

 ORIGINAL

March 22, 2010

The Secretary  
Federal Energy Regulatory Commission  
Mail Code: DHAC, PJ-12.3  
888 First Street, N.E.  
Washington, D.C. 20426

FILED  
SECRETARY OF THE  
COMMISSION

2010 MAR 29 A 9:54

FEDERAL ENERGY  
REGULATORY COMMISSION



**Re: Grandmother Falls Hydroelectric Project, FERC License No. 2180 – Exotic Species Monitoring Report for CY2008**

Dear Secretary:

Article 407 of FERC License No. 2180 required PCA Hydro (PCA) to submit an Invasive Species Management Plan for approval contingent upon review and approval by both the Wisconsin Department of Natural Resources (WDNR) and U.S. Fish and Wildlife Service (FWS). On September 26, 2005, PCA received submitted a plan, approved by both WDNR and FWS, to the FERC. The FERC approved the plan, with conditions, on January 19, 2006.

The principal conditions imposed by FERC require that PCA;

- a) Conduct the exotic plant surveys described in the plan annually for five years beginning in 2006, and
- b) Solicit comments on the draft annual report from the WDNR and FWS and,
- c) Submit the final annual report to the FERC including any changes recommended by WDNR and FWS.

Enclosed is a copy of the 2009 monitoring report that documents the presence and locations of purple loosestrife, reed canary grass, and Eurasian water milfoil found within the project. As was the case in 2008, curly-leaf pondweed was not encountered during the meander survey nor was giant reed grass seen during the shoreline survey.

In correspondence dated 12 February 2010, PCA provided WDNR and FWS each with a copy of the 2009 annual report for review. The agencies were asked to provide written comments regarding this plan to PCA by the close of business on 15 March 2010; no comments were received.

Therefore, we are submitting to the FERC the 2009 annual report as final per Article 407 requirements. Copies of relevant correspondence are also enclosed.

If you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads "John Piotrowski". The signature is written in a cursive, slightly slanted style.

John Piotrowski  
Environmental Manager

Enclosures

cc: Bruce Ridley (letter only)  
John Stelling (letter only)

Biologist  
U.S. Fish & Wildlife Service  
2661 Scott Tower Drive  
New Franken, WI 54229

WDNR Biologist  
107 Sutliff Avenue  
Rhineland, WI 54501

File GMD 2250  
File GMD 2260

February 12, 2010

Biologist  
U.S. Fish & Wildlife Service  
2661 Scott Tower Drive  
New Franken, WI 54229

Aquatic Biologist  
WDNR  
107 Sutliff Avenue  
Rhineland, WI 54501

**Re: Grandmother Falls Hydroelectric Project, FERC License No. 2180 – Exotic Species Monitoring Report for CY2009**

Dear Agency Representative:

Article 407 of the Federal Energy Regulatory Commission's (FERC) License No. 2180 mandates that PCA Hydro (PCA) prepare an Invasive Species Management plan that must be reviewed and approved by the Wisconsin Department of Natural Resources (WDNR) and U.S. Fish and Wildlife Service (FWS). Said plan was submitted to the agencies, reviewed and ultimately approved by FERC on January 19, 2006. The plan requires that PCA conduct invasive plant surveys annually for five years (beginning in 2006) and submit an annual report to the FERC subsequent to review and approval by both WDNR and FWS. Accordingly, PCA is providing WDNR and FWS each with a copy of the 2009 annual report for review.

The 2009 survey findings can be briefly summarized as follows:

- Eurasian water milfoil, curly-leaf pondweed and giant reed grass were not found within the flowage
- While purple loosestrife was encountered, the number of colony clusters decreased, as did the plant density in the colonies. These reductions are attributed to management action taken (cutting seed heads and herbicide application) in 2008.
- The extent of reed canary grass infestation precludes the use of traditional suppression actions such as prescribed burns, mowing, cultivation or herbicide application.

We request that you submit any written comments regarding this plan to PCA by the close of business on 15 March 2010. An absence of reply will be considered an acceptance of the report contents.

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SECRETARY OF THE  
COMMISSION

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REGULATORY COMMISSION



Sincerely,

A handwritten signature in black ink, appearing to read "John Piotrowski". The signature is written in a cursive, somewhat stylized font.

John Piotrowski  
Environmental Manager

Enclosure

cc: Bruce Ridley (letter only)  
John Stelling (letter only)  
GMD 2260  
GMD2260

# GRANDMOTHER FALLS HYDROELECTRIC DAM

FERC PROJECT 2180-WISCONSIN

## EXOTIC SPECIES MONITORING REPORT YEAR 4 – 2009




*Prepared for*

# PCA Hydro, Inc.

February 2010

*Prepared through the collaborative efforts of*

 **NES Ecological Services**  
A Division of Robert E. Lee & Associates, Inc.

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Dobart, WI 54115  
20499 5780

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## INTRODUCTION

Article 407 within the Federal Energy Regulatory Commission (FERC) license issued to Packaging Corporation of America (PCA) for the Grandmother Falls Flowage Hydroelectric Project (FERC No. 2180), located in the Town of Bradley, Lincoln County, Wisconsin (Map 1), required PCA to submit an Invasive Species Management Plan for approval. On September 26, 2005, a plan, reviewed by the Wisconsin Department of Natural Resources (WDNR) and the U.S. Fish & Wildlife Service (USFWS), was submitted to and then accepted, with conditions, by FERC on January 19, 2006. The two main conditions associated with the acceptance of the plan were 1) PCA must conduct the exotic plant surveys as described in the plan annually for five years beginning in 2006, and 2) an annual report must be submitted to the WDNR, USFWS and FERC for review and approval.

NES Ecological Services and Onterra, LLC implemented the monitoring during the 2006, 2007, 2008 and 2009 growing seasons to document the presence and location of invasive plant species observed within the project waters (Map 3) so their occurrence can be tracked over time. Species taken into consideration for the 2009 investigation, as outlined in the Invasive Species Management Plan, include purple loosestrife (*Lythrum salicaria*), giant reed grass (*Phragmites australis*), curly-leaf pondweed (*Potamogeton crispus*), reed canary grass (*Phalaris arundinacea*), and Eurasian water milfoil (*Myriophyllum spicatum*). Preparation of this report documents the results of the 2009 survey and satisfies the condition regarding the submittal of an annual report.

## METHODS

### Meander Survey

Curly-leaf pondweed (CLP) begins growing immediately following ice out, reaches maturity by early to mid June, and then dies off in early to mid July, the time when most aquatic plants are just reaching peak biomass. Since it is at peak biomass in June, the extent of curly-leaf pondweed is most accurately documented if surveys are conducted during this time period. Therefore, a meander survey of the project water's littoral zone (Map 2) was completed on June 11, 2009. The survey was accomplished by navigating a boat throughout the project area and scanning the water for colonies of curly-leaf pondweed. GPS points were automatically collected to track survey paths (Map 2). The 2010 survey will be scheduled for mid-June.

### Point-Intercept Survey

Point-intercept surveys allow the systematic sampling of submerged plants within project waters and ensure all areas of the littoral zone are visited. Based upon calculation techniques supplied by the WDNR (WDNR 2005) that employ water surface area (624 acres) and shoreland development factor (7.29), a plot resolution of 55-meters was applied to the project waters displayed in Map 3. Using this information, a total of 885 points were selected to be surveyed within the Grandmother Falls Flowage.

NES performed a point-intercept survey on September 10 – 11, 2009 within the Grandmother Falls Flowage to detect the presence of Eurasian water milfoil (EWM), remaining CLP and other potential submerged, exotic plant species. At each point (plot), submerged plants were collected

with a rake for identification and the plot's water depth was determined using a depth finder. When detected, the locations of exotic plant colonies were GPS located and water depth was recorded. The extents of each colony were determined through numerous rake tows. Each mapped colony was assigned a density rating of 1, 2, or 3 and depicted as a polygon depending on the density rating for each species (Map 4). A colony was determined to be those areas containing large groups ( $\geq 10$  individuals) of plants. A rating of 1 indicates a sparse colony, likely containing a mix of exotics and natives; while a rating of 3 indicates a colony dominated by exotics. However, some exotic occurrences were too scattered to be mapped as colonies. In these cases, individual plants or small groups ( $\leq 9$  individuals) of plants were mapped using points. In addition to those groups identified within the point-intercept plots, EWM found outside the baseline survey points was also recorded as either a colony or a point, given a density rating, and mapped.

### **Shoreline Survey**

Following the point-intercept survey, NES ecologists scanned the entire shoreline and shallow water areas of the project waters (Map 1) for exotic emergent species. Occurrences of purple loosestrife, reed canary grass, and giant reed grass within 10 feet of the water's edge were identified, mapped using GPS, and a density rating applied as described above.

In addition to identifying and mapping purple loosestrife, the WDNR also requested that small clusters be removed during the annual surveys. Therefore, all purple loosestrife plants identified were targeted and manually/chemically removed following the 2009 survey (September 15, 2009). Treated areas for purple loosestrife are shown on Map 4.

Photographs from the 2009 survey are located in Appendix A.

## **RESULTS**

### **Meander Survey**

No colonies of curly-leaf pondweed were encountered during the meander survey conducted on June 11, 2009. To document the mid-June survey, GPS tracking logs were automatically recorded and are displayed on Map 2.

### **Point-intercept Survey**

A total of 885 points were selected within the project waters based on WDNR guidelines; however, only 518 of these points were surveyed due to existing field conditions. The remaining 367 points were either inaccessible by boat ("not visited") or they were at depths of  $\geq 10$  feet ("too deep"), beyond the depth of plant growth (Map 3).

No Eurasian water milfoil was found within the 518 points surveyed on September 10 – 11, 2009 (Map 4).

### **Shoreline Survey**

Giant reed grass, once again, was not discovered within the project area during the September survey. Reed canary grass, on the other hand, was found to be very prevalent in preferred habitat types along the shoreline of Grandmother Falls Flowage. Grass coverage by the species continues

to be ~ 50%, which made it impossible to map; therefore, this species is not shown on the attached maps. Purple loosestrife was also encountered during the survey; however, this species is not as common as reed canary grass. Seven colonies were identified as polygons and 7 other small groups were found along the shoreline and mapped (Map 4). The density of these 14 populations was low (1). All colonies and small groups were removed by clipping off the seed heads and chemically treating the stems.

## DISCUSSION/CONCLUSIONS

The 2009 surveys conducted within Grandmother Falls Flowage again indicated the presence of purple loosestrife and reed canary grass, while Eurasian water milfoil, curly-leaf pondweed and giant reed grass were not encountered. Based on the results, NES and Onterra came to the following conclusions and management alternatives for each species.

The comprehensive aquatic vegetation surveys conducted in 2000, 2006, 2007, 2008 and 2009 did not indicate the presence of curly-leaf pondweed within the flowage. The species' continued absence has led us to believe that it is very unlikely to suddenly appear in the next year, but annual meander surveys will be conducted for this species for one more year.

In 2000, the aquatic vegetation surveys conducted by NES did not identify the occurrence of Eurasian water milfoil within project waters. However, the presence of this species in Lake Mohawksin, upstream of Grandmother Falls Flowage, made it highly probable that EWM would establish itself within project waters due to its ability to root from floating plant fragments. In 2006, 16 separate occurrences were found and mapped. This number decreased to 12 in 2007, 6 in 2008 and 0 in 2009 (Table 1).

No EWM plants were found in 2009; therefore, management actions are not suggested at this time; however, they may be required in the future if populations of this species increase dramatically. PCA will implement further action, as stated in Article 407, if requested by FERC personnel.

Giant reed grass was not found during the 2000, 2006, 2007, 2008 and 2009 surveys. Because PCA will continue conducting shoreline surveys for purple loosestrife, this species will be noted in the future if observed.

In 2009, small clusters of purple loosestrife (indicated as a point) occurred at 7 locations along the river, compared to 14 locations in 2008 and 10 locations found in 2007 and 2006. Two of the small clusters occurred as a cluster in 2008. The remaining five clusters mapped in 2009 were medium density colonies in 2008. In addition, one colony mapped as medium density in 2008 split into two low density colonies; three low density colonies decreased in size; and one remained the same density and size. (Table 2) (Map 4).

Cutting seed heads and treating them with herbicide (Rodeo) in 2008 eliminated many of the small clusters identified in the survey. In general, colonies saw a reduction in size and density as a result of herbicide application.

At this time, the release of *Galerucella* beetles would not be recommended for the summer of 2010 because purple loosestrife populations appear to be dropping as a result of management. Herbicide



applications will continue on the remaining infestations in 2010 as these activities should effectively control the exotic, invasive species within the project area.

Results of the 2009 shoreline survey once again indicate that reed canary grass is prevalent (density = 2). The Wisconsin DNR recommends a variety of methods for suppression of reed canary grass including prescribed burns, mowing, frequent cultivation or herbicide application. However, the frequency and extent at which reed canary grass was found within the project site suggests that the infestation is beyond feasible control by these methods. Monitoring of the species will continue to ensure it does not displace all the native species along the river's shoreline.

**Table 1. Eurasian Water-Milfoil 2008-2009 Survey Comparisons (Map 4).**

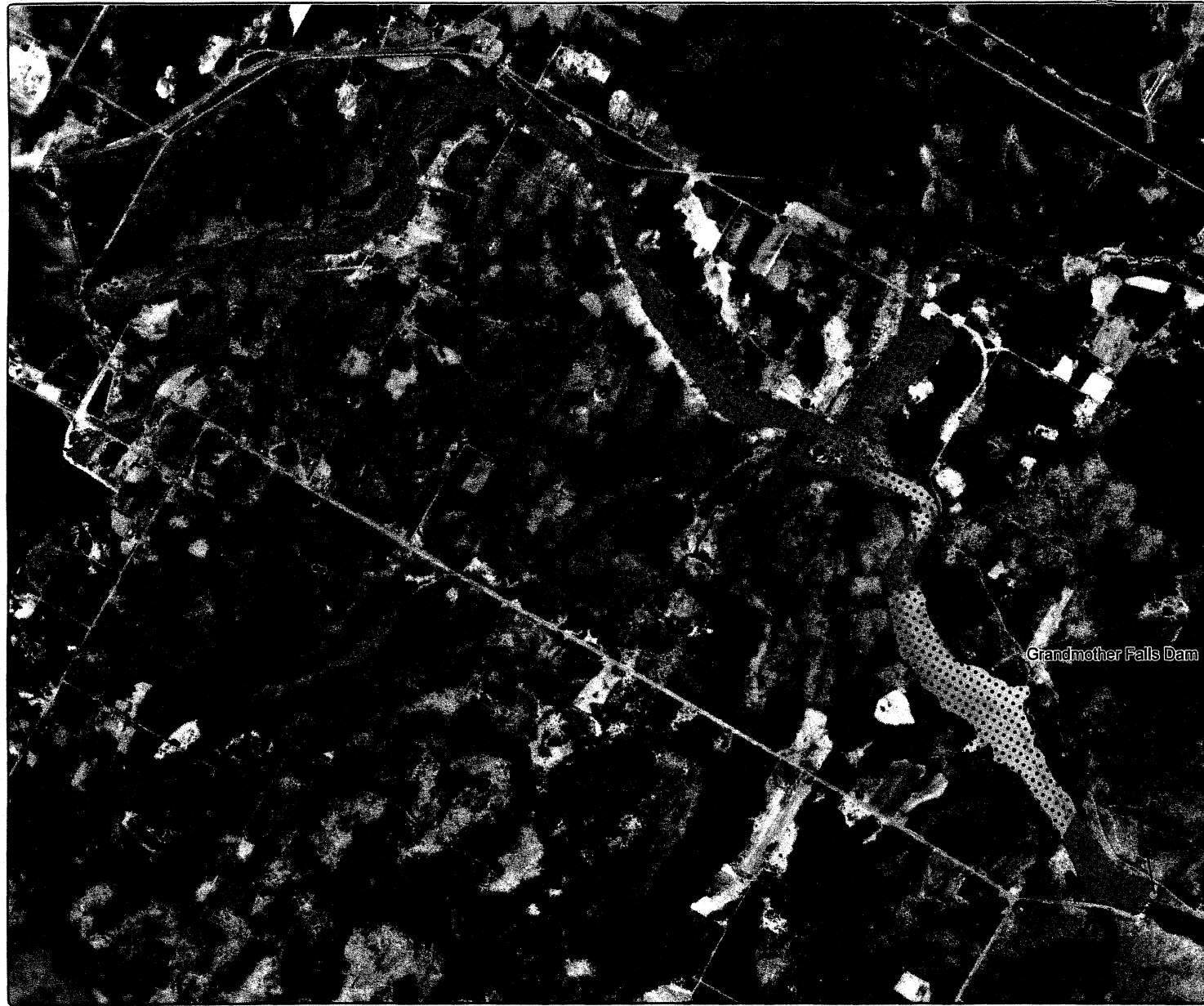
Location	Status Compared to 2008	Comments
Mile 1, upstream from Grandmother Falls Dam	1 population <b>not located</b>	Population located on west side of river near portage
Between Miles 1-2, upstream from Grandmother Falls Dam	1 population <b>not located</b>	Located on west side of river north of Mile 1 line (also located in 2006)
Between Miles 2-3, upstream from Grandmother Falls Dam	1 population <b>not located</b>	Located on east side of island at confluence of Pine River
Between Miles 5-6, upstream from Grandmother Falls Dam	2 populations <b>not located</b>	Population located on north and south sides of the river (also located in 2006)
Between Miles 5-6, upstream from Grandmother Falls Dam	1 population <b>not located</b>	Located on east side of south island

**Table 2. Purple Loosetrife 2008-2009 Survey Comparisons (Map 4).**

Location	Status Compared to 2008	Comments
Mile 1, upstream from Grandmother Falls Dam	<b>No populations</b>	
Between Miles 1-2, upstream from Grandmother Falls Dam	2 colonies (density = 1) <b>same</b>	Populations located on the south side of the river
Between Miles 1-2, upstream from Grandmother Falls Dam	2 clusters <b>not located</b>	Located on south side of river
Between Miles 2-3, upstream from Grandmother Falls Dam	1 colony (density = 1) became <b>smaller</b>	Population located on north side of river
Between Miles 2-3, upstream from Grandmother Falls Dam	1 clusters <b>not located</b>	Located on the south side of river
Between Miles 3-4, upstream from Grandmother Falls Dam	4 clusters <b>not located</b>	Located on south ½ of island
Between Miles 3-4, upstream from Grandmother Falls Dam	1 cluster <b>same</b>	Located on east side of river
Between Miles 3-4, upstream from Grandmother Falls Dam	1 <b>new cluster</b>	Located on east side of river
Between Miles 3-4, upstream from Grandmother Falls Dam	1 colony (density = 1) became <b>smaller</b>	Population is located on island
Between Miles 4-5, upstream from Grandmother Falls Dam	1 cluster <b>not located</b>	Located on east side of river
Between Miles 4-5, upstream from Grandmother Falls Dam	1 colony (density = 1) became <b>smaller</b>	Located on east side of river
Between Miles 5-6, upstream from Grandmother Falls Dam	2 clusters <b>not located</b>	Populations were located on west end of island and north side of river
Between Miles 6-7, upstream from Grandmother Falls Dam	1 colony (density = 2) became 2 less dense colonies (density = 1)	Populations on small island west of larger island.
Between Miles 6-7, upstream from Grandmother Falls Dam	1 colony (density = 1) became <b>smaller</b>	Population east of boat landing
Between Miles 6-7, upstream from Grandmother Falls Dam	1 colony (density = 2) became 5 <b>new clusters</b>	Population west of boat landing
Between Miles 6-7, upstream from Grandmother Falls Dam	3 clusters <b>not located</b>	Located on east side of river

## **REFERENCES**

Wisconsin Department of Natural Resources. April 2005. Aquatic Plant Management in Wisconsin – Draft.

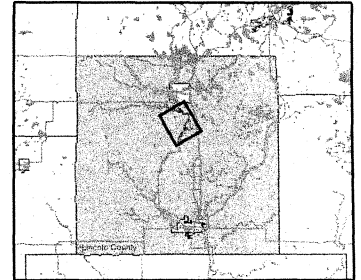


# Map 1

## Grandmother Flowage


Lincoln County, Wisconsin

### Project Waters & Base Point-Intercept Locations



Extent of large map shown in red.

### Legend

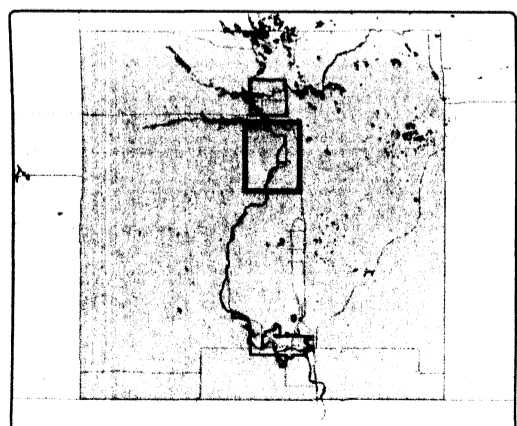
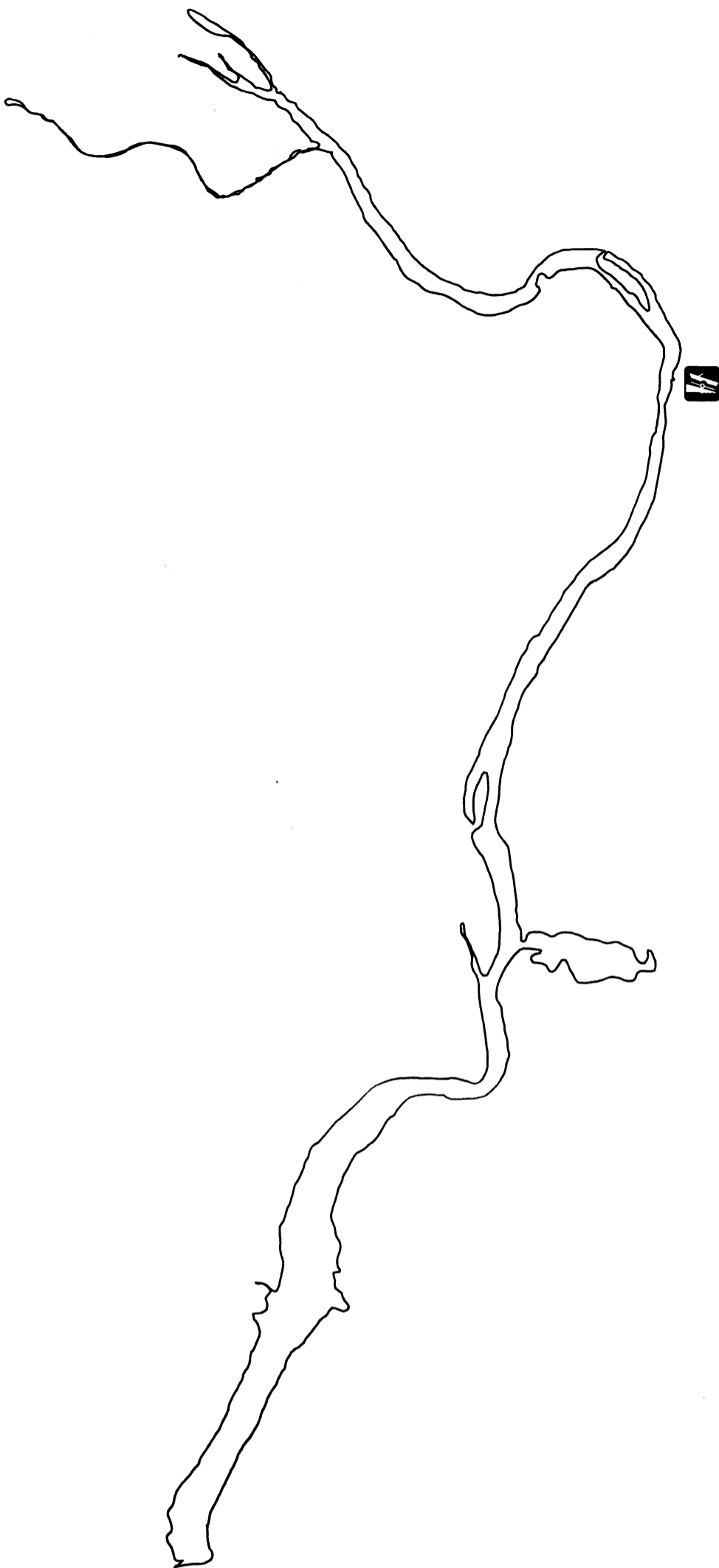
- P-I Survey Location
-  Project Waters



2,100  
Feet




Map Date: March 17, 2006

**Onterra LLC** 135 South Broadway Suite C  
 Lake Management Planning De Pere, WI 54115  
 920.338.8860 www.onterra-eco.com



*Extent of Large Map Shown in Red.*

**Legend**

-  Public Boat Launch
-  Survey Path
-  Project Waters

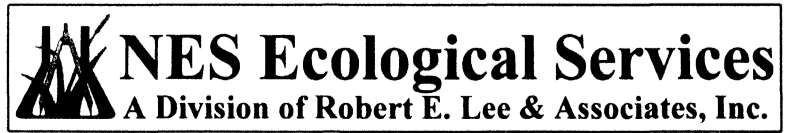
**Map 2**

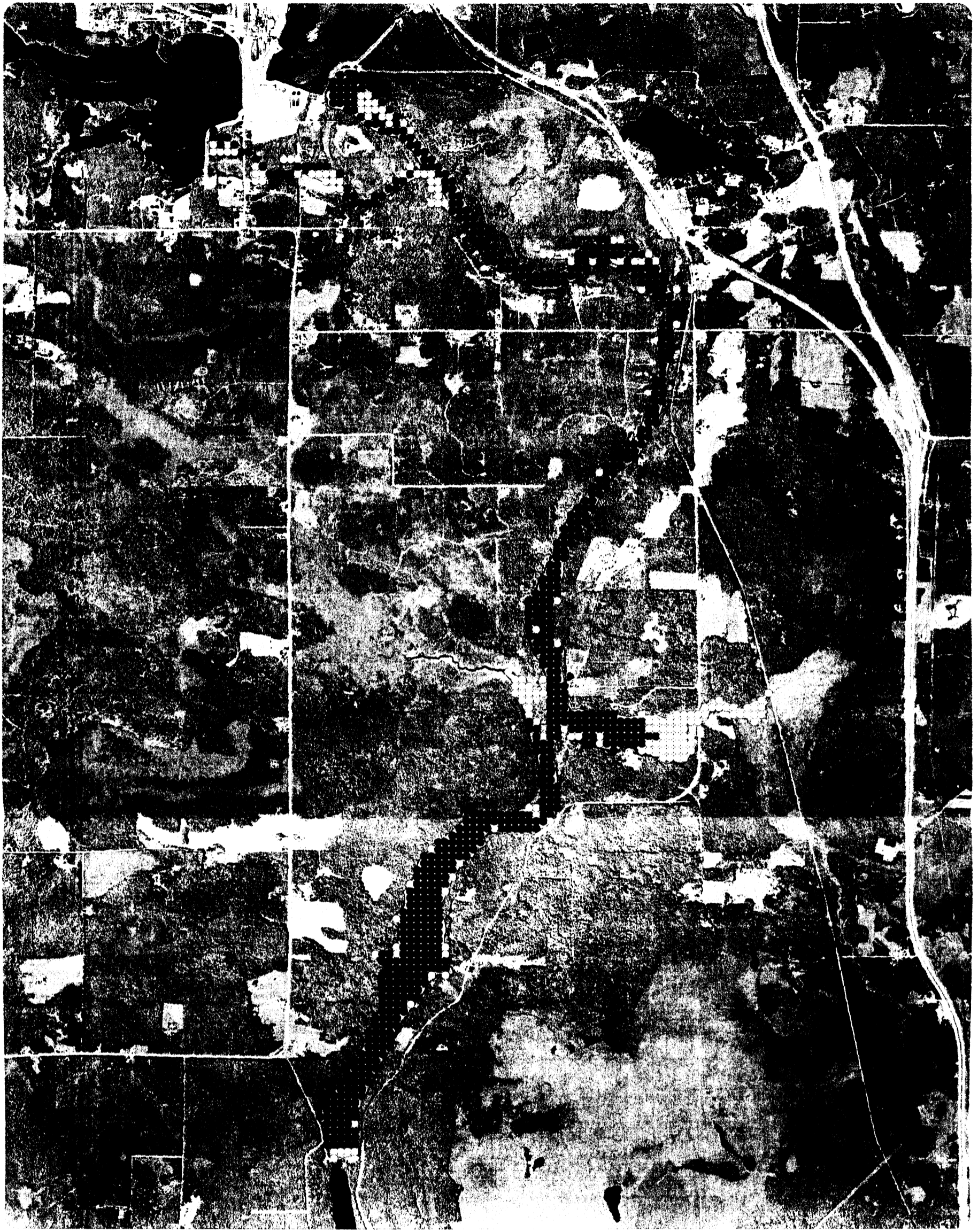
**Curly-leaf Pondweed  
Survey Track  
Grandmother Falls Flowage**  
Lincoln County, Wisconsin

1 inch = 0.5 miles



Data Sources:  
Roads and Hydro: WDNR  
Aquatic Plant Survey: Onterra & NES, 2009  
Map Date: January 26, 2010





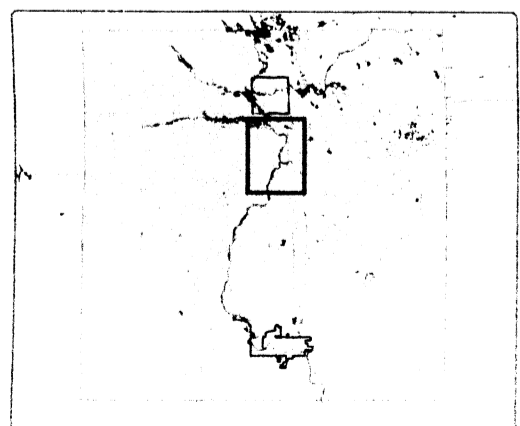
### Map 3

**Base Point-Intercept Locations**  
**Grandmother Falls Flowage**  
 Lincoln County, Wisconsin

1 inch = 0.5 miles

#### Legend

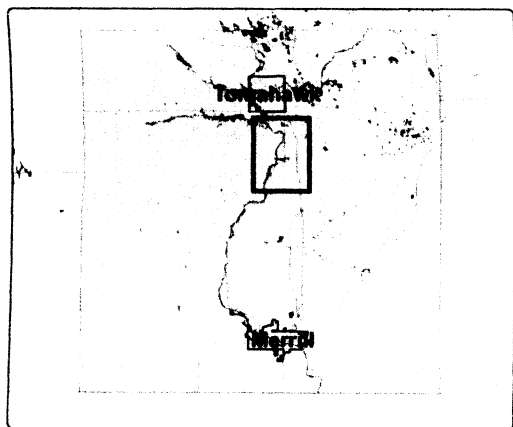
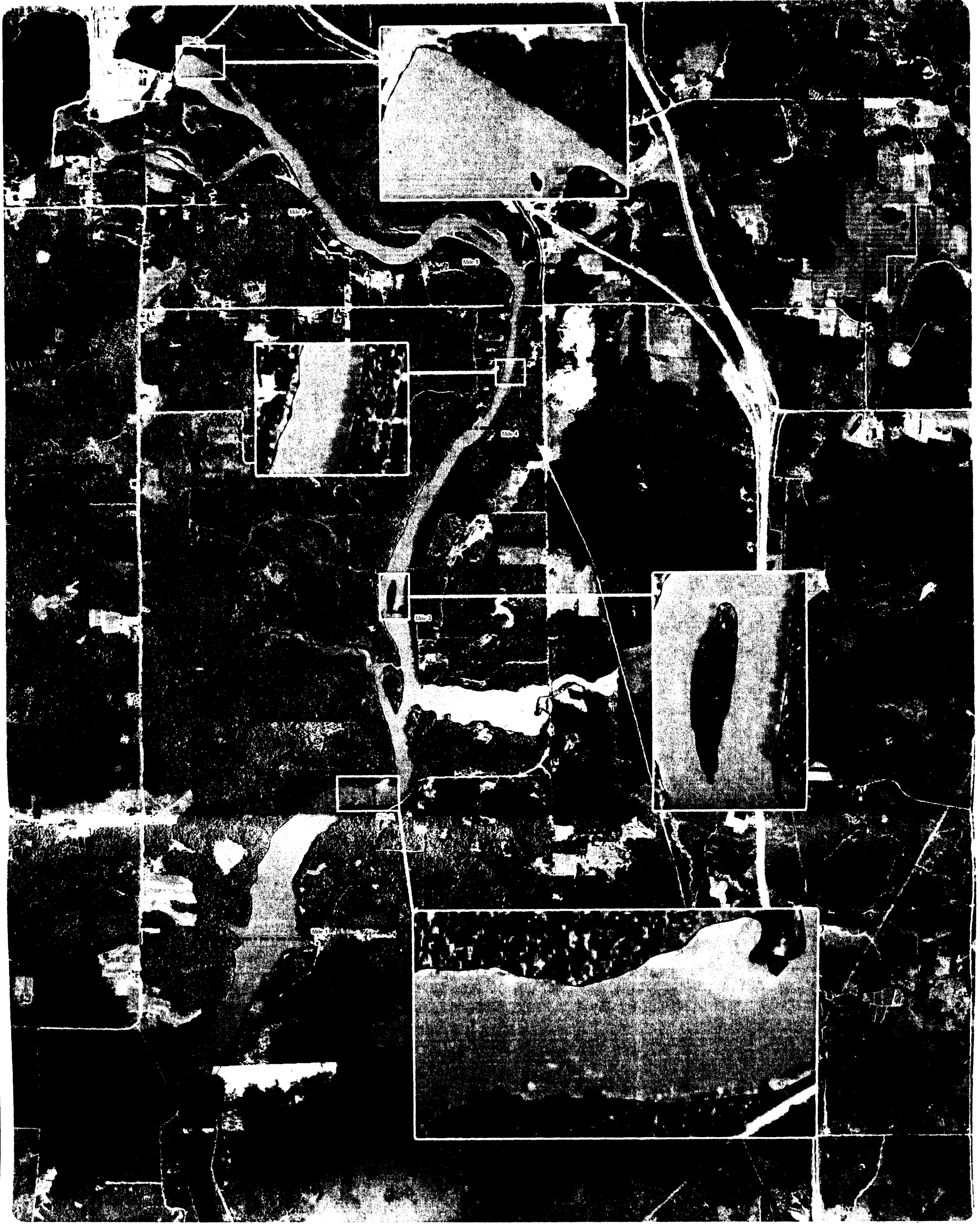
- Visited
- Not Visited
- Too Deep
- Project Waters



*Extent of Large Map Shown in Red.*

Data Sources:  
 Roads and Hydro: WDNR  
 Orthophoto: NAIP, 2005  
 Aquatic Plant Survey: Onterra & NES, 2009  
**Map Date: October 6, 2009**




 **NES Ecological Services**  
 A Division of Robert E. Lee & Associates, Inc.



Extent of Large Map Shown in Red.

Data Sources:  
 Roads and Hydro: WDNR  
 Orthophoto: NAIP 2006  
 Aquatic Plant Survey: Onterra & NES, 2009  
 Map Date: October 6, 2009


**Legend**

-  Project Waters
- Shoreline Meander Survey**
  -  Herbicided Purple Loosestrife Individual or Small Cluster
  -  Herbicided Purple Loosestrife Colony (Density = 1)

**Map 4**  
**Exotic Species Locations**  
**Grandmother Falls Flowage**  
 Lincoln County, Wisconsin

1 inch = 0.5 miles





**NES Ecological Services**  
 A Division of Robert E. Lee & Associates, Inc.

# A

## APPENDIX A

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### Site Photographs





**Photo 1.** GMF Flowage looking north between Mile 5 and 6.



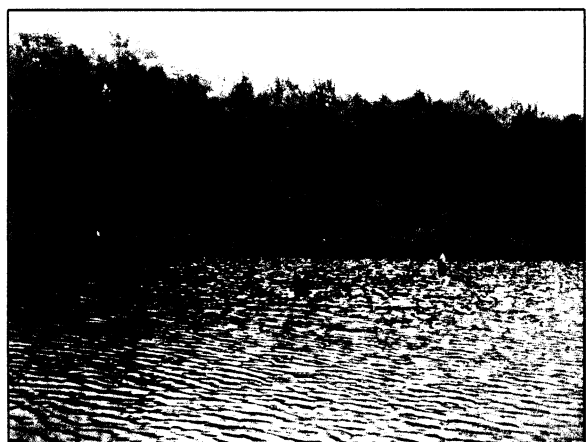
**Photo 2:** GMF Flowage looking northwest near Mile 6.



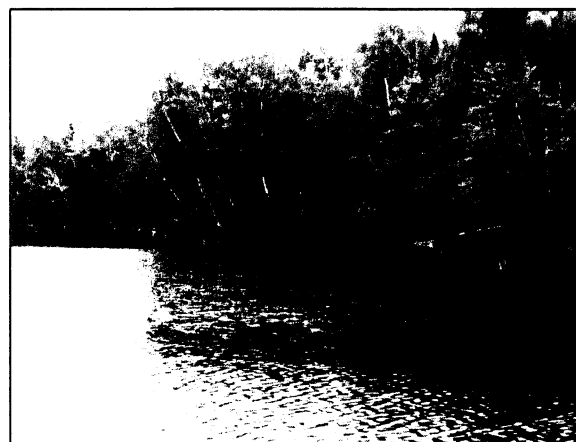
**Photo 3.** Impoundment at west end of Spirit River.



**Photo 4.** GMF Flowage looking northeast between Mile 1 and 2.



**Photo 5.** GMF Flowage looking southeast near Mile 1.



**Photo 6.** GMF Flowage looking southwest near Mile 1.