



Wisconsin Public Service Corporation
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October 20, 2020

Electronically Filed

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, Eurasian Watermilfoil, and Zebra Mussel Monitoring Report

<u>Hydro</u>	<u>FERC Project No.</u>	<u>NATDAM No.</u>	<u>License Article</u>
Alexander	1979	WI00748	406

In accordance with the Federal Energy Regulatory Commission (FERC) Order Approving the Invasive Species Monitoring Plan issued March 4, 2005 and the Order Amending Purple Loosestrife Control Measures in Approved Monitoring Plan issued July 9, 2009 for the Alexander Hydroelectric Project (Project), Wisconsin Public Service (WPS) is to provide monitoring reports of the purple loosestrife (PL), Eurasian watermilfoil (EWM), and zebra mussel (ZM) surveys to the Wisconsin Department of Natural Resources (WDNR) and U.S. Fish & Wildlife Service (FWS) by October 31, each year a survey has been completed.

2020 Purple Loosestrife Survey Results

A PL survey was completed on July 23, 2020. Fifty-five colonies of PL were identified at the Project; fifteen were small or medium colonies that were completely hand pulled and disposed of offsite. Appendix A includes the 2020 PL survey results.

In 2020, WPS released approximately 6,000 *Galerucella* beetles in two different locations to supplement the existing beetle populations. *Galerucella* beetle herbivory was observed on twenty-two percent of the total colonies of PL; the lowest percentage observed since WPS began beetle releases in 2009.

A review of the data collected over the past twelve years shows that the number of colonies has ranged between nineteen and fifty-five. The percentage of colonies with beetle herbivory has ranged from twenty-two to eighty-one percent. A copy of this summary is included in Appendix B.

WPS proposes to continue monitoring for PL and releasing a minimum of 6,000 beetles in at least two separate locations as a biological control method in an attempt to establish healthy beetle populations throughout the Project. WPS will complete the next PL survey in 2021, in conjunction with the EWM survey.

2020 Eurasian Watermilfoil Survey Results

An EWM survey was completed on July 23, 2020. EWM was not observed during the survey or during any previous surveys. Appendix C includes the 2020 EWM survey results. WPS will complete the next

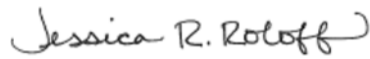
EWM survey in 2021, in conjunction with the PL survey.

2020 Zebra Mussel Sampling Results

Monthly inspections for the presence of ZM were conducted during the months of May through September 2020. ZM were not observed during any of the monthly substrate inspections. Appendix D includes the 2020 ZM monthly substrate sampling results.

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 Jessica.Roloff@wecenergygroup.com.

Sincerely,



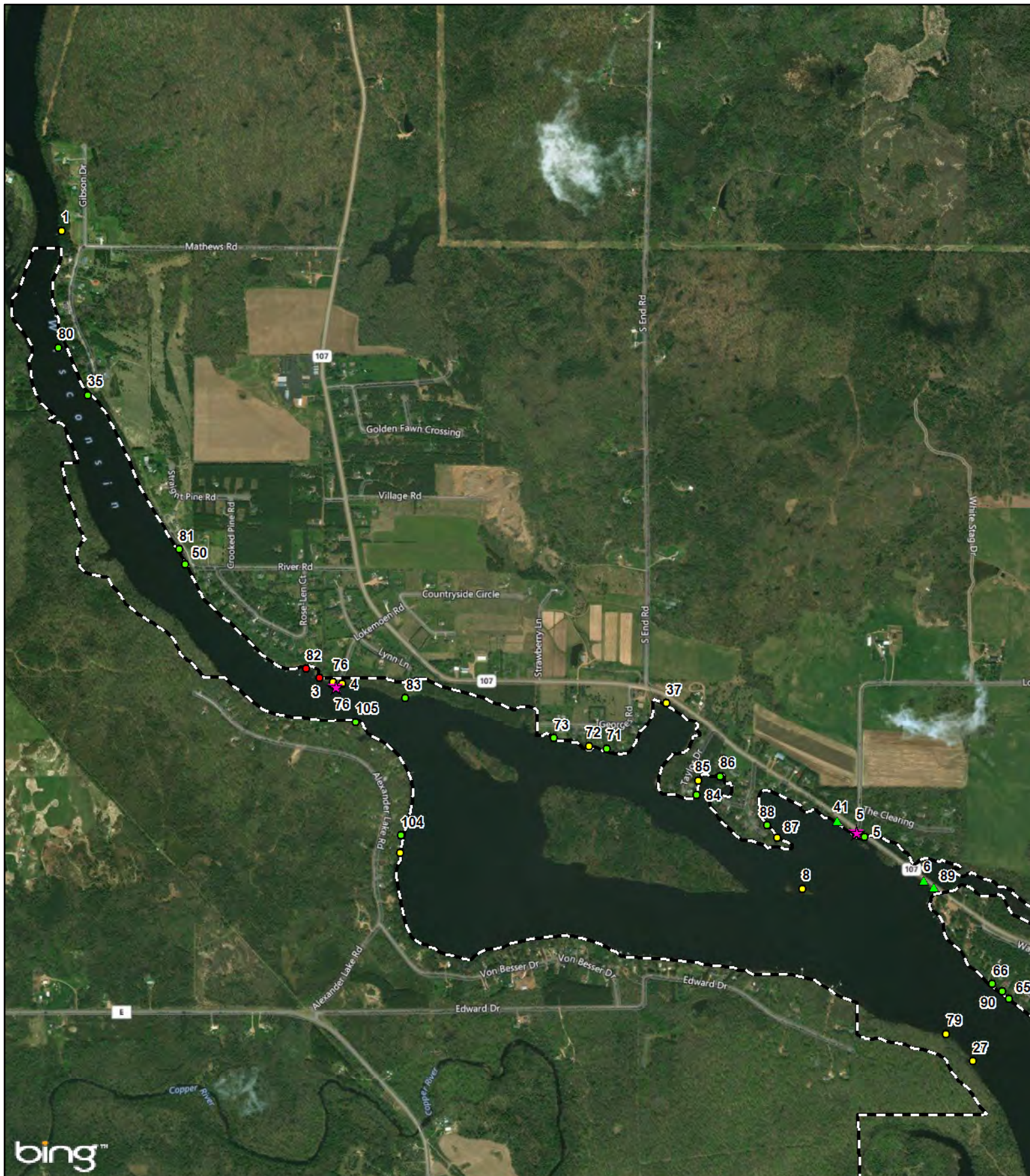
Jes Roloff
Environmental Consultant
Wisconsin Public Service
700 North Adams Street
Green Bay, WI 54301

Enc: Appendix A – 2020 Purple Loosestrife Survey Results (10 pages)
 Appendix B – Twelve Year Purple Loosestrife Summary (2 pages)
 Appendix C – 2020 Eurasian Water Milfoil Survey Results (4 pages)
 Appendix D – 2020 Zebra Mussel Monthly Substrate Sampling Example (2 pages)

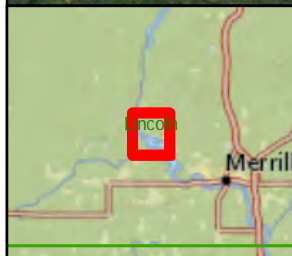
Cc: Mr. Nick Utrup, FWS

APPENDIX A

2020 PURPLE LOOSESTRIFE SURVEY RESULTS



bing™



WPS Alexander-North Hydroelectric Project Purple Loosestrife Survey 2020



0 1 Miles

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

9/30/2020



WPS Alexander-South Hydroelectric Project Purple Loosestrife Survey 2020



0 0.5 Miles

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

9/30/2020

2020 Purple Loosestrife Survey Form

Hydroelectric project: Alexander Hydroelectric Project

Beetle Release Date: July 1, 2020 Inspection date: July 23, 2020

Colony ID #	Colony Size S 0-5 M 6-50 L >50	General Plant Vigor		Beetle Herbivory 5 = 0% feeding 4 = 1 - 25% feeding 3 = 26-50% feeding 2 = 51-75% feeding 1 = >76% feeding	Total Plant Vigor 10-12 = good 7-9 = fair 4-6 = poor 0-3 = very poor	Notes
		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			
1	M 6-50	3	4	5	12	PL came back.
2	No Longer Able To Identify					
3	L >50	3	4	5	12	Significant increase.
4	M 6-50	3	4	4	11	Pulled all plants.
5	S 0-5	3	3	3	9	Released 3,000 beetles.
6	S 0-5	3	4	3	10	Pulled all plants.
7	No Longer Able To Identify					
8	M 6-50	3	4	4	11	
9	No Longer Able To Identify					
10	No Longer Able To Identify					
11	No Longer Able To Identify					
12	No Longer Able To Identify					
13	S 0-5	3	3	4	10	Pulled all plants.
14	S 0-5	4	4	5	13	PL came back.
15	No Longer Able To Identify					
16	No Longer Able To Identify					
17	No Longer Able To Identify					

2020 Purple Loosestrife Survey Form

Hydroelectric project: Alexander Hydroelectric Project

Beetle Release Date: July 1, 2020 Inspection date: July 23, 2020

Colony ID #	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
		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		
18	No Longer Able To Identify					
19	No Longer Able To Identify					
20	S 0-5	3	4	5	12	Pulled all plants.
21	No Longer Able To Identify					
22	No Longer Able To Identify					
23	No Longer Able To Identify					
24	No Longer Able To Identify					
25	S 0-5	3	3	4	10	Pulled all plants.
26	No Longer Able To Identify					
27	M 6-50	3	3	4	10	
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					

2020 Purple Loosestrife Survey Form

Hydroelectric project: Alexander Hydroelectric Project

Beetle Release Date: July 1, 2020 Inspection date: July 23, 2020

Colony ID #	Colony Size S 0-5 M 6-50 L >50	General Plant Vigor		Beetle Herbivory 5 = 0% feeding 4 = 1 - 25% feeding 3 = 26-50% feeding 2 = 51-75% feeding 1 = >76% feeding	Total Plant Vigor 10-12 = good 7-9 = fair 4-6 = poor 0-3 = very poor	Notes
		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			
35	S 0-5	3	4	5	12	Private property.
36	No Longer Able To Identify					
37	M 6-50	4	4	5	13	
38	No Longer Able To Identify					
39	No Longer Able To Identify					
40	No Longer Able To Identify					
41	S 0-5	3	4	5	12	Pulled all plants.
42	No Longer Able To Identify					
43	No Longer Able To Identify					
44	M 6-50	3	4	5	12	
45	Combined with Colony #23					
46	No Longer Able To Identify					
47	M 6-50	3	4	5	12	PL came back.
48	No Longer Able To Identify					
49	No Longer Able To Identify					
50	S 0-5	3	4	5	12	Pulled all plants.
51	No Longer Able To Identify					

2020 Purple Loosestrife Survey Form

Hydroelectric project: Alexander Hydroelectric Project

Beetle Release Date: July 1, 2020 Inspection date: July 23, 2020

Colony ID #	Colony Size S 0-5 M 6-50 L >50	General Plant Vigor		Beetle Herbivory	Total Plant Vigor 10-12 = good 7-9 = fair 4-6 = poor 0-3 = very poor	Notes
		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	5 = 0% feeding 4 = 1 - 25% feeding 3 = 26-50% feeding 2 = 51-75% feeding 1 = >76% feeding		
52	No Longer Able To Identify					
53	No Longer Able To Identify					
54	No Longer Able To Identify					
55	No Longer Able To Identify					
56	No Longer Able To Identify					
57	L >50	3	4	4	11	
58	S 0-5	4	4	5	13	Pulled all plants.
59	No Longer Able To Identify					
60	S 0-5	3	3	4	10	Pulled all plants.
61	S 0-5	3	4	5	12	Private property.
62	No Longer Able To Identify					
63	S 0-5	4	4	5	13	Pulled all plants.
64	No Longer Able To Identify					
65	S 0-5	3	4	5	12	Private property.
66	S 0-5	4	4	5	13	Private property.
67	No Longer Able To Identify					
68	No Longer Able To Identify					

2020 Purple Loosestrife Survey Form

Hydroelectric project: Alexander Hydroelectric Project

Beetle Release Date: July 1, 2020 Inspection date: July 23, 2020

Colony ID #	Colony Size S 0-5 M 6-50 L >50	General Plant Vigor		Beetle Herbivory 5 = 0% feeding 4 = 1 - 25% feeding 3 = 26-50% feeding 2 = 51-75% feeding 1 = >76% feeding	Total Plant Vigor 10-12 = good 7-9 = fair 4-6 = poor 0-3 = very poor	Notes
		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			
69	No Longer Able To Identify					
70	No Longer Able To Identify					
71	S 0-5	3	4	5	12	Private property.
72	S 0-5	3	4	5	12	Private property.
73	S 0-5	3	4	5	12	
74	No Longer Able To Identify					
75	No Longer Able To Identify					
76	M 6-50	4	3	4	11	Released 3,000 beetles.
77	No Longer Able To Identify					
78	No Longer Able To Identify					
79	M 6-50	3	4	5	12	Pulled all plants.
80	S 0-5	4	4	5	13	New.
81	S 0-5	4	4	5	13	New.
82	L >50	3	4	5	12	New.
83	S 0-5	3	4	5	12	New.
84	S 0-5	3	4	3	10	New.

2020 Purple Loosestrife Survey Form

Hydroelectric project: Alexander Hydroelectric Project

Beetle Release Date: July 1, 2020 Inspection date: July 23, 2020

Colony ID #	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
		<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		
85	M 6-50	3	4	5	12	New.
86	S 0-5	3	4	5	12	New.
87	M 6-50	3	4	5	12	New.
88	S 0-5	4	4	5	13	New.
89	S 0-5	3	4	3	10	New. Pulled All
90	S 0-5	4	4	5	13	New.
91	S 0-5	4	4	5	13	New.
92	S 0-5	4	4	5	13	New.
93	S 0-5	3	4	5	12	New. Pulled All
94	S 0-5	4	4	5	13	New. Pulled All
95	S 0-5	3	4	5	12	New. Pulled All
96	S 0-5	4	4	5	13	New.
97	S 0-5	3	2	5	10	New.
98	M 6-50	3	4	5	12	New.
99	S 0-5	4	4	5	13	New.
100	M 6-50	3	4	5	12	New.
101	S 0-5	3	4	5	12	New.

2020 Purple Loosestrife Survey Form

Hydroelectric project: Alexander Hydroelectric Project

Beetle Release Date: July 1, 2020 Inspection date: July 23, 2020

Colony ID #	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
		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		
102	S 0-5	3	4	5	12	New.
103	S 0-5	3	4	5	12	New.
104	S 0-5	2	4	5	11	New.
105	S 0-5	2	4	5	11	New.

APPENDIX B

TWELVE YEAR PURPLE LOOSESTRIFE SUMMARY

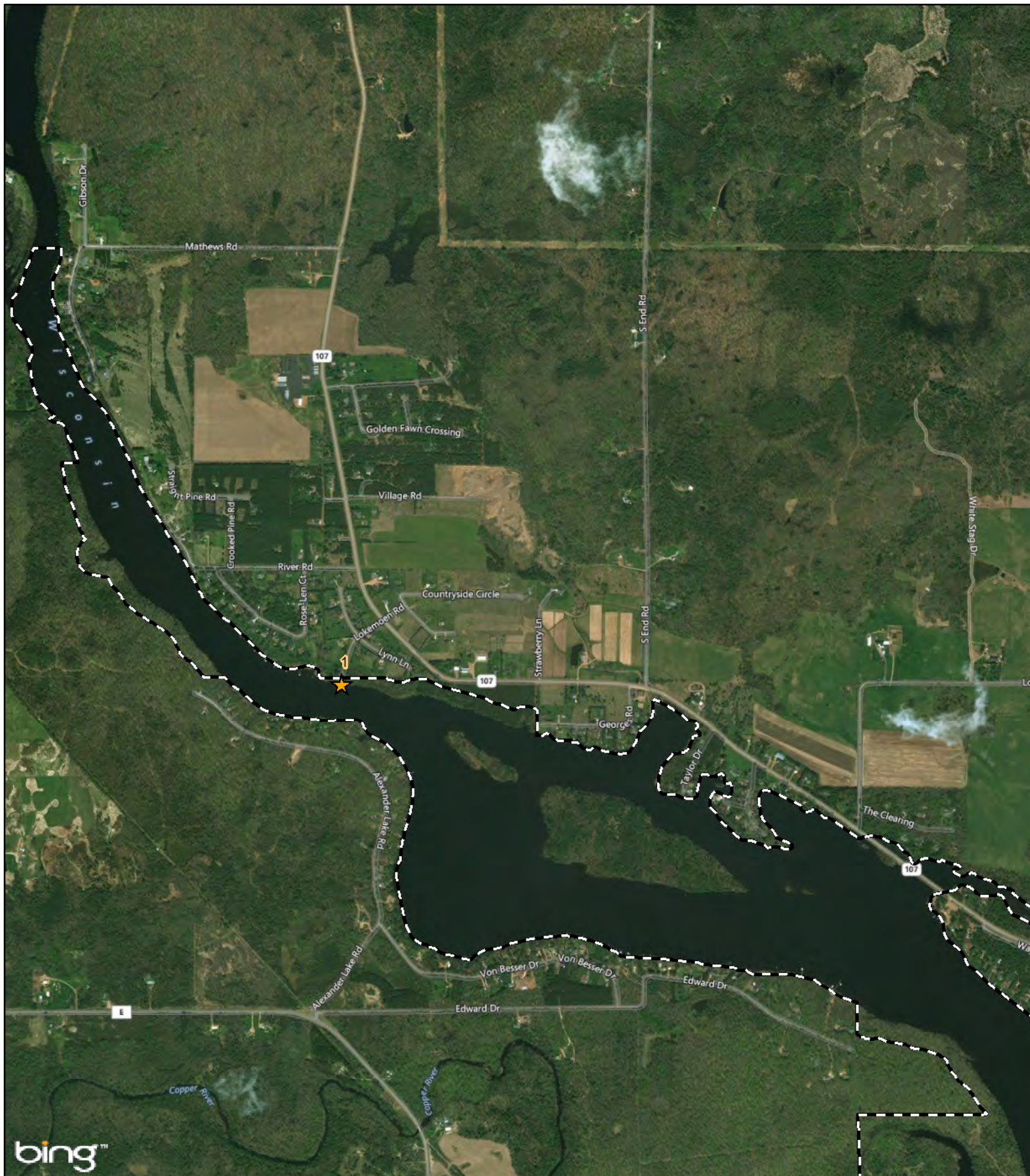
Alexander Hydroelectric Project 2009 - 2020 Summary

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	20	13	5	2	11	55%	10,000
2010	21	14	5	2	10	48%	2,000
2011	20	13	6	1	14	70%	3,000
2012	38	27	7	4	15	39%	2,000
2013	19	11	6	2	14	74%	3,000
2014	53	49	4	0	28	53%	3,000
2015	31	25	6	0	15	48%	7,000
2016	36	21	13	2	18	50%	12,000
2017	37	23	12	1	30	81%	6,000
2018	36	26	9	1	25	69%	10,000
2019	48	30	16	2	28	58%	10,000
2020	55	39	13	3	12	22%	6,000

12 Year Average	34.5	24.3	8.5	1.7	18.3	55.7%
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APPENDIX C

2020 EURASIAN WATERMILFOIL SURVEY RESULTS



WPS Alexander-North Hydroelectric Project Eurasian Watermilfoil Survey 2020

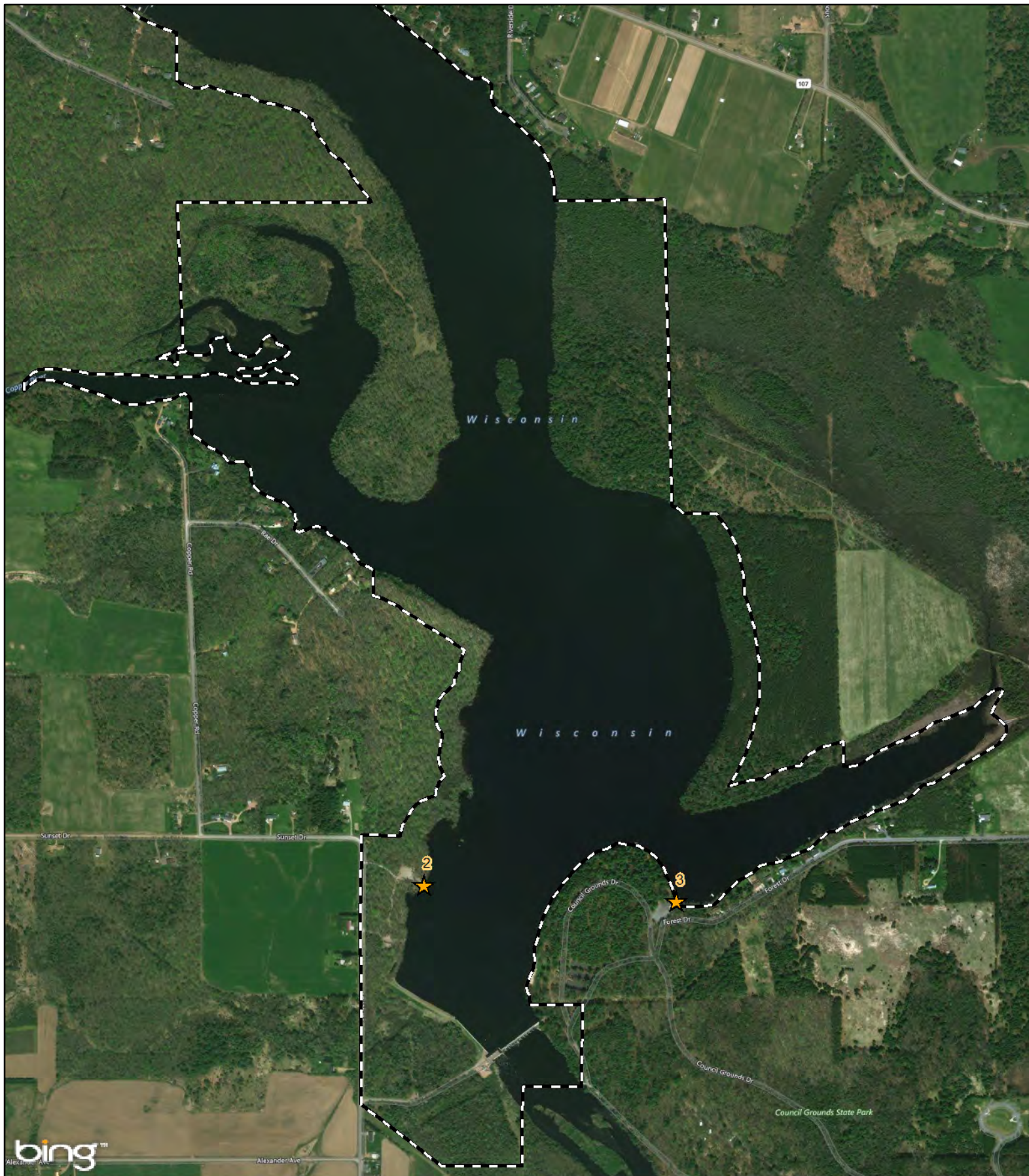
Project Boundary

Transect Point



0 0.5 1 Miles

9/30/2020



WPS Alexander-South Hydroelectric Project Eurasian Watermilfoil Survey 2020

- Project Boundary
- Transect Point



0 0.5 Miles

9/30/2020

2020 Eurasian Watermilfoil Survey Form

Hydroelectric project: Alexander Hydroelectric Project

Inspection date: July 23, 2020

[illegible]

Abundance Scale: 0-Absent, 1-Present, 2-Presence Less Than Half, 3-Equal Presence Compared to Other Species, 4-Dominant Species Present, 5-Total Infestation

APPENDIX D

2020 ZEBRA MUSSEL MONTHLY SUBSTRATE SAMPLING RESULTS

**ZEBRA MUSSEL INSPECTION RESULTS
WESTERN HYDROELECTRIC PROJECTS**

HYDRO NAME

<input type="checkbox"/> Grandfather Falls	<input type="checkbox"/> Merrill	<input type="checkbox"/> Tomahawk	<input type="checkbox"/> Otter Rapids
<input type="checkbox"/> Wausau	<input checked="" type="checkbox"/> Alexander	<input type="checkbox"/> Jersey	<input type="checkbox"/> Hat Rapids

INSPECTION TYPE: ☒ MONTHLY INSPECTION ☐ INSPECTION DURING DRAWDOWN
DATE: 10-21-19
COMMENTS/RESULTS: None

INSPECTION TYPE: ☒ MONTHLY INSPECTION ☐ INSPECTION DURING DRAWDOWN
DATE: 3/24/20
COMMENTS/RESULTS: NONE

INSPECTION TYPE: ☒ MONTHLY INSPECTION ☐ INSPECTION DURING DRAWDOWN
DATE: 5-22-20
COMMENTS/RESULTS: None

INSPECTION TYPE: ☒ MONTHLY INSPECTION ☐ INSPECTION DURING DRAWDOWN
DATE: 6-16-20
COMMENTS/RESULTS: None

INSPECTION TYPE: ☒ MONTHLY INSPECTION ☐ INSPECTION DURING DRAWDOWN
DATE: 7-1-20
COMMENTS/RESULTS: None

INSPECTION TYPE: ☒ MONTHLY INSPECTION ☐ INSPECTION DURING DRAWDOWN
DATE: 8-13-20
COMMENTS/RESULTS: None

INSPECTION TYPE: ☒ MONTHLY INSPECTION ☐ INSPECTION DURING DRAWDOWN
DATE: 9-14
COMMENTS/RESULTS: None

INSPECTION TYPE: ☐ MONTHLY INSPECTION ☐ INSPECTION DURING DRAWDOWN
DATE: _____
COMMENTS/RESULTS: _____

INSPECTION TYPE: ☐ MONTHLY INSPECTION ☐ INSPECTION DURING DRAWDOWN
DATE: _____
COMMENTS/RESULTS: _____

INSPECTION TYPE: ☐ MONTHLY INSPECTION ☐ INSPECTION DURING DRAWDOWN
DATE: _____
COMMENTS/RESULTS: _____