



Wisconsin River Power Company  
N11397 18th Ave.  
Necedah, WI 54646

October 18, 2023

Electronically File

Ms. Cheryl Laatsch  
Wisconsin Department of Natural Resources  
PO Box 7921  
Madison, WI 53707-7921

Dear Ms. Laatsch:

**SUBJECT: Invasive Species Monitoring Plan – Purple Loosestrife and Eurasian Watermilfoil Report**

<u>Hydro</u>	<u>FERC Project No.</u>	<u>NATDAM No.</u>	<u>License Article</u>
Petenwell	1984	WI00740	408
Castle Rock	1984	WI00724	408

In accordance with the Federal Energy Regulatory Commission (FERC) Order Revising Order Approving Purple Loosestrife and Eurasian Watermilfoil Monitoring issued on July 13, 2005 and the Order Amending Purple Loosestrife Control Measures issued on July 9, 2009 (Plan) for the Petenwell and Castle Rock Hydroelectric Projects, Wisconsin River Power Company (WRPCO) is to provide monitoring reports of the purple loosestrife (PL) and Eurasian water milfoil (EWM) surveys to the Wisconsin Department of Natural Resources (WDNR) and U.S. Fish & Wildlife Service (USFWS) by October 31, each year a survey has been completed.

2023 Purple Loosestrife Monitoring Results

Surveys for PL were completed on July 25 – 26, 2023. Thirty-three colonies of PL were identified at Petenwell and fifteen colonies at Castle Rock. Twenty-six small to medium colonies between both reservoirs were completely hand pulled and disposed of offsite. Appendix A includes the 2023 PL Monitoring results.

In 2023, WRPCO released a total of approximately 6,000 *Galerucella* beetles between two different locations on Petenwell to supplement the existing beetle populations. *Galerucella* beetle herbivory was observed on thirty-eight percent of the total colonies of PL on both reservoirs. Appendix B includes the fifteen year monitoring summary of PL activity.

In 2024, WRPCO will continue monitoring for PL, perform manual control of small colonies when safe to do so, and release a minimum of 4,000 beetles between at least two separate locations at Castle Rock as a biological control method to supplement established beetle populations throughout the Project.

2023 Eurasian Water Milfoil Monitoring Results

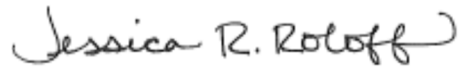
No EWM survey was required in 2023. In accordance with the Plan, EWM surveys are completed once every three years, with the next survey scheduled for 2024.

October 18, 2023

Page 2 of 2

Please provide any comments you may have regarding this report within 30 days. Should you have any questions relative to this material, please do not hesitate to contact me at (920) 433-5558 or email at [Jessica.Roloff@wecenergygroup.com](mailto:Jessica.Roloff@wecenergygroup.com).

Sincerely,

A handwritten signature in black ink that reads "Jessica R. Roloff". The signature is written in a cursive style with a large initial 'J' and a long, sweeping underline.

Jes Roloff  
Environmental Consultant  
Wisconsin River Power Company  
2830 South Ashland Avenue  
Green Bay, WI 54304

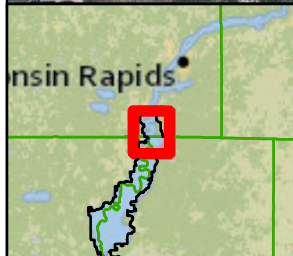
JRR / ace

Enc: Appendix A – 2023 Purple Loosestrife Monitoring Results (10 pages)  
Appendix B – Fifteen Year Purple Loosestrife Monitoring Summary (2 pages)

Cc: Mr. Darin Simpkins, USFWS

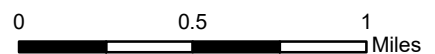
**APPENDIX A**

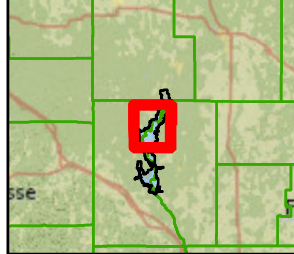
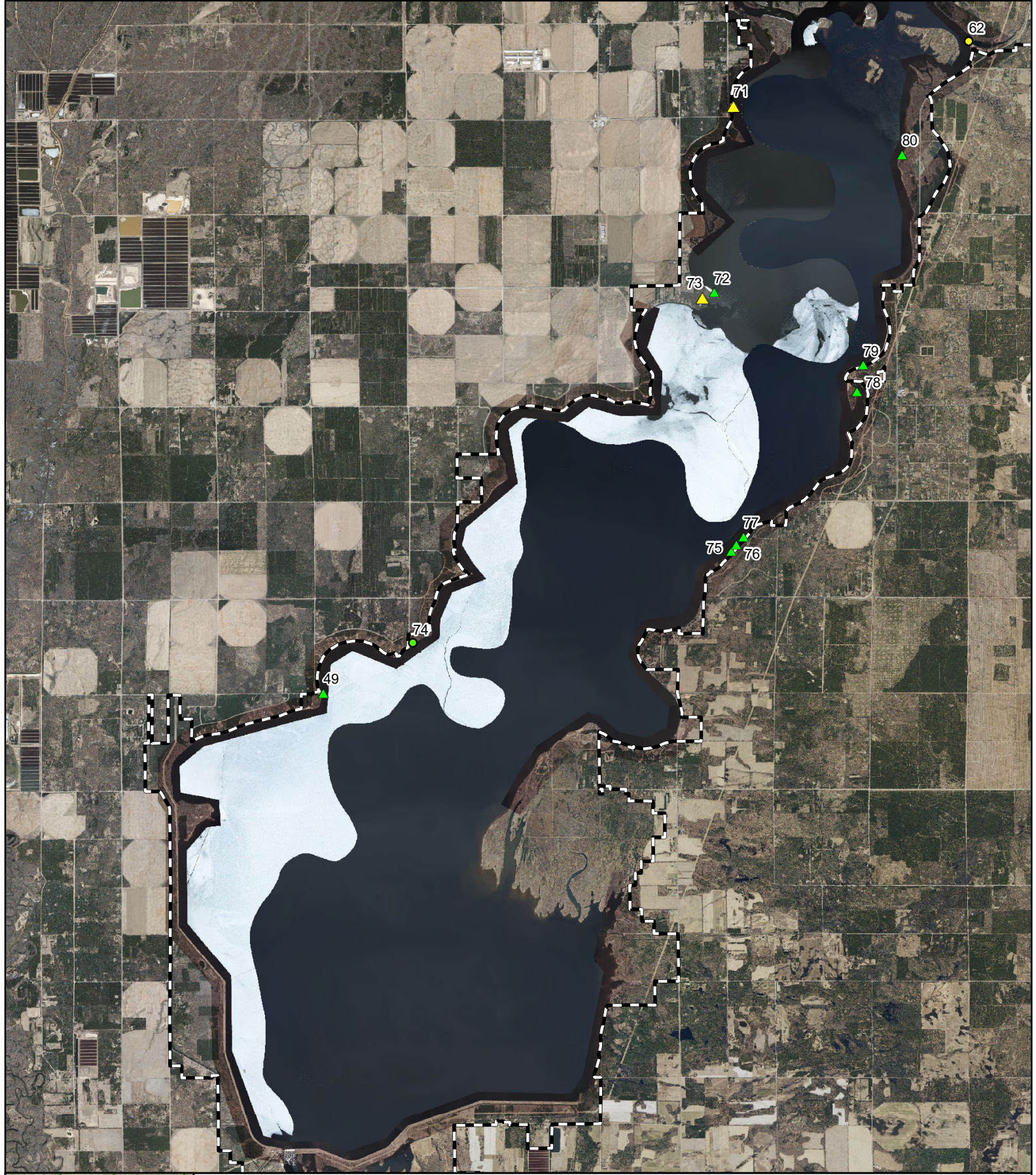
**2023 PURPLE LOOSESTRIFE MONITORING RESULTS**



**WRPCO Petenwell -- North  
Hydroelectric Project  
Purple Loosestrife  
Survey 2023**

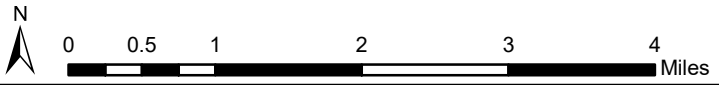
- Project Boundary
- Medium; Pulled All Plants
- Large
- Small; Pulled All Plants
- Beetle Release Site
- Medium





**VRPCO Petenwell -- South  
Hydroelectric Project  
Purple Loosestrife  
Survey 2023**

- Project Boundary
- Small; Pulled All Plants
- Medium
- Small
- Medium; Pulled All Plants



## Purple Loosestrife Survey Form

Hydroelectric project: Petenwell Hydroelectric Project

Beetle Release Date: June 28, 2023

Inspection Date: July 26, 2023

General Plant Vigor						
Colony ID #	Colony Size S 0-5 M 6-50 L >50	Plant Height 4 = >4ft 3 = 2-4ft 2 = 1-2ft 1 = <1ft	Plant Flowering 4 = 100% of plants 3 = 51-99% of plants 2 = 26-50% of plants 1 = <25% of plants	Beetle Herbivory 5 = 0% feeding 4 = 1 - 25% feeding 3 = 26-50% feeding 2 = 51-75% feeding 1 = >76% feeding	Total Plant Vigor 13 = excellent 10-12 = good 7-9 = fair 4-6 = poor 0-3 = very poor	Notes
1	No Longer Able To Identify					
2	L >50	3	3	4	10	
3	No Longer Able To Identify					
4	No Longer Able To Identify					
5	M 6-50	3	3	3	9	Hand pulled 1/2 of the plants, left the other 1/2 due to heavy beetle feeding.
6	No Longer Able To Identify					
7	No Longer Able To Identify					
8	L >50	3	2	4	9	Returned. Lots of small non-flowering plants.
9	L >50	3	4	4	11	
10	M 6-50	2	3	5	10	This was labeled as #59 in 2022 but relabled to #10 to combine with an existing location.
11	L >50	4	2	2	8	This was labeled as #68 in 2022 but relabled to #11 to combine with an existing location. 2,000 beetles released.
12	M 6-50	3	2	3	8	
13	No Longer Able To Identify					
14	No Longer Able To Identify					
15	No Longer Able To Identify					
16	No Longer Able To Identify					
17	No Longer Able To Identify					
18	No Longer Able To Identify					
19	No Longer Able to Identify					
20	No Longer Able To Identify					
21	L >50	3	3	4	10	This was labeled as #67 in 2022 but relabled to #21 to combine with an existing location.

## Purple Loosestrife Survey Form

Hydroelectric project: Petenwell Hydroelectric Project

Beetle Release Date: June 28, 2023

Inspection Date: July 26, 2023

General Plant Vigor						
Colony ID #	Colony Size	Plant Height	Plant Flowering	Beetle Herbivory	Total Plant Vigor	Notes
	S 0-5 M 6-50 L >50	4 = >4ft 3 = 2-4ft 2 = 1-2ft 1 = <1ft	4 = 100% of plants 3 = 51-99% of plants 2 = 26-50% of plants 1 = <25% of plants	5 = 0% feeding 4 = 1 - 25% feeding 3 = 26-50% feeding 2 = 51-75% feeding 1 = >76% feeding	13 = excellent 10-12 = good 7-9 = fair 4-6 = poor 0-3 = very poor	
22						No Longer Able to Identify
23						No Longer Able To Identify
24						No Longer Able to Identify
25						No Longer Able to Identify
26						No Longer Able to Identify
27						No Longer Able to Identify
28						No Longer Able to Identify
29						No Longer Able to Identify
30						No Longer Able to Identify
31						No Longer Able to Identify
32						No Longer Able to Identify
33						No Longer Able To Identify
34						No Longer Able to Identify
35						No Longer Able To Identify
36						No Longer Able to Identify
37						No Longer Able to Identify
38						No Longer Able to Identify
39						No Longer Able To Identify
40						No Longer Able to Identify
41						No Longer Able to Identify
42						No Longer Able To Identify
43	S 0-5	2	4	5		Returned. Hand pulled all plants.
44						No Longer Able To Identify

## Purple Loosestrife Survey Form

Hydroelectric project: Petenwell Hydroelectric Project

Beetle Release Date: June 28, 2023

Inspection Date: July 26, 2023

General Plant Vigor						
Colony ID #	Colony Size S 0-5 M 6-50 L >50	Plant Height 4 = >4ft 3 = 2-4ft 2 = 1-2ft 1 = <1ft	Plant Flowering 4 = 100% of plants 3 = 51-99% of plants 2 = 26-50% of plants 1 = <25% of plants	Beetle Herbivory 5 = 0% feeding 4 = 1 - 25% feeding 3 = 26-50% feeding 2 = 51-75% feeding 1 = >76% feeding	Total Plant Vigor 13 = excellent 10-12 = good 7-9 = fair 4-6 = poor 0-3 = very poor	Notes
45	S 0-5	2	3	5	10	Returned. Hand pulled all plants.
46	No Longer Able To Identify					
47	No Longer Able To Identify					
48	No Longer Able To Identify					
49	S 0-5	4	4	5	13	Hand pulled. Work w/ hydro in 2024 to spray roots due to being in the riprap.
50	No Longer Able To Identify					
51	No Longer Able To Identify					
52	M 6-50	3	3	5	11	Returned.
53	S 0-5	2	3	5	10	Returned. Hand pulled all plants.
54	No Longer Able To Identify					
55	S 0-5	3	3	5	11	Returned. Hand pulled all plants.
56	No Longer Able To Identify					
57	No Longer Able To Identify					
58	No Longer Able To Identify					
59	No Longer Able To Identify					
60	No Longer Able To Identify					
61	No Longer Able To Identify					
62	M 6-50	4	3	3	10	Bees & poison ivy. Relase beetles here in 2024, work w/ hydro to spray plants.
63	S 0-5	3	2	5	10	Hand pulled tops of plants, could not get at roots.
64	No Longer Able To Identify					
65	L >50	4	3	4	11	2,000 beetles released.
66	L >50	4	4	5	13	2,000 beetles released.



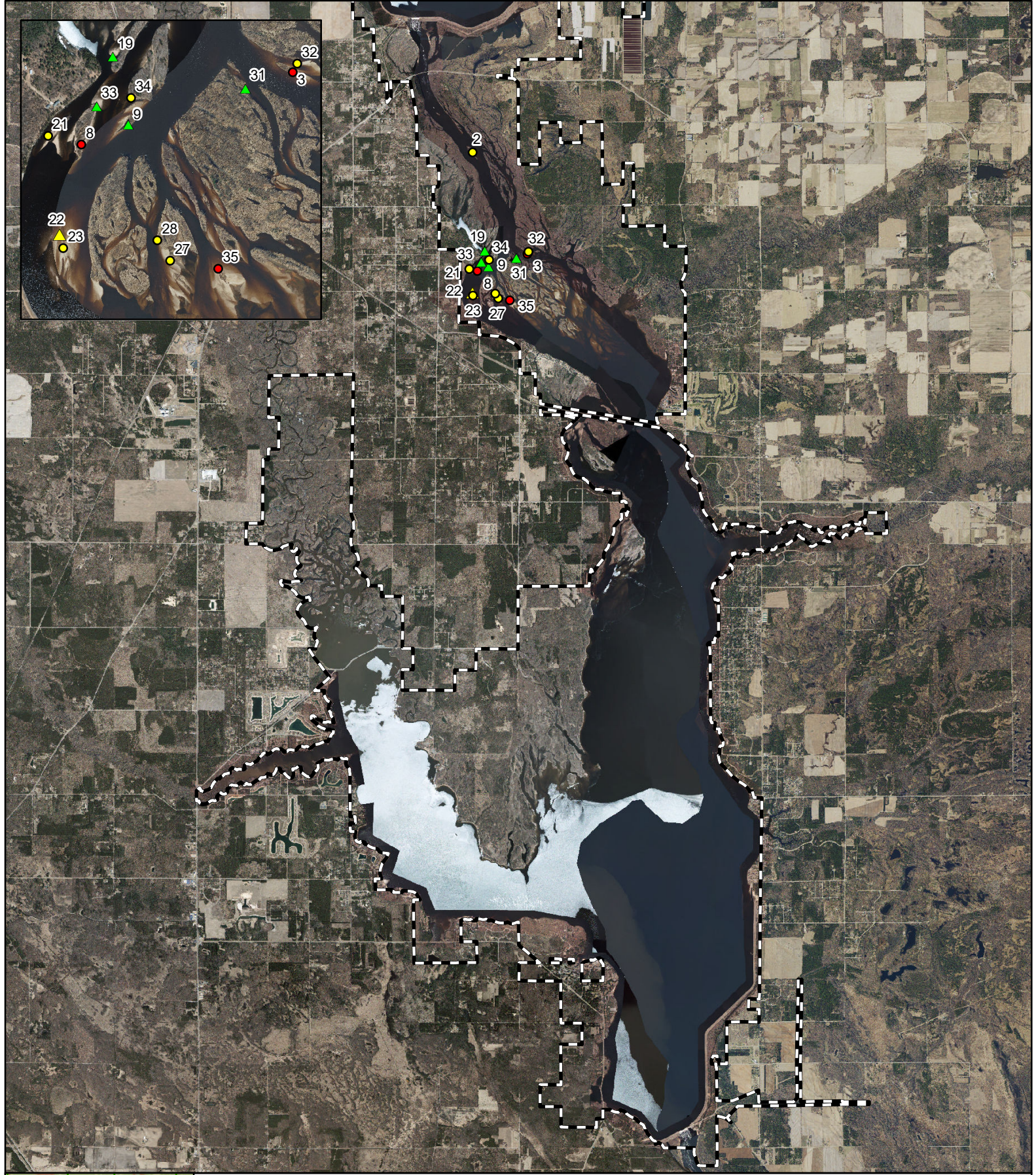
## Purple Loosestrife Survey Form

Hydroelectric project: Petenwell Hydroelectric Project


Beetle Release Date: June 28, 2023

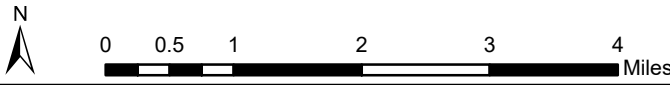
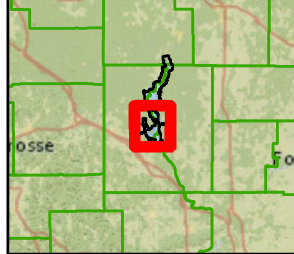
Inspection Date: July 26, 2023

General Plant Vigor						
Colony ID #	Colony Size S 0-5 M 6-50 L >50	Plant Height 4 = >4ft 3 = 2-4ft 2 = 1-2ft 1 = <1ft	Plant Flowering 4 = 100% of plants 3 = 51-99% of plants 2 = 26-50% of plants 1 = <25% of plants	Beetle Herbivory 5 = 0% feeding 4 = 1 - 25% feeding 3 = 26-50% feeding 2 = 51-75% feeding 1 = >76% feeding	Total Plant Vigor 13 = excellent 10-12 = good 7-9 = fair 4-6 = poor 0-3 = very poor	Notes
67	No Longer Able To Identify					The 2022 point #70 was relabelled to #67 in 2023
68	S 0-5	3	4	5	12	The 2022 #67 point has been combined with #11. #68 is a NEW point in 2023. Hand pulled all.
69	S 0-5	3	3	5	11	The 2022 #67 point has been combined with #10. #69 is a NEW point in 2023. Hand pulled all.
70	M 6-50	4	4	5	13	The 2022 #70 point has been renamed to #67. #70 is a NEW point in 2023. Hand pulled all.
71	M 6-50	4	4	5	13	NEW. Hand pulled all plants.
72	S 0-5	4	4	5	13	NEW. Hand pulled all plants.
73	M 6-50	3	3	5	11	NEW. Hand pulled all plants.
74	S 0-5	4	4	5	13	NEW. Hand pulled all plants.
75	S 0-5	4	4	5	13	NEW. Hand pulled all plants.
76	S 0-5	4	4	5	13	NEW. Hand pulled all plants.
77	S 0-5	4	4	5	13	NEW. Hand pulled all plants.
78	S 0-5	2	4	5	11	NEW. Hand pulled all plants.
79	S 0-5	4	4	5	13	NEW. Hand pulled all plants.
80	S 0-5	4	4	5	13	NEW. Hand pulled all plants.
81	S 0-5	4	4	4	12	NEW. Hand pulled all plants.
82	S 0-5	3	4	5	12	NEW. Hand pulled all plants.



**WRPCO Castle Rock  
Hydroelectric Project  
Purple Loosestrife  
Survey 2023**

-  Project Boundary
-  Medium
-  Medium; Pulled All Plants
-  Small; Pulled All Plants
-  Large



## Purple Loosestrife Survey Form

Hydroelectric project: Castle Rock Hydroelectric Project

Inspection Date: July 25, 2023

General Plant Vigor						
Colony ID #	<u>Colony Size</u> S 0-5 M 6-50 L >50	<u>Plant Height</u> 4 = >4ft 3 = 2-4ft 2 = 1-2ft 1 = <1ft	<u>Plant Flowering</u> 4 = 100% of plants 3 = 51-99% of plants 2 = 26-50% of plants 1 = <25% of plants	<u>Beetle Herbivory</u> 5 = 0% feeding 4 = 1 - 25% feeding 3 = 26-50% feeding 2 = 51-75% feeding 1 = >76% feeding	<u>Total Plant Vigor</u> 13 = excellent 10-12 = good 7-9 = fair 4-6 = poor 0-3 = very poor	Notes
1	No Longer Able To Identify					
2	L >50	3	4	5	12	Returned. Concentrated in middle of island, probably why it was difficult to see in previous years.
3	L >50	2	3	5	10	Lots of non-flowering plants.
4	No Longer Able To Identify					
5	No Longer Able To Identify					
6	No Longer Able To Identify					
7	No Longer Able To Identify					
8	L >50	2	2	4	8	
9	S 0-5	3	3	5	11	Hand pulled all plants.
10	No Longer Able To Identify					
11	No Longer Able To Identify					
12	No Longer Able To Identify					
13	No Longer Able To Identify					
14	No Longer Able To Identify					
15	No Longer Able To Identify					
16	No Longer Able To Identify					
17	No Longer Able To Identify					
18	No Longer Able To Identify					
19	S 0-5	3	3	5	11	Returned. Hand pulled all plants.
20	No Longer Able To Identify					
21	M 6-50	2	3	4	9	
22	M 6-50	3	3	4	10	Hand pulled all plants.
23	M 6-50	3	3	5	11	Hand pulled all flowering plants on northern part of island. Lots of non-flowering plants.
24	No Longer Able To Identify					

## Purple Loosestrife Survey Form

Hydroelectric project: Castle Rock Hydroelectric Project

Inspection Date: July 25, 2023

General Plant Vigor
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<u>Colony ID #</u>	<u>Colony Size</u>	<u>Plant Height</u>	<u>Plant Flowering</u>	<u>Beetle Herbivory</u>	<u>Total Plant Vigor</u>	<u>Notes</u>
	S 0-5 M 6-50 L >50	4 = >4ft 3 = 2-4ft 2 = 1-2ft 1 = <1ft	4 = 100% of plants 3 = 51-99% of plants 2 = 26-50% of plants 1 = <25% of plants	5 = 0% feeding 4 = 1 - 25% feeding 3 = 26-50% feeding 2 = 51-75% feeding 1 = >76% feeding	13 = excellent 10-12 = good 7-9 = fair 4-6 = poor 0-3 = very poor	
25	No Longer Able To Identify					
26	No Longer Able To Identify					
27	M 6-50	2	3	4	9	
28	M 6-50	3	3	4	10	
29	No Longer Able To Identify					
30	No Longer Able To Identify					
31	S 0-5	4	4	4	12	Hand pulled all plants.
32	M 6-50	2	3	5	10	
33	S 0-5	4	4	5	13	NEW. Hand pulled all plants.
34	M 6-50	2	3	4	9	NEW. Recheck location in 2024.
35	L >50	3	3	4	10	NEW.

**APPENDIX B**

**FIFTEEN YEAR PURPLE LOOSESTRIFE MONITORING SUMMARY**

**Petenwell & Castle Rock Hydroelectric Projects 2009 - 2023 Purple Loosestrife Monitoring Summary**

Year	Total Number of Colonies	Number of Small Colonies (0-5 Plants)	Number of Medium Colonies (6 - 50 Plants)	Number of Large Colonies (51+ plants)	Number of Colonies With Beetle Herbivory	Percentage of Total Colonies With Beetle Herbivory	Beetles Released
2009	25	6	6	13	18	72%	8,000
2010	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
2016	18	5	8	5	12	67%	10,000
2017	28	17	7	4	24	86%	4,000
2018	43	26	12	5	28	65%	8,000
2019	33	18	11	4	17	52%	8,000
2020	14	5	8	1	9	64%	4,000
2021	34	18	15	1	20	59%	4,000
2022	25	7	11	7	12	48%	4,000
2023	48	22	15	11	18	38%	6,000

15 Year Average	26.0	10.9	9.9	5.1	16.8	67.7%
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