency representatives that work on tracking and controlling invasive species. The information was made available to everyone in attendance upon request.

Table 1: Comparison of 2014 PL Data Collected vs Proposed Plan Requirements

	Proposed New Plan		
	2014	2014	
	Plan	Actual	
Way Dam	x	x	
Hemlock Falls			
Lower Paint	x	x	
Peavy Falls		x	Project surveyed because PL found in 2013
Michigamme Falls			
Brule	x	x	
Twin Falls	x	x	
Pine			
Kingsford	x	x	
Big Quinnesec Falls	x	x	
Chalk Hill			
White Rapids	x	x	

License Order Amendment Request

Wisconsin Electric Power Company dba We Energies requested in our submittal for 2013 dated January 22, 2014, that the license articles noted in the subject line of this letter for our (12) FERC licensed hydroelectric projects be amended to accept the "We Energies Hydro Operations – Nuisance Plant Monitoring Plan, Revision 0: May 16, 2013" that was attached to that filing. Implementation of this plan began in 2013 while still meeting the requirements of the currently approved plan. We fully implemented the new plan in 2014. The Commission's letter to us dated March 5, 2014, stated that,

> "Your filing also included a request to amend your current monitoring schedule and associated reporting for the identified projects, including the Lower Plant (FERC No. 2072) and Twin Falls (FERC No. 11831) projects. Please be advised that is being addressed under a separate Commission proceeding."

We are requesting a status update on the Commission's disposition of our request.

Please call me at (906) 779-4099 if you have any questions concerning this filing.

Sincerely,

Mr. Todd P. Jastremski, Manager
Hydroelectric Operations Division

cc: Kyle Kruger – MDNR
Nicholas Utrup – FWS
Cheryl Laatsch – WDNR
James Fossum – MHRC/RAW
John Zygaj – FERC CRO

Attachments:
2014 Annual Report – Nuisance Plant Control Survey (22 pages)

We Energies
2014 Annual Report - Nuisance Plant Control Survey
White Rapids Reservoir
FERC Project #2357

Background and Methods

We Energies' Environmental Department staff, Mr. Mike Grisar and Mr. Bill Braunschweig, conducted a survey from a boat of the entire shoreline at the White Rapids project on August 22, 2014. All waters and appropriate wetlands accessible from the boat were evaluated for the presence of purple loosestrife (*Lythrum salicaria*).

Any occurrences of purple loosestrife were to be mapped using a Trimble XH GPS unit. Each location was to be identified as a stand and the number of plants, stems per plant, and relative age of the plants were to be recorded.

Results and Discussion

In 2010, purple loosestrife was observed for the first time on the White Rapids reservoir. Six purple loosestrife plants were observed with the oldest plants determined to be approximately 3 years old based on the presence of remnant dead stems. The plants were found on the west point along the south side of the channel bisecting the large island in the middle of the reservoir. They were set back off the shoreline approximately 15-20-feet behind alder brush. There was evidence that this point was being utilized by waterfowl hunters who likely introduced the loosestrife to this location. The entire plants were removed including the flowering heads, stems, and root mass. Purple loosestrife was again observed in 2011 when a single, 1st-year plant was observed with just 2 stems. Two second year plants were observed at the same location in 2012 having 1 and 2 stems each. While the entire reservoir was monitored in 2014 for the presence of purple loosestrife, particular attention was paid to the location where purple loosestrife was observed between 2010 through 2012. No purple loosestrife was observed at White Rapids in 2013. Again in 2014, no purple loosestrife was observed.

Conclusions

It was discouraging that a new location of purple loosestrife was observed in White Rapids for the first time in 2010. By removing the plants in this stand for three consecutive years, the stand was absent in 2013 & 2014. Manually removing individual plants that were encountered during previous years was effective in eliminating the stand.

An influx of purple loosestrife occurring along public roadways leading to several of the reservoirs was first reported in 2010. Since, purple loosestrife infestations were documented to be increasing exponentially along CTH K leading easterly toward the Menominee River between the Chalk Hills and White Rapids project areas. Portions of these populations were managed in 2011, 2012, and 2014 as the populations were reduced. Continued management by other parties is necessary to reduce the potential for purple loosestrife to spread in the Menominee River system.

We Energies
2014 Annual Report - Nuisance Plant Control Survey
Big Quinnesec Falls Reservoir
FERC Project #1980

Background and Methods

We Energies' Environmental Department staff, Mr. Mike Grisar and Mr. Bill Braunschweig, conducted a survey from a boat of the entire shoreline at the Big Quinnesec Falls project on August 21, 2014. All waters and appropriate wetlands accessible from the boat were evaluated for the presence of purple loosestrife (*Lythrum salicaria*).

Any occurrences of purple loosestrife were to be mapped using a Trimble XH GPS unit. Each location was to be identified as a stand and the number of plants, stems per plant, and relative age of the plants were to be recorded.

Results and Discussion

No purple loosestrife plants were observed along the shores of the Big Quinnesec Falls Reservoir project area.

Conclusions

Purple loosestrife has yet to be observed at the Big Quinnesec Falls project area since the nuisance plant surveys began. Diligent monitoring will continue to prevent an invasion of this species.

We Energies
2014 Annual Report - Nuisance Plant Control Survey
Kingsford Reservoir
FERC Project #2131

Background and Methods

We Energies' Environmental Department staff, Mr. Mike Grisar and Mr. Bill Braunschweig, conducted a survey from a boat of the entire shoreline at the Kingsford project on August 21, 2014. All waters and appropriate wetlands accessible from the boat were evaluated for the presence of purple loosestrife (*Lythrum salicaria*).

Any occurrences of purple loosestrife were to be mapped using a Trimble XH GPS unit. Each location was to be identified as a stand and the number of plants, stems per plant, and relative age of the plants were to be recorded.

Results and Discussion

No purple loosestrife plants were observed along the shores of the Kingsford Reservoir project area.

Conclusions

Purple loosestrife has yet to be observed at the Kingsford project area since the nuisance plant surveys began. Diligent monitoring will continue to prevent an invasion of this species.

We Energies
2014 Annual Report - Nuisance Plant Control Survey
Twin Falls Reservoir
FERC Project #11831

Background and Methods

We Energies' Environmental Department staff, Mr. Mike Grisar and Mr. Bill Braunschweig, conducted a survey from a boat of the entire shoreline at the Twin Falls project on August 21, 2014. All waters and appropriate wetlands accessible from the boat were evaluated for the presence of purple loosestrife (*Lythrum salicaria*).

Any occurrences of purple loosestrife were to be mapped using a Trimble XH GPS unit. Each location was to be identified as a stand and the number of plants, stems per plant, and relative age of the plants were to be recorded.

Results and Discussion

No purple loosestrife plants were observed along the shores of the Twin Falls Reservoir project area.

Conclusions

Purple loosestrife has yet to be observed at the Twin Falls project area since the nuisance plant surveys began. Diligent monitoring will continue to prevent an invasion of this species.

We Energies
2014 Annual Report - Nuisance Plant Control Survey
Brule Reservoir
FERC Project #2431

Background and Methods

We Energies' Environmental Department staff, Mr. Mike Grisar and Mr. Bill Braunschweig, conducted a survey from a boat of the entire shoreline at the Brule Reservoir project on August 1, 2014. All waters and appropriate wetlands accessible from the boat were evaluated for the presence of purple loosestrife (*Lythrum salicaria*).

Any occurrences of purple loosestrife were to be mapped using a Trimble XH GPS unit. Each location was to be identified as a stand and the number of plants, stems per plant, and relative age of the plants were to be recorded

Results & Discussion

No purple loosestrife plants were observed along the shores of the Brule Reservoir project area.

Conclusions

It was discouraging that a new location of purple loosestrife was observed in the Brule Reservoir for the first time in 2009. The entire plant was removed including the flowering heads, stems, and root mass. The removal of the plant observed in 2009 was successful with no reoccurrence of this plant through 2014.

We Energies
2014 Annual Report - Nuisance Plant Control Survey
Lower Paint Reservoir
FERC Project #2072

Background and Methods

We Energies' Environmental Department staff, Mr. Mike Grisar and Mr. Bill Braunschweig, conducted a survey from a boat of the entire shoreline at the Lower Paint project on August 1, 2014. All waters and appropriate wetlands accessible from the boat were evaluated for the presence of purple loosestrife (*Lythrum salicaria*).

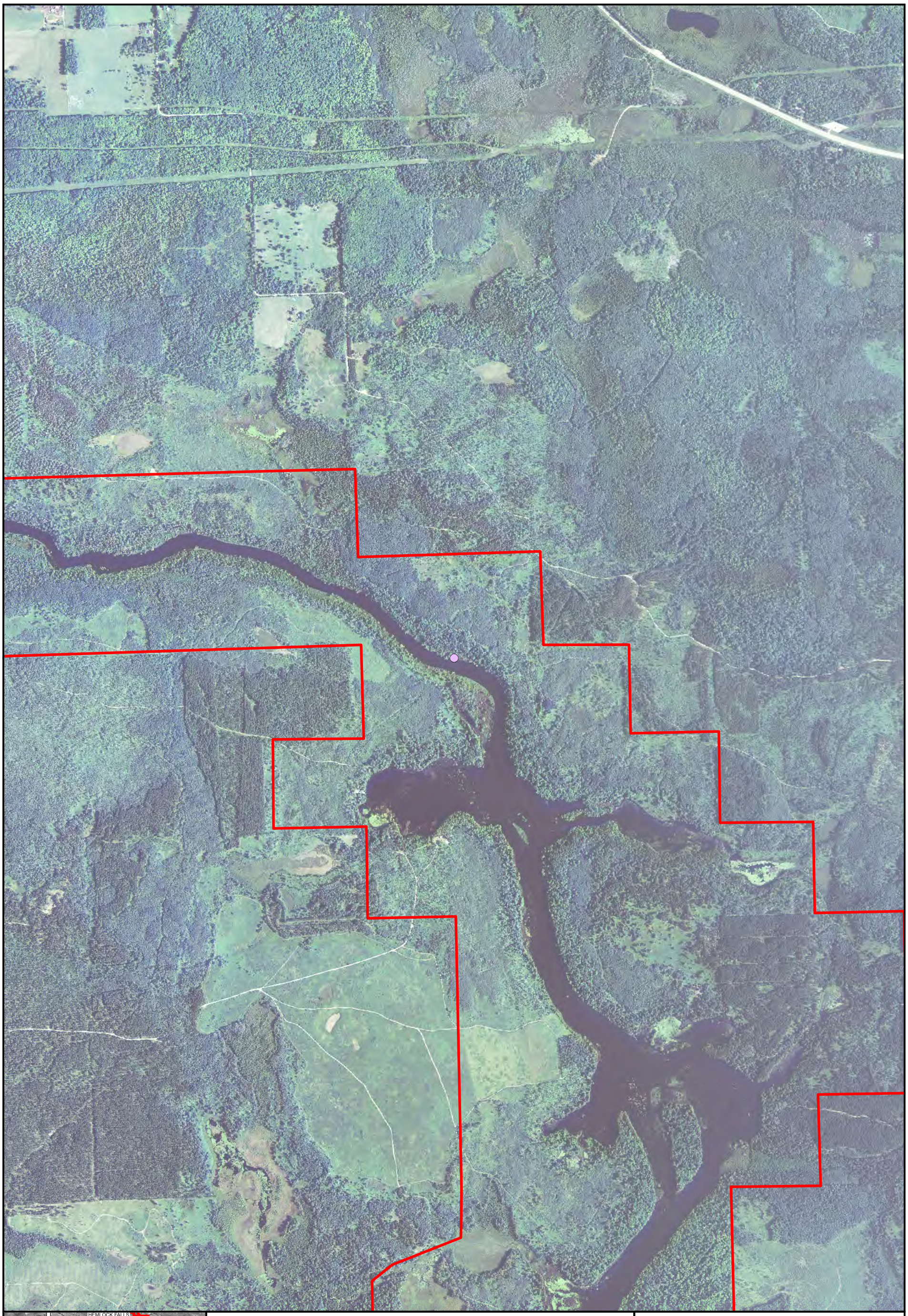
Any occurrences of purple loosestrife were to be mapped using a Trimble XH GPS unit. Each location was to be identified as a stand and the number of plants, stems per plant, and relative age of the plants were to be recorded.

Results and Discussion

In 2010, purple loosestrife was observed for the first time on the Lower Paint Reservoir. A single purple loosestrife plant was observed and removed including the flowering heads, stems, and root mass. No purple loosestrife had been observed since until this year. In 2014, a single plant was observed again in the upper shores of the reservoir (see map), but approximately ½-mile downstream of where the plant was found in 2010. The entire plant was removed, and documented as an approximate 3 year old plant with 9 stems.

Conclusions

It is discouraging that purple loosestrife has now been observed twice in Lower Paint. Fortunately, the manual removal of the 2010 plant was successful as it has not returned since. However, the discovery of a new plant in 2014 is an indication that a source population likely occurs upstream. Anecdotal reports have been made of purple loosestrife occurring upstream near Crystal Falls on the Paint River. Management by other parties will be necessary to reduce the potential for purple loosestrife to spread in the Menominee River system.



Purple Loosestrife: New Sites August 2014

Public Boat Launch

FERC Hydro Project Boundary

Feet

1,000 0 1,000 2,000

N W E S

Lower Paint Hydro Project - Year 2014
Purple Loosestrife Survey

Source: USDA -NAIP Imagery, 2012
GPS field data collected 8/1/2014

x42590 9/24/2014 J:\DATA\FO\Env_Strategy\GIS Projects\Hydro_lands\Maps\2014_Reports\lower_paint 2014 PL monitoring.mxd

We Energies
2014 Annual Report - Nuisance Plant Control Survey
Peavy Falls Reservoir
FERC Project #11830

Background and Methods

We Energies' Environmental Department staff, Mr. Mike Grisar and Mr. Bill Braunschweig, conducted a survey from a boat of the entire shoreline at the Peavy Falls Reservoir project on August 1, 2014. All waters and appropriate wetlands in the vicinity of Recreation Area #10 were evaluated for the presence of purple loosestrife (*Lythrum salicaria*).

Any occurrences of purple loosestrife were to be mapped using a Trimble XH GPS unit. Each location was to be identified as a stand and the number of plants, stems per plant, and relative age of the plants were to be recorded.

Results and Discussion

In 2013, one purple loosestrife stand was observed along the Peavy Falls shorelines consisting of two plants estimated to be 2 and 3 years old with just 2 and 4 stems, respectively. This is the first time purple loosestrife was encountered at this project site, and it was observed within a few feet of the west side of the boat launch at Recreation Area #10. The entire plant, including roots, stems, and flowers were removed. In 2014, no purple loosestrife plants were observed.

Conclusions

It was discouraging that purple loosestrife was observed for the first time in 2013 at the Peavy Falls project area since the nuisance plant surveys began. As no plants were observed in 2014, the manual removal appears to have been successful. Diligent monitoring will continue to prevent further invasion of this species and eradicate the single stand that was observed.

We Energies
2014 Annual Report - Nuisance Plant Control Survey
Way Dam & Michigamme Reservoir
FERC Project #1759

We Energies' Environmental department staff, Mr. Mike Grisar, Mr. Bill Braunschweig, Mr. Jeff Barens, Mr. Tim Muehlfeld, Mr. Tyson Schreiner, and Mr. Scott Horzen conducted surveys from a boat at the Way Dam and Michigamme Reservoir project on July 29 through July 31, 2014 and August 19 and 20, 2014. All waters and appropriate wetlands accessible from the boat were evaluated for the presence of purple loosestrife (*Lythrum salicaria*).

Additionally, the We Energies' Environmental Department staff surveyed the Michigamme River from the Highway 95 bridge north of Channing, MI downstream to Newberg Road at the Way Dam project boundary. These surveys occurred on July 28 and August 18, 2013. This is an approximate 5-mile stretch of the river that We Energies committed to surveying during the annual agency meeting in fall 2008. The effort was done to determine the extent of purple loosestrife immediately upstream of the Way Dam project, and to attempt to minimize the potential for a prolific invasion within the project limits and further down through the Menominee system.

Visual observations for Eurasian water milfoil were made and compared to 2013 survey results. Specific locations of purple loosestrife were mapped using a Trimble XH GPS unit. Each location was identified as a stand and the number of plants, stems per plant, and relative age of the plants were recorded.

<u>Way Dam and Michigamme Reservoir Project Area</u>

Purple loosestrife

Purple loosestrife was observed, mapped, and removed at four locations in 2006. All four locations (stands 1-4) occurred within the eastern portion of the project area along the shorelines of the Michigamme River, three near the mouth of the Michigamme River where it empties into the reservoir and one in the far eastern reaches of the project area.

While the license requires a survey on an alternating year basis (even years), We Energies conducted interim surveys in 2007, 2009, 2011, and again in 2013. In 2007, purple loosestrife was observed at two of the same locations identified in 2006 (i.e. stands 1 and 3). It was observed at four new locations upstream from stands 1 and 3, three of which were in the vicinity of Weber Lake, and one was along the river channel upstream from Weber Lake.

During the 2008 survey, the purple loosestrife population in the Michigamme River portion of this reservoir experienced substantial increases from previous survey years. From 2006 through 2008, increases exceeding 600% and 300% were observed in the number of plants and the number of stems recorded, respectively. In a similar trend, the number of multi-year plant observations doubled in each year between 2006 and 2008. The number of stems recorded per plant substantially decreased from 2007 to 2008 (approximately 14 stems/plant to fewer than 3 stems/plant).

A trend of an increasing purple loosestrife infestation again continued in 2009. Although fewer purple loosestrife locations were observed, the number of plants observed and total number of stems increased by over 60% between 2008 and 2009 (~24x and >5x that of 2006 levels, respectively). The number of stems observed per plant remained relatively constant between

2008 and 2009. The total number of multi-year plants more than tripled between 2008 and 2009.

The 2010 survey resulted in the continued exponential increase of purple loosestrife. When compared to 2009 results, the number of stand locations increased by nearly 2½ times. Approximately 6-fold increases were observed in both the number of plants and stems observed. The number of stems per plant continued to be relatively constant at approximately 3 stems per plant. However, 2010 multi-year plant observations increased 10x the levels observed in 2009.

For the first time since purple loosestrife began exponentially increasing in the Michigamme River portion of Way Dam, population declines were observed in 2011 from 2010 levels. The number of observed stand locations decreased by 22%. The total number of plants and stems observed decreased substantially, 68% and 77%, respectively. The number of stems per plant decreased slightly. The number of multi-year plants observed decreased by 65%. Purple loosestrife was found at 35 new locations in 2011.

Purple loosestrife observations yielded a negative result between the 2011 and 2012 monitoring years (Table 1). The number of stands, plants, and stems all increased. The highest recorded number of both plants and stems were documented in 2012 with the number of stands only slightly lower (-3) than the highest recorded in 2010. Additionally, the number of multi-year plants was the highest observed to date. However, by removing four of the stands from the calculations (stands 78, 96, 164, and 172), the total number of plants, stems, and multi-year plants observed would be greatly reduced to 111, 358, and 170, respectively. This would bring the number of plants and stems below 2011 recorded levels. Additionally, the number of stands and multi-year plants would be below 2010 numbers when they were at their peak.

Stands 78 & 96 are established stands that were first detected in previous years and at the time of detection, had well established multi-year plants present. Stands 164 and 172 were first detected in 2012 having been established with single plants in each that were at least 3-years old. 146 multi-year plants were observed in stand 164, with what appeared to be 1 plant that was at least 4 years old (initial infestation estimated to be 2008). In contrast, stand 172 had just 3 multi-year plants, one of which was estimated to be 3-years old (initial infestation estimated to be 2009). While these four larger stands contribute a large percentage to the total observed 2012 values, each was detected in their relative infancy with respect to the infestation.

In 2013, it was decided to conduct two separate surveys for purple loosestrife in an attempt to better locate plants that were developing later in the season and reduce the potential to find multi-year plants the following year. This also would reduce seed production and dispersal by plants not detected during the first survey. It has been noted that the flowering period for purple loosestrife in Way Dam has been variable and the peak flowering period presumably occurs in mid to late August during some years. By conducting the two surveys in 2013, it appeared that there was not a distinct peak flowering period, but rather the flowering of individual plants was spread out between the last week of July and the end of August. This appeared to be due, in part, to later growth and development of some plants. This trend was again observed in 2014 when two separate surveys were conducted.

The highest number of total stands and multi-year plant observations recorded to date was observed in 2014. While the total number of plants and stems observed was higher than 2013 observations, these were less than peak levels observed in 2012. If only a single survey was completed in July as was done between 2006 through 2012, generally much less of an increase would have been observed in the number of plants, number of stems, and multi-year plant observations. And, the number of observed stands was equal to that of the July survey in 2013.

By comparing only the July survey data, this allows for a more direct comparison to previous years. Only a 15% increase in the number of plants and 5% increase in the number of stems would have resulted between 2013 and 2014, which is a significant reduction since the peak in 2012. These are very positive indications that the removal of purple loosestrife has been productive.

To further improve the management effectiveness, the second survey conducted in August resulted in the removal of an additional 58% of all the stands, 62% of all the plants, and 58% of all the stems detected in 2014. By not conducting the second survey and removing the reproduction potential of these additional plants, the purple loosestrife population would likely continue to increase exponentially as was being observed between 2006 and 2012.

Similar to 2012 and 2013, just a few stands contained large proportions of the total plants and stems observed in 2014. When considering just the first survey in July, stands 78, 164, and 172 accounted for 69% of the number of plants and 53% of the stems observed. When considering the total (both July and August surveys), stands 30, 164, 172 and 242 accounted for 49% of the total plants and 43% of the total stems. Statistically, if these stands were removed from the calculations, the purple loosestrife population would be slightly less than levels observed in 2013 (with the largest stands removed from the 2013 calculations). This indicates that if the largest stands of purple loosestrife can continue to be managed and removed altogether, the management efforts are proving to be successful.

Additionally, purple loosestrife has been found at 270 total locations in the past 9 years. Of these, only 36 (approximately 13%) stands documented between 2006 and 2014 were locations where the purple loosestrife returned in 2014.

All of these factors combined including reduced stands, plants, and stems as well as the very small proportion of the total stands reoccurring from year to the next are indicative the manual removal of all plant materials has been successful. While it is very labor intensive to conduct these manual removals, it is successful at least at those locations where the loosestrife can be observed.

The challenge is being able to visually observe all of the stands during the survey period. For example, the peak flowering period for purple loosestrife occurred relatively late in 2009. At the time of the 2009 survey, most of the plants observed had only just begun to flower making it difficult to find the plants. This resulted in having over 300 plants found in 2010 to be at least two-year old plants. Another contributing factor is that in some cases, shorelines are being infested by reed canary grass, a very dense and relatively tall growing invasive species that makes it difficult to spot the purple loosestrife. The aggressive nature of the reed canary grass tends to reduce the height and vigor of loosestrife plants making it even more difficult to observe loosestrife. An example of this is stand #78, where the shoreline is quite visible, but heavily dominated by reed canary grass. The late flowering period in 2009 and dense reed canary grass growth led to not locating this stand until 2010. 182 plants were found with the vast majority of the plants occurring as 1st and 2nd year plants. Fortunately, the stand was found, and accounted for 32% of all the plants observed in 2010. Similarly, stand 172 which was first detected in 2012, accounts for almost 50% of all the plants observed in 2012.

While a majority of the stand locations are centralized around the Weber Lake area and upstream, purple loosestrife occurrences expanded further downstream in 2012 into the main reservoir. This was beyond where it had been previously documented prior to 2010. Up until 2010, the furthest downstream observations occurred about ½-mile upstream of where the Michigamme River enters the reservoir basin. By 2012, purple loosestrife had been observed throughout much of the main reservoir basin; however, it was widely distributed and in relatively

few locations. In 2013, many of the stands documented to have spread through the main basin between 2010 through 2012 were no longer present. This, too, suggests manual removal of purple loosestrife has been a highly effective technique to manage purple loosestrife through 2014.

The purple loosestrife infestation at Way Dam improved dramatically for the first time in 2011 since 2006. To a large degree this trend continued in 2012 when just four stands accounted for a majority of the total plants and stems recorded. Just 3 stands in 2013 and 4 stands in 2014 accounted for a large proportion of the total plants and stems observed. From 2006 through 2010, it expanded exponentially in all categories except the number of stems observed per plant. Exponential increases of an invasive species like purple loosestrife is common. Early detection and prompt management of these infestations is critical for having long term success.

We Energies plans to continue surveying for purple loosestrife at the Way Dam & Michigamme Reservoir project site annually to minimize the potential for mature plants setting and releasing seed into the reservoir.

Michigamme River – Highway 95 to Newberg Road

The increase in purple loosestrife within the Way Dam project lands is concerning as there is a viable purple loosestrife population occurring upstream of the Way Dam project area. In agreeing to conduct a survey on the Michigamme River further upstream from the project area, the Company is developing a better understanding of the extent to which purple loosestrife occurs upstream of the reservoir system. We Energies has also been collaborating with Ms. Ann Hruska of the NRCS Dickinson County Conservation District office to combat the purple loosestrife infestation on the Michigamme River.

In 2009, surveys commenced along that stretch of the Michigamme River from the north end of the Way Dam project area up to the first road crossing at M-95 near the Dickinson and Marquette County line. The 2009 survey yielded 56 purple loosestrife stands. All stands were mapped and manually removed. Within these stands, 79 multi-year plants were encountered and 34 first-year plants (113 plants in total). A total of 361 stems were counted.

The Michigamme River survey continued in 2010 survey along the same stretch of the Michigamme River. A total of 362 plants were located of which a majority were multi-year plants. Among these plants, 1,234 total stems were tallied. All stands were mapped and manually removed. The same phenomenon that occurred in the Way Dam project area occurred along the Michigamme River with respect to not being able to visually see the purple loosestrife plants in 2009. This was primarily due to the late flowering that occurred in 2009. Reed canary grass infestations are not near as prominent along the river stretch as soil conditions and shaded stream banks are not as suitable for reed canary grass to grow.

The survey was again conducted in 2011 from M-95 down to the Way Dam project area. This year, population reductions were documented in the total number of stems observed (-85 stands), stems observed per plant (-1.47), and the number of multi-year plants observed (-35) (Table 2). Conversely, a slight increase in the total number of stands was observed (+9). The largest change occurred in having an increase of 230 total plants observed, almost a 40% increase. While some of these results were positive, the large increase in the number of plants observed was concerning that the source population upstream remained a significant threat to being able to prevent a widespread outbreak of purple loosestrife in the Way Dam project area.

This was again evidenced by the results in 2012. Substantial increases in the total number of stands, plants, stems, and multi-year plants were observed. Most notably was the substantial

increase (>50%) in multi-year plants and the number of new stands observed. 154 stands observed in 2012 were new stands. A positive indication the management is working is that only 41 (15%) of the previously 282 documented stands between 2009 and 2011 were locations where the purple loosestrife returned in 2012.

For the first time in 2013, the purple loosestrife population decreased from those observations made the year before (Table 2). In total, 12%, 25%, and 35% reductions resulted in the total number of stands, plants, and stems observed, respectively. Similarly as what is described above for Way Dam, a more direct comparison between years can be made when considering only the July survey results since only a single survey was completed in previous years. If only the July survey data is considered, the reduction of purple loosestrife from 2012 to 2013 is even more significant yielding 54%, 79%, and 66% decreases in the number of stands, plants, and stems, respectively.

After seeing reductions in the purple loosestrife population in 2013, substantial increases were observed in 2014. These increases were observed when evaluating the results for both the July survey only as well as in total. When comparing the results for just the July survey, a 123% increase in the # of stands was observed between 2013 and 2014. Additionally, the number of plants, stems, and multi-year plants increased by 49%, 48%, and 61%, respectively, for the July surveys between 2013 and 2014.

In total, the highest population values recorded since 2009 were recorded in 2014. The number of stands observed increased by 77% over the peak observed in 2012. The number of plants increased by 45% between 2013 and 2014, which is 8% higher than the peak observed in 2012. The number of stems was only 1% higher than the peak in 2012; however, there was a 55% increase from 2013 to 2014. Similarly, the number of multi-year plants also increased substantially and was observed at the highest level recorded in 2104. Most notable, however, is that 84% of all the purple loosestrife plants observed on the Michigamme River were multi-year plants. Additionally, purple loosestrife has been found at 804 total locations in the past 6 years. Of these, 150 (approximately 19%) stands documented between 2009 and 2014 were locations where the purple loosestrife returned in 2014.

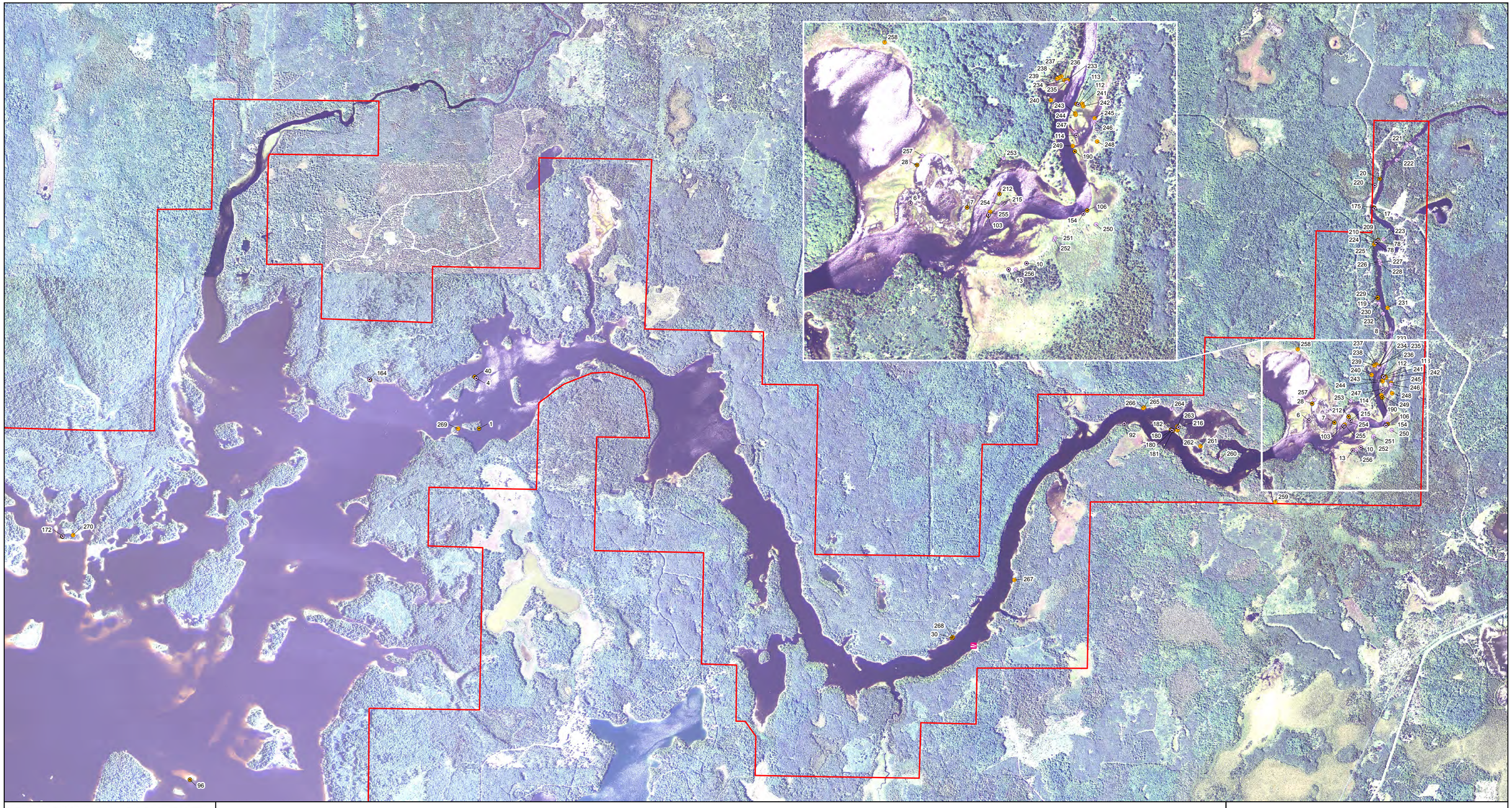
To further improve the management effectiveness, the second survey conducted in August resulted in the removal of an additional 42% of all the stands, 46% of all the plants, and 50% of all the stems detected in 2014. The second survey proved productive and should aid in slowing the spread of purple loosestrife in the Way Dam project area.

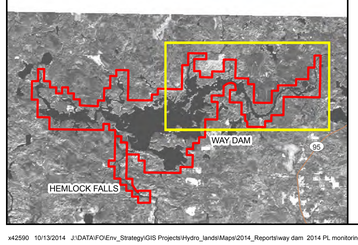
The effort to expand our understanding of source populations upstream of the Way Dam project area expanded in 2010 by further collaboration with Ms. Ann Hruska. Ms. Hruska was awarded a Wilderness Shores Mitigation Enhancement Fund grant for conducting purple loosestrife management along the Michigamme River upstream of the Way Dam project area. In preparation for implementing this grant, Ms. Hruska conducted road surveys in August 2010 along access points from the M-95 crossing up to and north of Republic. Ms. Hruska found numerous dense monotypic stands of purple loosestrife along the shores of the Michigamme River in and around the Republic, MI area. Some of these stands were several acres in size. Many other small stands were observed along the Michigamme River banks at road vantage points from the M-95 crossing at the Marquette and Dickinson County line upstream to Republic. It was quite evident the source population(s) for the loosestrife occurring in the Way Dam project area is from the area in and around Republic, MI.

In 2011 and 2012, Ms. Hruska continued the purple loosestrife management efforts upstream of Way Dam by conducting a more detailed survey in the Republic area and on portions of the Michigamme River up and downstream of Republic. She also began implementing a biological

control management program for purple loosestrife targeting the most problematic stands documented in the presence/absence surveys she conducted. Further monitoring and biological control measures continued to be implemented in 2013. Results indicated the prior releases of beetles had been effective in reducing the extent and productivity of the source populations upstream of Way Dam. Unfortunately, there was very minimal evidence the released beetles survived the winter of 2013-14. Discussions are ongoing to continue with the beetle rearing and introduction program in 2015.

The management activities that have occurred both within the Way Dam project area and the approximate 5-mile stretch of the Michigamme River upstream have had a direct and positive impact on keeping the purple loosestrife infestation within Way Dam in check. We Energies plans to continue to survey and remove purple loosestrife from this stretch between Highway 95 and Newberg Road in 2015. We intend to continue collaborating with Ms. Hruska in further investigating source populations and management for purple loosestrife upstream of the Way Dam project area.





- Purple Loosestrife: Reoccurring Sites July 2014*
- Purple Loosestrife: New Sites July 2014
- Purple Loosestrife: Reoccurring Sites August 2014*
- Purple Loosestrife: New Sites August 2014
- Public Boat Launch
- FERC Hydro Project Boundary

* Reoccurring sites are those that have been mapped in previous years

Feet
1,000 0 1,000 2,000

N
W E
S

Way Dam Hydro Project - Year 2014
Purple Loosestrife Survey

Source: USDA -NAIP Imagery, 2012
GPS field data collected 7/28/2014, 7/29/2014, 7/30/2014, 8/19/2014, 8/20/2014

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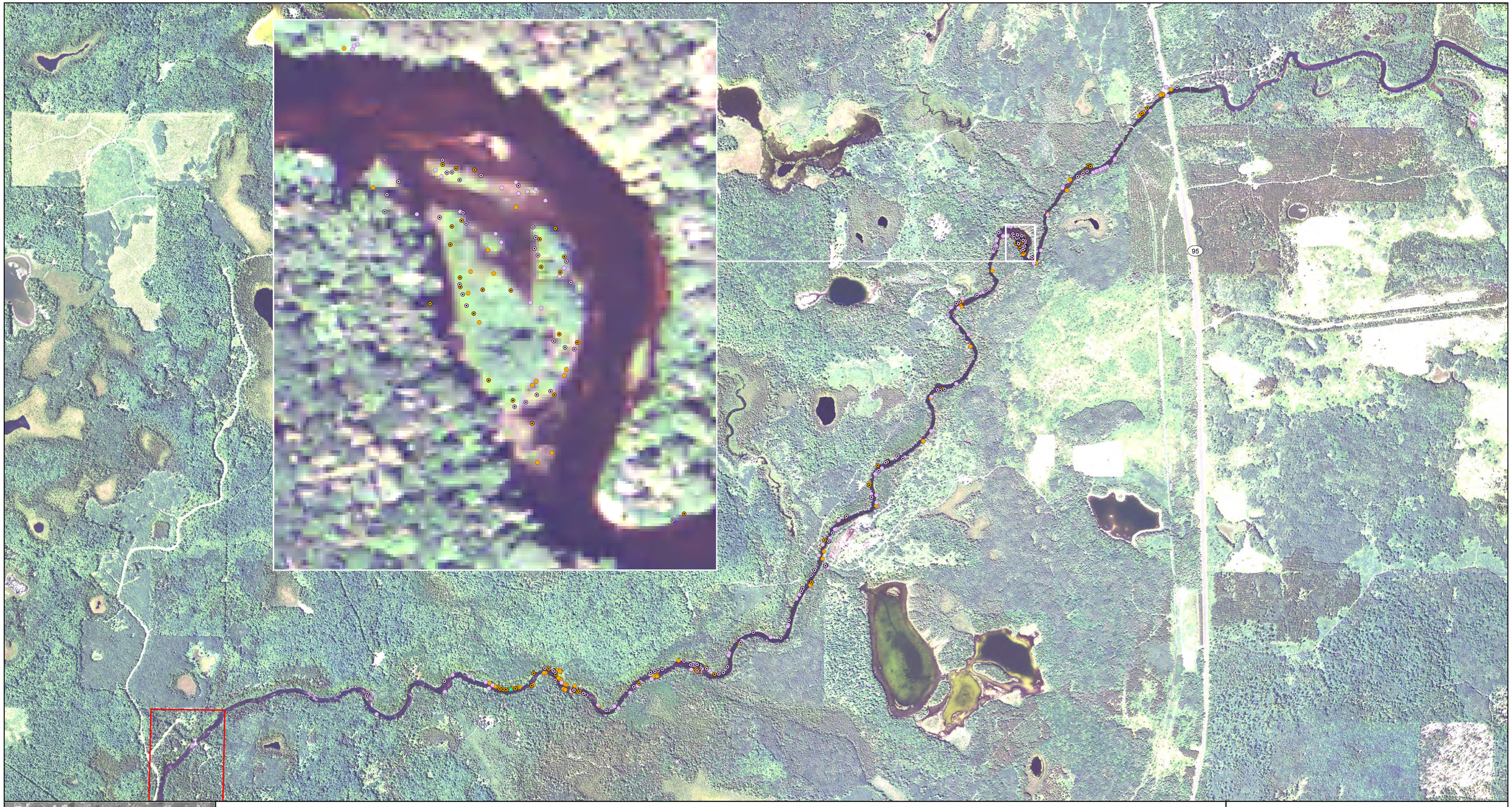

- Purple Loosestrife: Reoccurring Sites July 2014*
- Purple Loosestrife: New Sites July 2014
- Purple Loosestrife: Reoccurring Sites August 2014*
- Purple Loosestrife: New Sites August 2014
- Beetle Release Site
- Public Boat Launch
- FERC Hydro Project Boundary

* Reoccurring sites are those that have been mapped in previous years

Feet
1,000 0 1,000 2,000

N
W E
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Michigamme River - Year 2014
Purple Loosestrife Survey

Source: USDA -NAIP Imagery, 2012
GPS field data collected 7/28/2014 & 8/18/2014

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We Energies 2014 Nuisance Plant Survey Summary Results

Way Dam Purple Loosestrife Monitoring Summary (2006-2014)

								2013					2014				
	2006	2007	2008	2009	2010	2011	2012	total	trip 1	trip 2	minus stands 172, 180, & 181 (total)	minus stands 172, 180, & 181 (trip 1)	total	trip 1	trip 2	minus stands 30, 164, 172, & 242 (total)	minus stands 78, 164 & 172 (trip 1)
# of Observed Stands	4	6	30	28	68	53	65	61	39	25	58	36	93	39	54	89	36
# of Plants Observed	4	9	57	94	558	176	1239	290	240	50	143	93	720	275	445	369	86
# of Stems Observed	51	128	160	271	1732	397	1863	680	497	183	431	248	1247	521	726	712	247
Stems Observed per Plant	12.75	14.22	2.81	2.88	3.1	2.26	1.50	2.34	2.07	3.66	3.01	2.67	1.73	1.89	1.63	1.93	2.87
Multi-year Plants Observations	2	4	9	31	314	110	429	233	190	43	131	88	565	254	311	306	81

Michigamme River Purple Loosestrife Monitoring Summary (2009-2014)

					2013					2014				
	2009	2010	2011	2012	total	trip 1	trip 2	-stands 464, 564, & 567 (total)	-stands 464, 564, & 567 (trip 1)	total	trip 1	trip 2	minus 6 stands (total)	minus stands 151 & 383 (trip 1)
# of Observed Stands	56	140	149	217	192	99	96	189	96	384	221	163	376	219
# of Plants Observed	113	362	592	915	686	361	325	567	242	994	535	459	808	498
# of Stems Observed	361	1234	1149	1732	1132	585	547	946	399	1750	873	877	1408	817
Stems Observed per Plant	3.19	3.41	1.94	1.89	1.65	1.62	1.68	1.67	1.65	1.76	1.63	1.91	1.74	1.64
Multi-year Plants Observations	79	317	282	525	524	280	244	436	192	832	451	381	697	417

Way Dam Purple Loosestrife Monitoring Summary (2006-2014)
July Survey Only

	2006	2007	2008	2009	2010	2011	2012	2013	2014
# of Observed Stands	4	6	30	28	68	53	65	39	39
# of Plants Observed	4	9	57	94	558	176	1239	240	275
# of Stems Observed	51	128	160	271	1732	397	1863	497	521
Stems Observed per Plant	12.75	14.22	2.81	2.88	3.1	2.26	1.50	2.07	1.89
Multi-year Plants Observations	2	4	9	31	314	110	429	190	254

Way Dam Purple Loosestrife Monitoring Summary (2006-2014)
Total (July & August Surveys Combined)

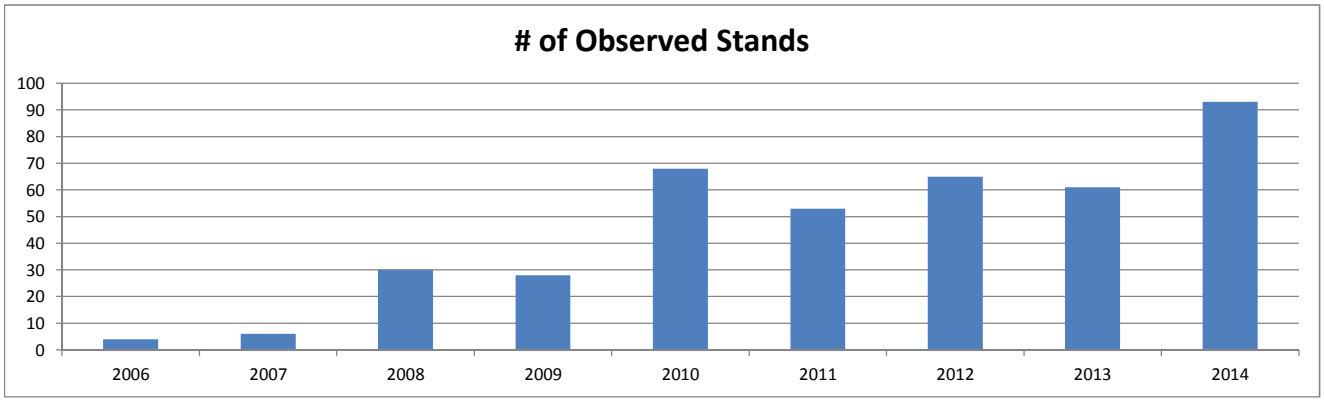
	2006	2007	2008	2009	2010	2011	2012	2013	2014
# of Observed Stands	4	6	30	28	68	53	65	61	93
# of Plants Observed	4	9	57	94	558	176	1239	290	720
# of Stems Observed	51	128	160	271	1732	397	1863	680	1247
Stems Observed per Plant	12.75	14.22	2.81	2.88	3.1	2.26	1.50	2.34	1.73
Multi-year Plants Observations	2	4	9	31	314	110	429	233	565

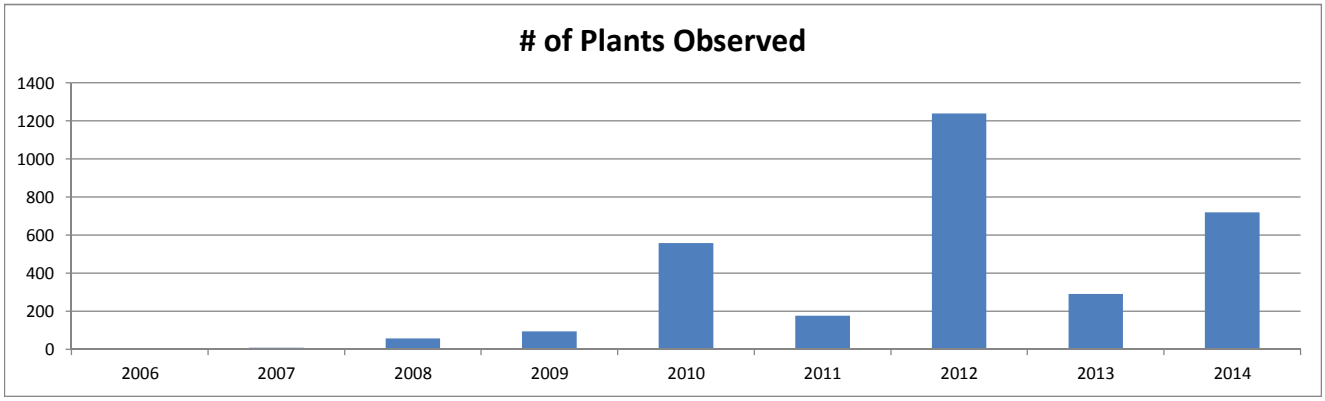
Way Dam Purple Loosestrife Monitoring Summary (2006-2014)
2012 minus stands 78, 96, 164, & 172
2013 minus stands 172, 180, & 181 (trip 1)
2014 minus stands 78, 164 & 172 (trip 1)

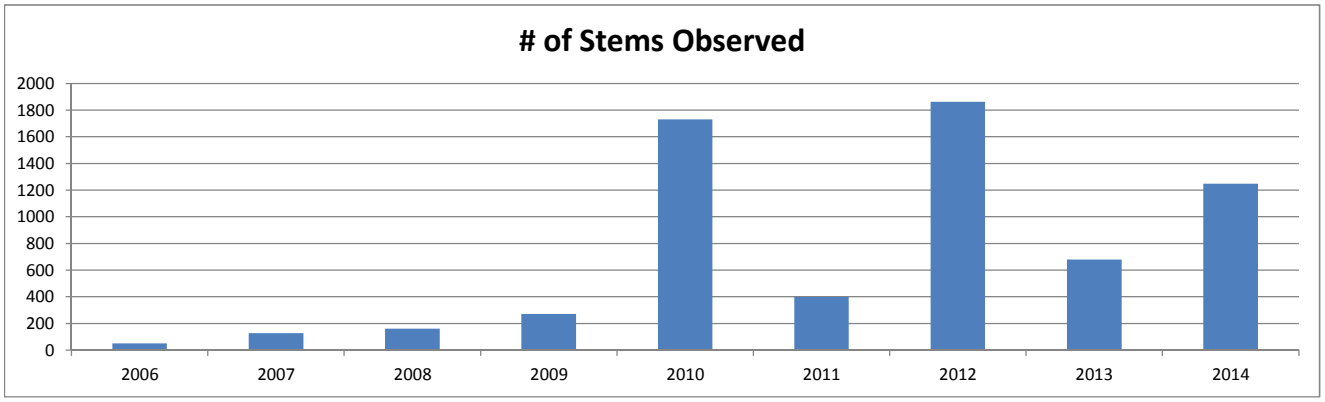
	2006	2007	2008	2009	2010	2011	2012	2013	2014
# of Observed Stands	4	6	30	28	68	53	61	62	36
# of Plants Observed	4	9	57	94	558	176	111	93	86
# of Stems Observed	51	128	160	271	1732	397	358	248	247
Stems Observed per Plant	12.75	14.22	2.81	2.88	3.1	2.26	1.50	2.67	2.87
Multi-year Plants Observations	2	4	9	31	314	110	170	88	81

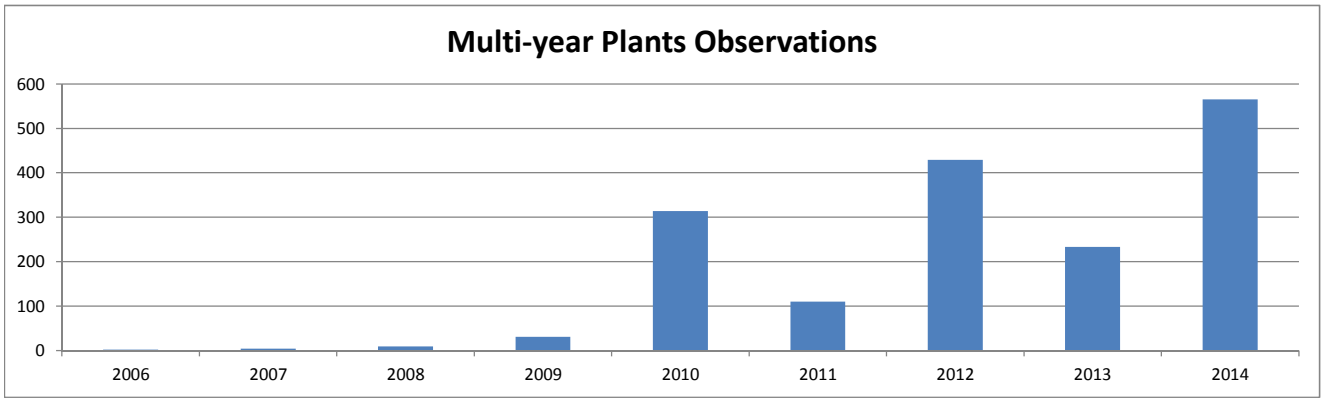
We Energies - Purple Loosestrife Monitoring 2006-2014 on Way Dam Reservior

Total Observations



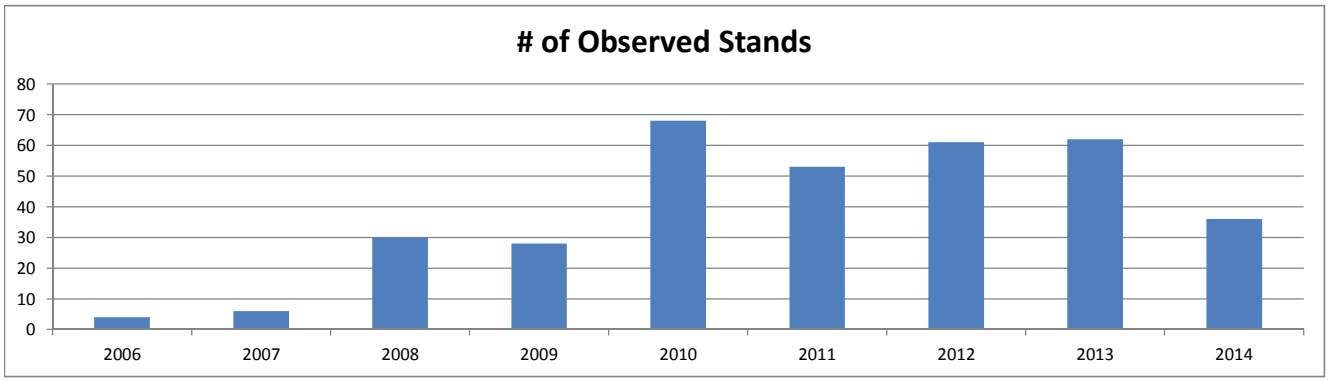


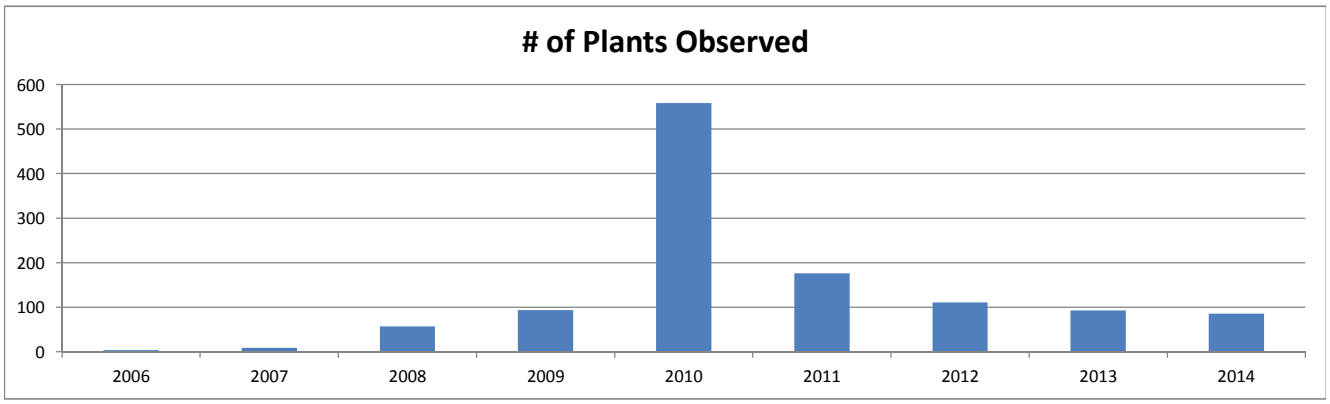


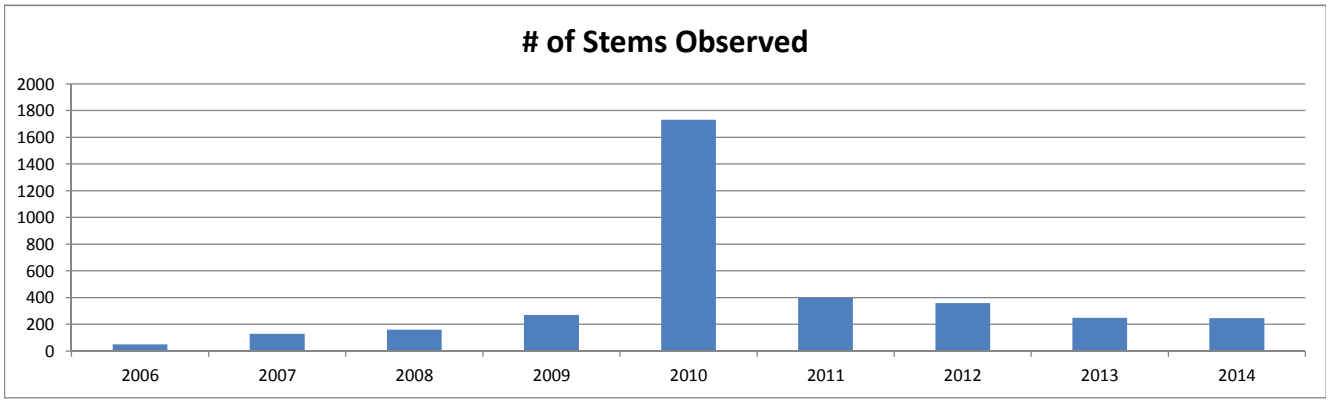


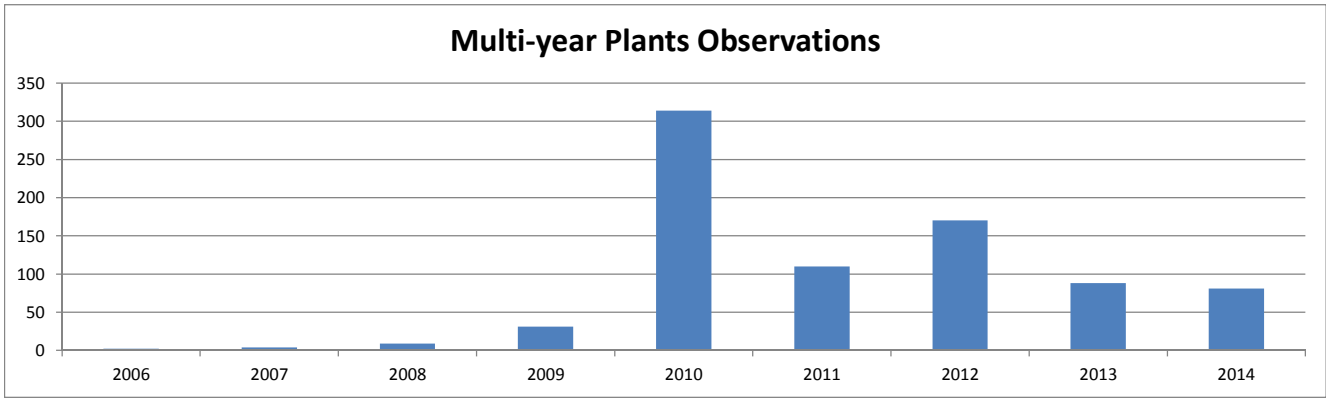
We Energies - Purple Loosestrife Monitoring 2006-2014 on Way Dam Reservior

Minus largest 2012, 2013, and 2014 stands









Michigamme River Purple Loosestrife Monitoring Summary (2009-2013)

Total (July & August Surveys Combined)

	2009	2010	2011	2012	2013	2014
# of Observed Stands	56	140	149	217	192	384
# of Plants Observed	113	362	592	915	686	994
# of Stems Observed	361	1234	1149	1732	1132	1750
Stems Observed per Plant	3.19	3.41	1.94	1.89	1.65	1.76
Multi-year Plants Observations	79	317	282	525	524	832

Michigamme River Purple Loosestrife Monitoring Summary (2009-2014)

2013 minus stands 464, 564, & 567 (trip 1)
2014 minus stands 151 & 383 (trip 1)

	2009	2010	2011	2012	2013	2014
# of Observed Stands	56	140	149	217	96	219
# of Plants Observed	113	362	592	915	242	498
# of Stems Observed	361	1234	1149	1732	399	817
Stems Observed per Plant	3.19	3.41	1.94	1.89	1.65	1.64
Multi-year Plants Observations	79	317	282	525	192	417

We Energies - Purple Loosestrife Monitoring 2009-2014 on Michigamme River