



Wisconsin River Power Company
(owners of the Petenwell & Castle Rock Hydroelectric Plants)
P.O. Box 19001
Green Bay, WI 54307-9001

December 22, 2015

FERC Project No. 1984
NATDAM No. WI00740
NATDAM No. WI00724

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

Dear Secretary Bose:

Petenwell and Castle Rock Hydroelectric Project
2015 Invasive Species Report

In accordance with the Order Approving the Revised Invasive Species Monitoring Plan for the Petenwell and Castle Rock Hydroelectric Project (FERC Project No. 1984) issued on July 13, 2005 Wisconsin River Power Company (WRPCO) is submitting the survey results for Purple Loosestrife, Eurasian Water Milfoil (EWM) and Zebra Mussels.

Purple Loosestrife

In 2015, surveys for Purple Loosestrife were completed on July 20 and July 30-31. The surveys identified a total of twenty-two (22) Purple Loosestrife colonies at the project. Of the twenty-two (22) colonies, a total of twenty-one (21) were located on the Petenwell Reservoir and one (1) was located on the Castle Rock Reservoir.

Colonies were not cut or sprayed with herbicide in order to avoid impacts to existing or potential new populations of *Galerucella* sp. Beetles (beetles). Of the twenty-two (22) colonies noted during the survey, sixteen (16) colonies showed signs of beetle feeding. In 2015, approximately 8,000 beetles were released in four different locations to supplement existing beetle populations.

The 2015 Purple Loosestrife figures including colony locations, beetle release locations, and plant vigor survey forms are included in Appendix 1. A spreadsheet summarizing the Purple Loosestrife survey data collected from 2009-2015 is located in Appendix 2.

WRPCO proposes to continue monitoring for Purple Loosestrife and release a minimum of 4,000 beetles annually. The beetles will be released in at least two separate locations. This is being proposed as a biological control measure to attempt to establish healthy beetle populations throughout the Project.

Eurasian Water Milfoil

Eurasian Water Milfoil (EWM) surveys are conducted every three years. Surveys were completed on July 30 and July 31, 2015. No EWM was identified at any of the survey locations. Results of the 2015 survey are included in Appendix 3. The next EWM survey is scheduled for 2018.

Zebra Mussels

Since Zebra Mussels have been identified in both the Petenwell and Castle Rock Flowages, WRPCO is no longer performing sampling. WRPCO agreed to provide notice to the Wisconsin Department of Natural Resources (WDNR) and US Fish and Wildlife Service (FWS) if significant changes in the number of Zebra Mussels are noted during routine operations and maintenance activities. No significant changes in Zebra Mussel numbers were noted in 2015.

Copies of the 2015 Invasive Species Report were sent to the FWS and WDNR on October 30, 2015. No comments were received from the resource agencies. Documentation of consultation is located in Appendix 4.

If you have any questions regarding this letter please contact James Nuthals at (920) 433-1460 or William Bosacki at (920) 433-4977.

Sincerely,



Gil Snyder
Power Generation Manager
for Wisconsin Public Service

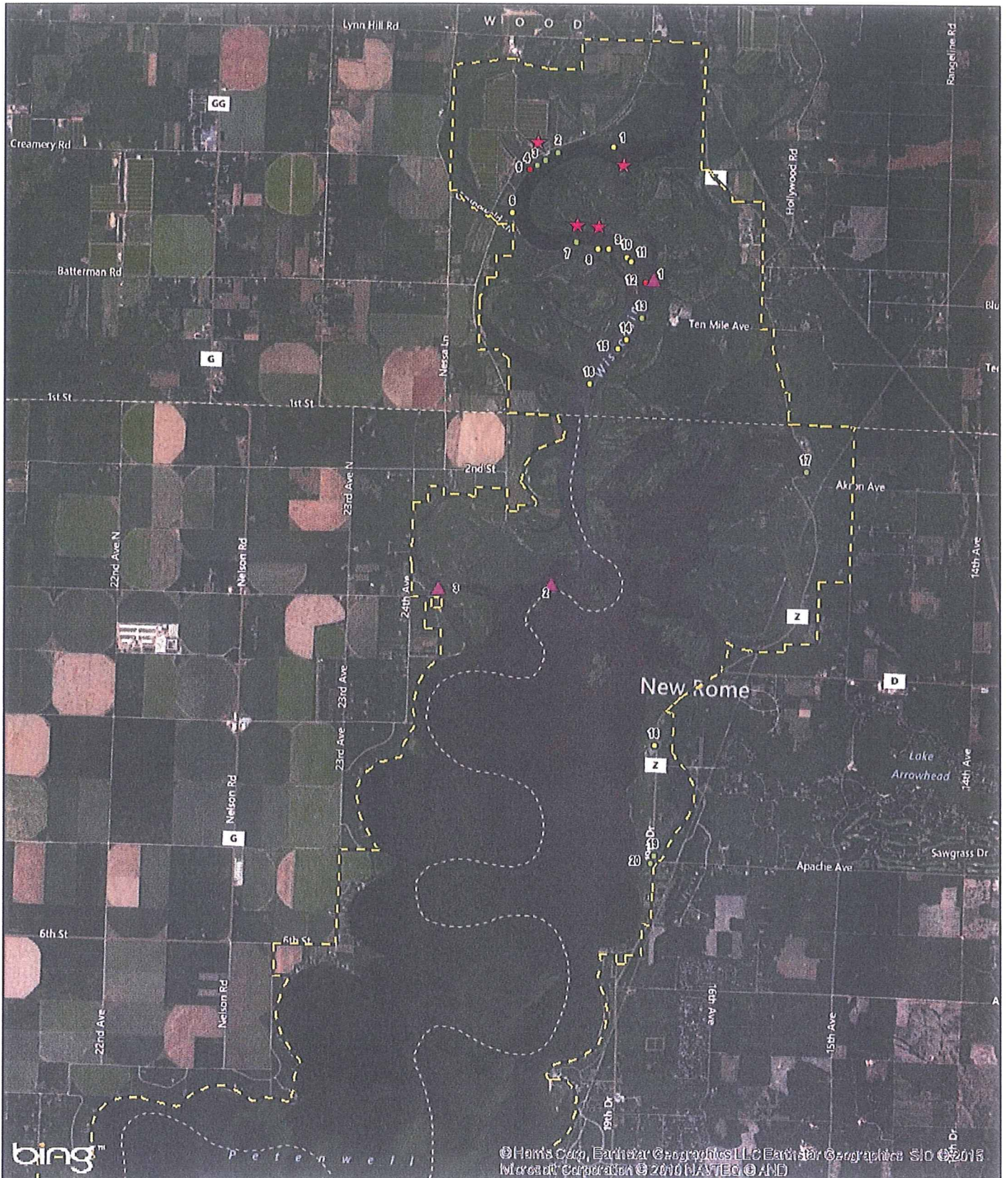
dmj/rjv

Enc. Appendix 1, Appendix 2, Appendix 3, Appendix 4

cc:	Mr. William Bosacki, WPS - D2	Mr. Darrin M. Johnson, WRPCO - STP
	Mr. Ed Brandt, WPS - CRI	Mr. John Myers, IBS - D2
	Mr. Todd Jastremski - We Energies	Mr. Joseph Sukana, WPS - WRPCO
	Ms. Joan Johaneck, WPS - D2	Mr. John Zygaj, FERC - CRO

Appendix 1

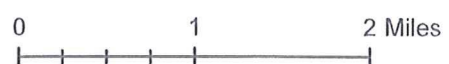
Purple Loosestrife Figures and Survey Forms



© Hans Culp, Earthstar Geographics LLC Earthstar Geographics SIO © 2015 Microsoft Corporation © 2010 NAVTEQ © AND



Wisconsin River Power Company Petenwell Flowage 2015 Invasive Plant Survey



<ul style="list-style-type: none"> ★ Beetle Release Site ▲ Eurasian Water Milfoil Project Boundary Purple Loosestrife ● 0-5 Plants ● 6-50 Plants ● >50 Plants 	<p style="margin: 0;">Date: 10/30/2015</p>
---	--

Purple Loosestrife Survey Form

Hydroelectric Project
Inspection Date

WRPES - P.A./CR
7/20 & 7/20

Colony Number	Colony Size S 0-5 M 6-50 L >50	General Plant Vigor			Total Plant Vigor 10-12=good 7-9=fair 4-6=poor 0-3=very poor	Notes	GPS Point
		Plant Height 4=>4ft 3=2-4ft 2=1-2 ft 1=<1 ft	Plant Flowering 4=100% of plants 3=51-99% of plants 2=26-50% of plants 1=<25% of plants	Beetle Feeding 4=0-25% feeding 3=26-50% feeding 2=51-75% feeding 1=76-100% feeding			
1	M	2	1	1	4		
2	S	4	4	4	12	No feed	
3	S	4	4	3	11		
4	S	3	3	4	10		
5	L	4	3	2	9		
6	M	2	1	1	4	Poor	
7	S	4	1	2	7		
8	M	4	3	1	8		
9	M	4	4	1	9		
10	M	4	4	1	9		
11	M	4	4	1	9		

Purple Loosestrife Survey Form

Hydroelectric Project
Inspection Date

WAPCO PETS CR
7/30 & 7/31

Colony Number	Colony Size S 0-5 M 6-50 L >50	General Plant Vigor			Total Plant Vigor 10-12=good 7-9=fair 4-6=poor 0-3=very poor	Notes	GPS Point
		Plant Height 4=>4ft 3=2-4ft 2=1-2 ft 1=<1 ft	Plant Flowering 4=100% of plants 3=51-99% of plants 2=26-50% of plants 1=<25% of plants	Beetle Feeding 4=0-25% feeding 3=26-50% feeding 2=51-75% feeding 1=76-100% feeding			
12	L	4	2	1	7		
13	S	4	4	4	12	no feed	
14	M	4	2	1	7		
15	M	4	2	3	9		
16	M	3	2	1	6		
17	S	4	4	4	12	no feed	
18	M	2	2	2	6		
19	S	4	4	4	12	no feed	
20	S	4	4	4	12	no feed	
21	L	4	3	3	10		
→ 22	S	4	4	4	12	no feed	

Castle
Pit

Appendix 2

Purple Loosestrife Data 2009-2015

Petenwell and Castle Rock Hydroelectric Project

Year	Total Number of Colonies	Number of Small Colonies (0-5)	Number of Medium Colonies (6-50)	Number of Large Colonies (50+)	Number of Colonies with Beetle Feeding	Percentage of Total Colonies with Beetle Feeding	Beetles Released
2009	25	6	6	13	18	72%	8,000
2101	22	5	9	8	20	91%	8,000
2011	23	13	4	6	14	61%	2,000
2012	17	4	10	3	15	88%	2,000
2013	20	6	11	3	14	70%	2,000
2014	18	3	12	2	15	83%	16,000
2015	22	9	10	3	16	73%	8,000

7 year average	21.0	6.6	8.9	5.4	16.0	77%
----------------	------	-----	-----	-----	------	-----

Appendix 3

Eurasian Water Milfoil Survey Results

2015 WRPC EWM SURVEY RESULTS

Pettenwell				
Transect #	0-0.5M	0.5M-1.5M	1.5M-3.0M	>3M
1A	0	0	NA	NA
1B	0	0	NA	NA
1C	0	0	NA	NA
2A	0	0	NA	NA
2B	0	0	NA	NA
2C	0	0	NA	NA
3A	0	NA	NA	NA
3B	0	NA	NA	NA
3C	0	NA	NA	NA
Castle Rock				
4A	0	0	NA	NA
4B	0	0	NA	NA
4C	0	0	NA	NA
5A	0	0	NA	NA
5B	0	0	NA	NA
5C	0	0	NA	NA

Appendix 4

Documentation of Consultation



Wisconsin River Power Company
(owners of the Petenwell & Castle Rock Hydroelectric Plants)
P.O. Box 19001
Green Bay, WI 54307-9001

October 30, 2015

Ms. Cheryl Laatsch
WDNR-FERC Coordinator
101 S. Webster St.
GEF 2-7th Floor
Madison, WI 53707

Mr. Nick Utrup
USFWS Ecological Services Field Office
4101 American Blvd. East
Bloomington, MN 55425

Dear Ms. Laatsch and Mr. Utrup:

Petenwell and Castle Rock Hydroelectric Project (P-1984)
Invasive Species Report for the Petenwell and Castle Rock Hydroelectric Project

As per the Order Approving the Revised Invasive Species Monitoring Plan for the Petenwell and Castle Rock Hydroelectric Project (FERC Project No. 1984) issued on July 13, 2005 Wisconsin River Power Company (WRPCO) is submitting the survey results for the purple loosestrife, Eurasian water milfoil (EWM) and zebra mussels.

Purple Loosestrife

In 2015, surveys for purple loosestrife were completed on July 20 and July 30-31. The surveys identified a total of twenty-two (22) purple loosestrife colonies at the project. Of the twenty-two (22) colonies, a total of twenty-one (21) were located on the Petenwell Reservoir and one (1) was located on the Castle Rock Reservoir.

Colonies were not cut or sprayed with herbicide in order to avoid impacts to existing or potential new populations of *Galerucella* sp. Beetles (beetles). Of the twenty-two (22) colonies noted during the survey, sixteen (16) colonies showed signs of beetle feeding. In 2015, approximately 8000 beetles were released in four different locations to supplement existing beetle populations.

The 2015 purple loosestrife figures including colony locations, beetle release locations and plant vigor survey forms are included in Appendix A. A spreadsheet summarizing the purple loosestrife survey data collected from 2009-2015 is located in Appendix B.

WRPCO proposes to continue monitoring for purple loosestrife and releasing a minimum of 4000 beetles in at least two separate locations as a biological control measure in an attempt to establish healthy beetle populations throughout the Project.

Eurasian Water Milfoil

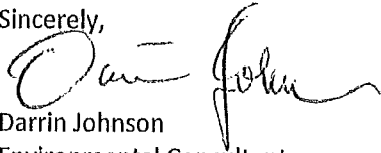
Eurasian water milfoil (EWM) surveys are conducted every three years. Surveys were completed on July 30 and July 31, 2015. No EWM was identified at any of the survey locations. Results of the 2015 survey are included in Appendix C. The next EWM survey is scheduled for 2018.

Zebra Mussels

Since zebra mussels have been identified in both the Petenwell and Castle Rock Flowages, WRPCO is no longer sampling for them. WRPCO agreed to provide notice to the Wisconsin Department of Natural Resources and US Fish and Wildlife Service if significant changes in the number of zebra mussels are noted during routine operations and maintenance activities. No significant changes in zebra mussel numbers were noted in 2015.

Please provide any comments you may have regarding this report within 30 days. If you have any questions, feel free to contact me at 715-345-7509.

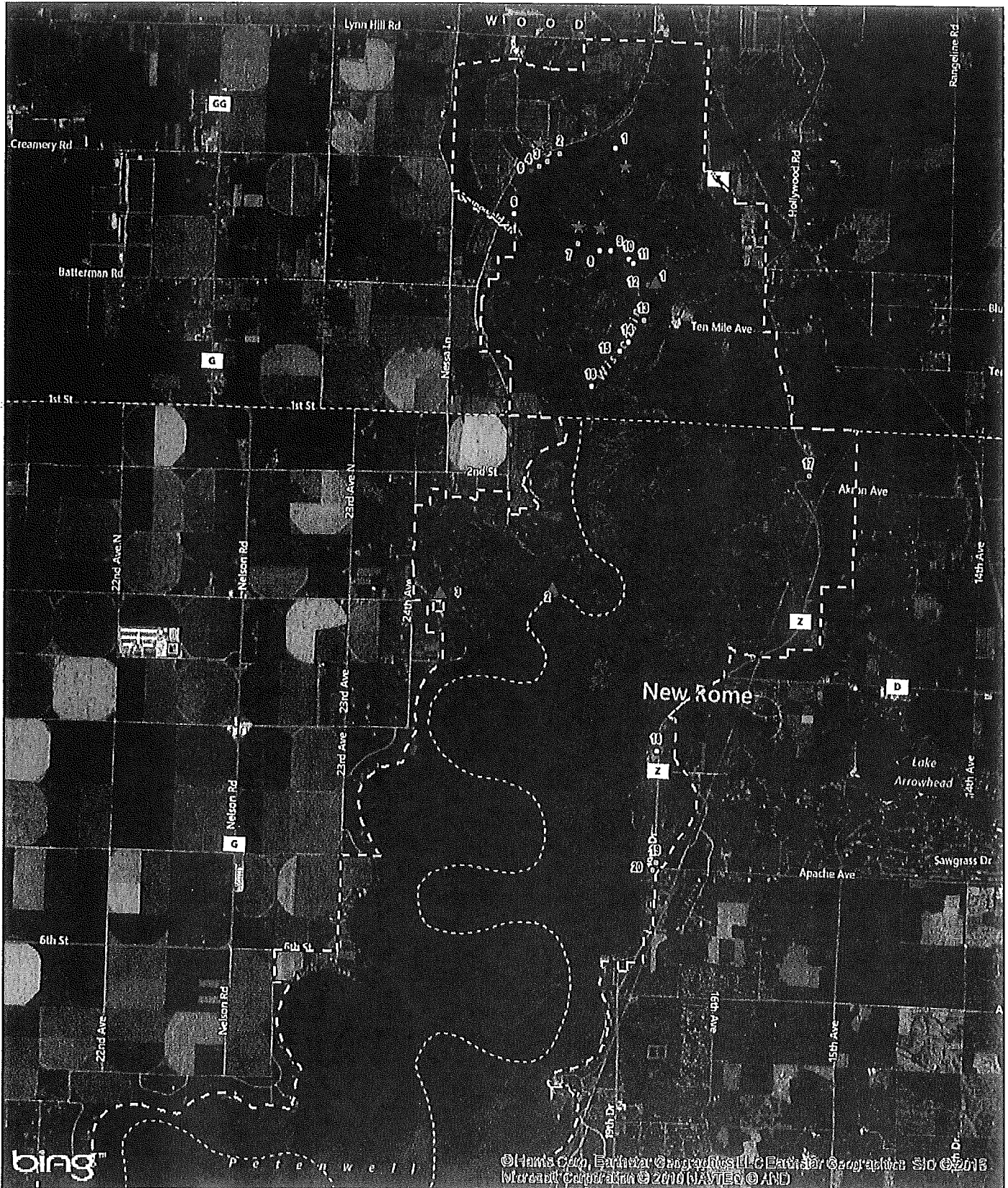
Sincerely,

A handwritten signature in black ink, appearing to read "Darrin Johnson". The signature is written in a cursive style with a large initial "D" and a long, sweeping tail.

Darrin Johnson
Environmental Consultant

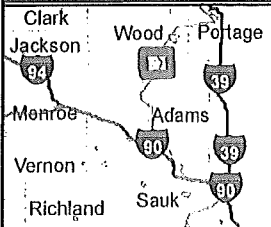
Appendix A

2015 Purple Loosestrife Figure and Survey Forms



bing

© Home Corp, Earthstar Geographics, LLC Earthstar Geographics, Inc © 2015
 Microsoft Corporation © 2010 (NAVTEQ) AND



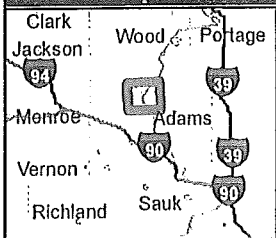
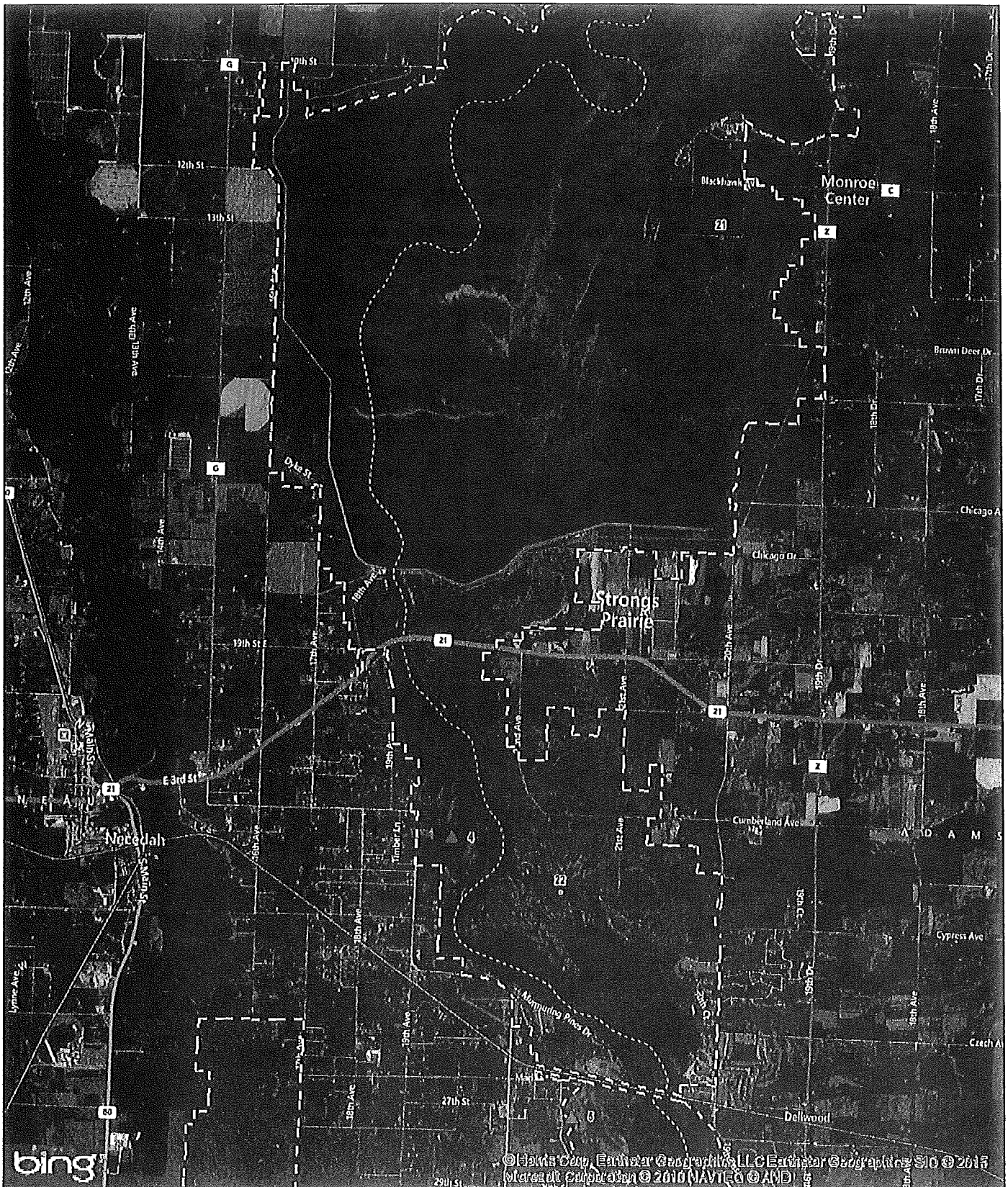
Wisconsin River Power Company Petenwell Flowage 2015 Invasive Plant Survey

- ★ Beetle Release Site
- ▲ Eurasian Water Milfoil
- Project Boundary
- Purple Loosestrife

- 0-5 Plants
- 6-50 Plants
- >50 Plants

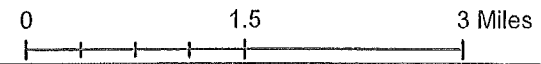
Date: 10/30/2015





**Wisconsin River Power Company
Petenwell Flowage
2015 Invasive Plant Survey**

- ★ Beetle Release Site
 - ▲ Eurasian Water Milfoil
 - Project Boundary
 - Purple Loosestrife**
 - 0-5 Plants
 - 6-50 Plants
 - >50 Plants
- Date: 10/30/2015



Path: W:\WRPCO_Invasives\WRPCO_Invasives.mxd

Purple Loosestrife Survey Form

Hydroelectric Project
 Inspection Date

WIPAC - AOT/CR
7/20 & 7/28

Colony Number	Colony Size S 0-5 M 6-50 L >50	General Plant Vigor			Beetle Feeding 4=0-25% feeding 3=26-50% feeding 2=51-75% feeding 1=76-100% feeding	Total Plant Vigor 10-12=good 7-9=fair 4-6=poor 0-3=very poor	Notes	GPS Point
		Plant Height 4=>4ft 3=2-4ft 2=1-2 ft 1=<1 ft	Plant Flowering 4=100% of plants 3=51-99% of plants 2=26-50% of plants 1=<25% of plants					
1	M	2	1	1	4			
2	S	4	4	4	12	no feed		
3	S	4	4	3	11			
4	S	3	3	4	10			
5	L	4	3	2	9			
6	M	2	1	1	4	Poor		
7	S	4	1	2	7			
8	M	4	3	1	8			
9	M	4	4	1	9			
10	M	4	4	1	9			
11	M	4	4	1	9			

Purple Loosestrife Survey Form

Hydroelectric Project

Inspection Date

WAPCO PET & CR

7/30 & 7/31

General Plant Vigor

Colony Number	Colony Size S 0-5 M 6-50 L >50	Plant Height 4=>4ft 3=2-4ft 2=1-2 ft 1=<1 ft	Plant Flowering 4=100% of plants 3=51-99% of plants 2=26-50% of plants 1=<25% of plants	Beetle Feeding		Total Plant Vigor 10-12=good 7-9=fair 4-6=poor 0-3=very poor	Notes	GPS Point
				4=0-25% feeding 3=26-50% feeding 2=51-75% feeding 1=76-100% feeding				
12	L	4	2	1		7		
13	S	4	4	4		12	no feed	
14	M	4	2	1		7		
15	M	4	2	3		9		
16	M	3	2	1		6		
17	S	4	4	4		12	no feed	
18	M	2	2	2		6		
19	S	4	4	4		12	no feed	
20	S	4	4	4		12	no feed	
21	L	4	2	3		10		
22	S	4	4	4		12	no feed	

Castle Point →

Appendix B

Purple Loosestrife Data 2009-2015

Petenwell and Castle Rock Hydroelectric Project

Year	Total Number of Colonies	Number of Small Colonies (0-5)	Number of Medium Colonies (6-50)	Number of Large Colonies (50+)	Number of Colonies with Beetle Feeding	Percentage of Total Colonies with Beetle Feeding	Beetles Released
2009	25	6	6	13	18	72%	8,000
2101	22	5	9	8	20	91%	8,000
2011	23	13	4	6	14	61%	2,000
2012	17	4	10	3	15	88%	2,000
2013	20	6	11	3	14	70%	2,000
2014	18	3	12	2	15	83%	16,000
2015	22	9	10	3	16	73%	8,000
7 year average	21.0	6.6	8.9	5.4	16.0	77%	

Appendix C

2015 Eurasion Water Milfoil Survey Results

2015 WRPC EWM SURVEY RESULTS

Petenwell				
Transect #	0-0.5M	0.5M-1.5M	1.5M-3.0M	>3M
1A	0	0	NA	NA
1B	0	0	NA	NA
1C	0	0	NA	NA
2A	0	0	NA	NA
2B	0	0	NA	NA
2C	0	0	NA	NA
3A	0	NA	NA	NA
3B	0	NA	NA	NA
3C	0	NA	NA	NA
Castle Rock				
4A	0	0	NA	NA
4B	0	0	NA	NA
4C	0	0	NA	NA
5A	0	0	NA	NA
5B	0	0	NA	NA
5C	0	0	NA	NA

No Comments Received from FWS

No Comments Received from WNDR