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October 5, 2004

P-11162-036

Mr. Larry Thompson
U.S. Fish and Wildlife Service
2661 Scott Tower Drive
New Franken, WI 54229-9565

Mr. Andy Morton
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711

**SUBJECT: Prairie du Sac Hydroelectric Project
2004 Purple Loosestrife/Eurasian Milfoil Monitoring**

Dear Sir

In accordance with License Article 410 (Nuisance Plant Control Plan) as approved by the Federal Energy Regulatory Commission, we are pleased to provide you with the results of the 2004 Purple Loosestrife and Eurasian Milfoil monitoring effort. This is the second of the three annual monitoring surveys being conducted to document the status of these species within the project boundary. Please review the enclosed report and provide us with comments within 30 days. If we do not receive a response from you we will assume you have no comments.

Please contact me if you have questions or require additional information regarding this submittal.

Regards,
Natural Resources Consulting, Inc.

William R. Poole
Principal Scientist

Enclosure

Cc: Mike Prindle - Alliant Energy

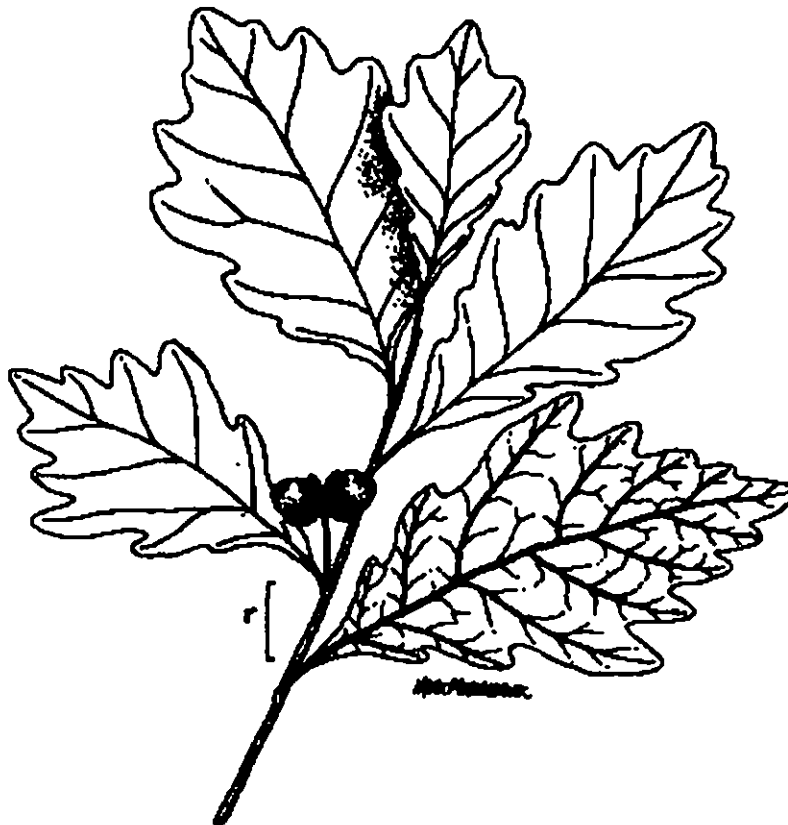
PURPLE LOOSESTRIFE and EURASIAN MILFOIL SURVEY REPORT

PRAIRIE DU SAC HYDROELECTRIC PROJECT

FERC Project No. 11162

PRAIRIE DU SAC, WISCONSIN

SEPTEMBER 2, 2003



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NRC Project # 02-131B

NATURAL RESOURCES CONSULTING, INCORPORATED
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PURPLE LOOSESTRIFE and EURASIAN MILFOIL SURVEY REPORT

**PRAIRIE DU SAC HYDROELECTRIC PROJECT
FERC Project No. 11162**

PRAIRIE DU SAC, WISCONSIN

September 2, 2003

Prepared For:

**Mr. Doug Hau
Wisconsin Power & Light Company
S9270A Dam Road
Prairie du Sac, WI 53578-9712**

Prepared By:

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NRC Project # 02-131B

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**Chris Pekar
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Prairie du Sac Hydroelectric Project
WP&L
September 2, 2003

Purple Loosestrife/Milfoil Survey
Columbia & Sauk Counties, Wisconsin
NRC Project # 02-131B

TABLE OF CONTENTS

INTRODUCTION AND OBJECTIVES	Page 1
SURVEY METHODS	Page 1
RESULTS.....	Page 1
CONCLUSIONS.....	Page 3

Appendix A – Purple Loosestrife Location & Density Maps

Appendix B – GPS Coordinates

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September 2, 2003

Purple Loosestrife/Milfoil Survey
Columbia & Sauk Counties, Wisconsin
NRC Project # 02-131B

INTRODUCTION AND OBJECTIVES

In accordance with Article 410 of the Federal Energy Regulatory Commission (FERC) Order Issuing Original License (June 27, 2002) for the Prairie du Sac Hydroelectric Project, FERC Project No. 11162-002, Wisconsin Power and Light Company (WP&L) was required to develop and implement a purple loosestrife (*Lythrum salicaria*) and Eurasian water milfoil (*Myriophyllum spicatum*) monitoring plan. The purpose of the monitoring plan is to assist the Wisconsin Department of Natural Resources (WDNR) and the U.S. Fish and Wildlife Service (FWS) in controlling the spread of these nuisance plant species.

On August 7 and 8, 2003, Natural Resources Consulting, Inc. (NRC) performed a purple loosestrife and Eurasian water milfoil survey within the project boundaries of the Prairie du Sac Hydroelectric Project. The survey extended from the Prairie du Sac dam east to the I-94 bridge crossing and included all shorelines, wetlands, and islands within the ordinary high water elevation of Lake Wisconsin.

SURVEY METHODS

The survey was conducted by boat and involved slow monitoring along the impoundment shorelines, shorelines of islands, and wetlands. The survey team included a qualified botanist familiar with the ecology and identification of the target species. Locations and density of purple loosestrife occurrences were marked in the field on 1995 aerial photographs and were recorded using a Geographic Information System (GPS) unit capable of sub-meter accuracy. The density of each stand was estimated based on the number of plants and were categorized according to the following scale:

- > 5 = 1 to 5 plants
- > 10 = 6 to 10 plants
- > 20 = 11 to 20 plants
- > 30 = 21 to 30 plants
- > 50 = 31 to 50 plants
- > 100 = 51 to 100 plants
- > 500 = 101 to 500 plants
- > 1000 = 501 to 1000's of plants

Purple loosestrife locations recorded by GPS were overlaid on digitized 1995 aerial photographs. Each purple loosestrife stand was coded based on their density category (Appendix A). The GPS coordinates are provided on the Table in Appendix B.

While surveying for purple loosestrife an effort was made to detect the presence of Eurasian milfoil within floating leaved and submersed aquatic plant beds. This preliminary survey was conducted by examining hand pulled samples of submersed aquatic plants for the presence of Eurasian milfoil.

RESULTS

The survey was conducted on August 7 & 8, 2003 while purple loosestrife was in full bloom. This species was observed to be relatively wide spread within the project boundary occurring sporadically in low densities along the steep shorelines of both residential and undeveloped areas and at high densities in many of the wetland areas within the bays and especially in the upper reaches of the project boundary along the islands. Eurasian milfoil was only observed within one bay of the project boundaries (Stoners Bay).

Prairie du Sac Hydroelectric Project
WP&L
September 2, 2003

Purple Loosestrife/Milfoil Survey
Columbia & Sauk Counties, Wisconsin
NRC Project # 02-131B

The sporadic occurrences of purple loosestrife tend to be found along developed shorelines where recent disturbance had taken place such as tree removal or construction activities. It also appeared that many private riparian landowners had intentionally promoted the plants for aesthetic purposes. Most of these areas contained only 1 to 5 plants. The plants growing in these areas are restricted only to the shorelines because of the presence of steep banks, manicured lawns, and/or dense tree cover.

Purple loosestrife was found to be prevalent within several of the bays and wetlands. The western extent of the southern most bay of Wiegans Bay contained a wetland complex that was infested with 50 – 100 plants. Sunset Bay, located north of E. Hammond Road, contained large wetland areas in the southwest and southeast corner both of which are dominated by 1000's of purple loosestrife plants. These wetland areas continue south of STH 188 where they are also dominated by purple loosestrife. A small portion in the southern most part of Okee Bay seemed to be recently infested with the species and contained 100 to 500 plants. A small bay extending adjacent to the south-southeast side of Pine Bluff contained a wetland complex that was co-dominated by 1000's of purple loosestrife plants. Harmony Grove Bay contained scattered stands along the southern shoreline, however these wetland areas were dominated by shrub-carr vegetation and purple loosestrife was limited only to the edges. Stoners Bay contained a dense stand comprised of 1000's of plants within the wetland area in the northwest portion of the bay. The surveyors were unable to enter into Whalen's Bay in the eastern part of the lake due to low clearance under the CTH V Bridge. This bay was surveyed from the western edge with binoculars. No purple loosestrife plants were observed.

The occurrence and abundance of purple loosestrife increased significantly approximately 2 miles upstream of Tipperary Point. This increase in purple loosestrife was due to more ideal habitat conditions for the species such as shallow water, low lying islands, wetlands, and subtle shoreline slopes. Almost all of the shorelines of the sandbar islands were infested with dense stands (1000's) of purple loosestrife plants. The interior of many of these islands were also dominated by purple loosestrife however, this was dependent on the density of woody vegetation. Islands dominated by shrub-carrs and/or forested communities contained less purple loosestrife in their interiors. Several narrow channels between islands were not surveyed since water levels were too low to provide access. These areas are shown in Appendix A. However, because of the prevalence of purple loosestrife on almost all of the islands in this vicinity, it can be assumed that at least the shorelines of these areas are most likely dominated by purple loosestrife plants.

Most of the wetland areas dominated by herbaceous wetland vegetation that are within the project boundary are dominated or co-dominated by purple loosestrife. However, there were some of these wetland types that did not contain any or only a few purple loosestrife plants. These areas include Gallus Slough, Whalen Bay, and portions of Okee Bay.

Although the base of most all bays within the project boundaries contained submerged and floating leaved aquatic vegetation and ideal habitat for Eurasian milfoil, it was observed only in Stoners Bay. In this area it was growing with coon's tail, water weed, and pond lily but was not the dominant species (Figure 1.6).

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Purple Loosestrife/Milfoil Survey
Columbia & Sauk Counties, Wisconsin
NRC Project # 02-131B

CONCLUSIONS

The lower $\frac{3}{4}$ of the Lake Wisconsin from the Prairie du Sac dam east to approximately 2 miles upstream of Tipperary Point contains limited available habitat for extensive purple loosestrife stands with the exception of the wetland areas located at the base of several bays. These areas limit the density and extent of purple loosestrife infestation because they contain steep slopes, dense tree cover, and/or manicured lawns. We found that most wetland areas adjacent to the impoundment that were dominated by herbaceous vegetation were infested with purple loosestrife. Those wetland areas dominated by shrub-carr or forested communities limited the extent of infestation to the shorelines. Emergent wetlands not dominated with purple loosestrife should be considered high priority for monitoring and eradication to prevent these areas from becoming infested. The northeastern portion of the impoundment approximately 2 miles north of Tipperary Point contains the most extensive purple loosestrife infestations due to the shallow water conditions, low lying islands, and extensive wetlands.

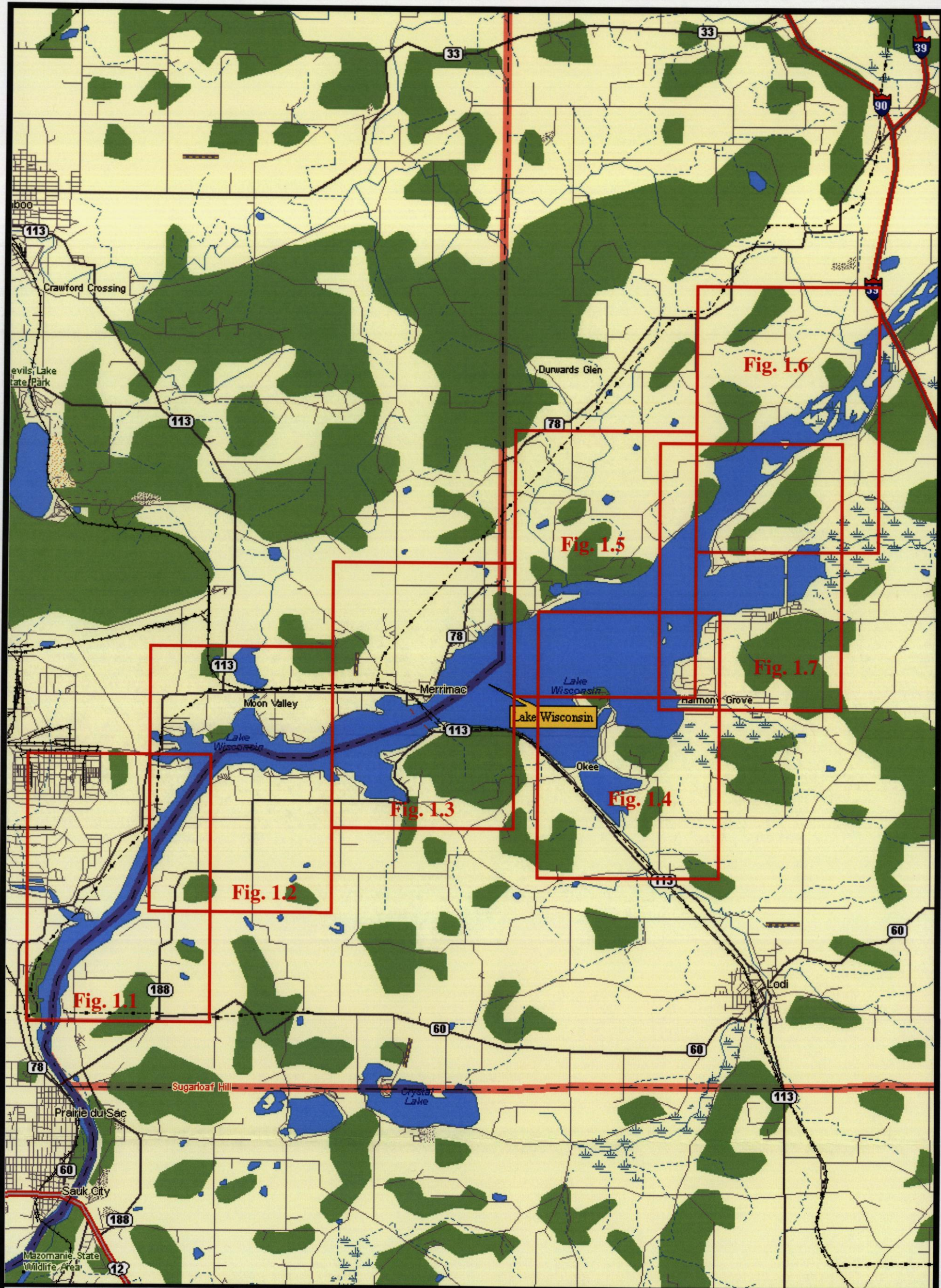
Eurasian milfoil infestation within the project boundaries did not appear to be extensive and was found to be limited to Stoner's Bay during the survey period. The base of most of the bays on the lake contains habitat where Eurasian milfoil may exist and with more extensive monitoring efforts targeted specifically toward this species its distribution may be broader than what was recorded during this survey.

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September 2, 2003

Purple Loosestrife/Milfoil Survey
Columbia & Sauk Counties, Wisconsin
NRC Project # 02-131B

APPENDIX A

PURPLE LOOSESTRIFE LOCATION & DENSITY MAPS



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Figure 1.0, Index Sheet

Lake Wisconsin Purple Loosestrife Survey

Lake Wisconsin, Columbia & Sauk Counties, WI

NRC Project #: 02-131B

August 29, 2003





Figure 1.1

Lake Wisconsin Purple Loosestrife Survey

August 29, 2003

NRC Project Number #: 02-131B

Purple Loosestrife Stand Size (# of Plants)

- | | |
|-----------|---------------|
| ● 5 | ● 21 - 30 |
| ● 6 - 10 | ● 31 - 50 |
| ● 11 - 20 | ● 51 - 100 |
| | ● 101 - 500 |
| | ● 501 - 1000+ |



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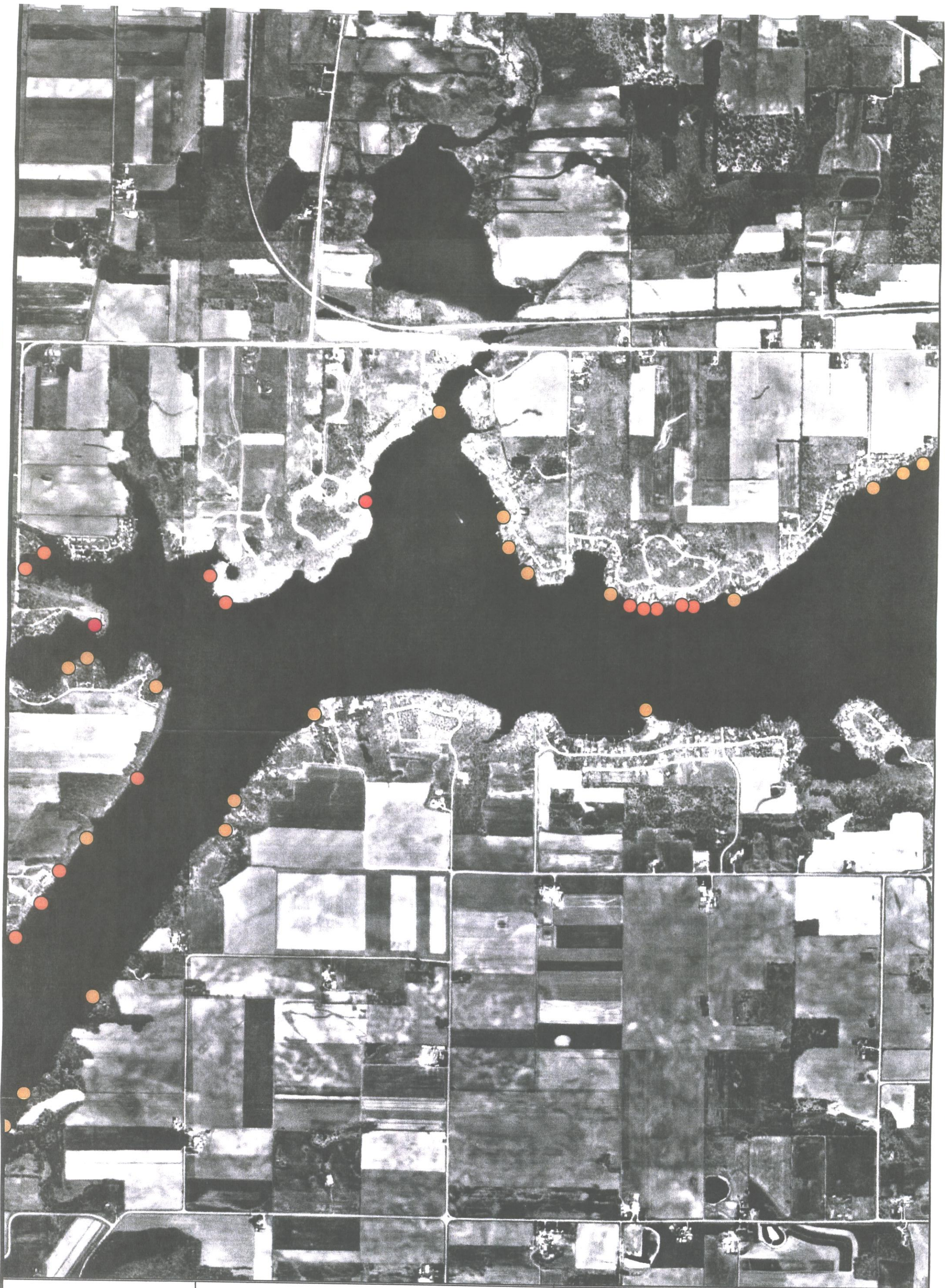


Figure 1.2

Lake Wisconsin Purple Loosestrife Survey

August 29, 2003

NRC Project Number #: 02-131B

Purple Loosestrife Stand Size (# of Plants)

- | | |
|-----------|---------------|
| ● 5 | ● 21 - 30 |
| ● 6 - 10 | ● 31 - 50 |
| ● 11 - 20 | ● 51 - 100 |
| | ● 101 - 500 |
| | ● 501 - 1000+ |



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0504150176_003



Figure 1.3

Lake Wisconsin Purple Loosestrife Survey

August 29, 2003

NRC Project Number #: 02-131B

Purple Loosestrife Stand Size (# of Plants)

- 5-25 (yellow dot)
- 26-100 (orange dot)
- 11-20 (red dot)
- 21-30 (red dot)
- 31-50 (red dot)
- 51-100 (red dot)
- 101-500 (purple dot)
- 501-1000+ (blue dot)



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Figure 1.4

Lake Wisconsin Purple Loosestrife Survey

August 29, 2003

NRC Project Number #: 02-131B

Purple Loosestrife Stand Size (# of Plants)

- 5
- 6 - 10
- 11 - 20
- 21 - 30
- 31 - 50
- 51 - 100
- 101 - 500
- 501 - 1000+



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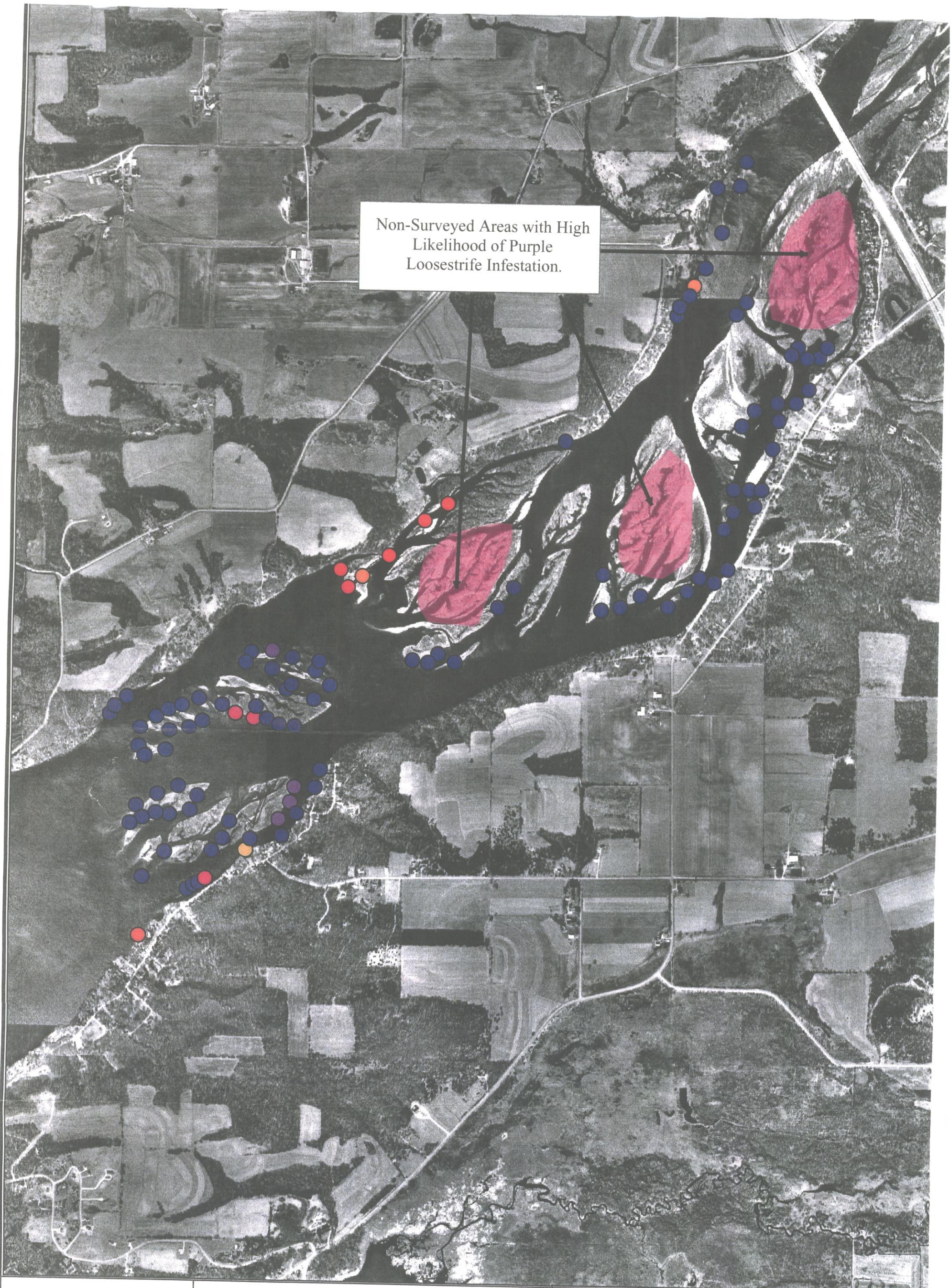


Area Moderately Infested
with Eurasian Milfoil

XXXX

<p>NRC</p> <p>119 South Main Street, Suite D P.O. Box 128 Cottage Grove, WI 53527-0128 phone: 608-839-1998 fax: 608-839-1995 www.nrc-inc.net</p>	<p>Figure 1.5</p>	<p>Purple Loosestrife Stand Size (# of Plants)</p> <table style="width: 100%;"> <tr> <td>● 5</td> <td>● 21 - 30</td> </tr> <tr> <td>● 6 - 10</td> <td>● 31 - 50</td> </tr> <tr> <td>● 11 - 20</td> <td>● 51 - 100</td> </tr> <tr> <td>● 101 - 500</td> <td>● 501 - 1000+</td> </tr> </table>	● 5	● 21 - 30	● 6 - 10	● 31 - 50	● 11 - 20	● 51 - 100	● 101 - 500	● 501 - 1000+	<p>N</p>
	● 5		● 21 - 30								
	● 6 - 10		● 31 - 50								
	● 11 - 20		● 51 - 100								
● 101 - 500	● 501 - 1000+										
<p>Lake Wisconsin Purple Loosestrife Survey</p>											
<p>August 29, 2003</p>											
<p>NRC Project Number #: 02-131B</p>											

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Non-Surveyed Areas with High Likelihood of Purple Loosestrife Infestation.

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Figure 1.6
 Lake Wisconsin Purple Loosestrife Survey
 August 29, 2003
 NRC Project Number #: 02-131B

Purple Loosestrife Stand Size (# of Plants)	
● 5	● 21 - 30
● 6 - 10	● 31 - 50
● 11 - 20	● 51 - 100
	● 101 - 500
	● 501 - 1000+



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Figure 1.7

Lake Wisconsin Purple Loosestrife Survey

August 29, 2003

NRC Project Number #: 02-131B

Purple Loosestrife Stand Size (# of Plants)

- | | |
|-----------|---------------|
| ● 5 | ● 21 - 30 |
| ● 6 - 10 | ● 31 - 50 |
| ● 11 - 20 | ● 51 - 100 |
| | ● 101 - 500 |
| | ● 501 - 1000+ |



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September 2, 2003

Purple Loosestrife/Milfoil Survey
Columbia & Sauk Counties, Wisconsin
NRC Project # 02-131B

APPENDIX B
GPS COORDINATES

Point ID	Size of Loosestrife Stand	X	Y
1	10	2081879	492414
2	10	2081617	491922
3	30	2081248	491406
4	5	2080943	490784
5	5	2080627	490427
6	5	2079775	488949
7	5	2079243	487850
8	5	2075563	484002
9	5	2075279	484018
10	10	2073739	484498
11	5	2072632	479006
12	5	2081124	488530
13	5	2081412	489037
14	5	2082397	490541
15	5	2084333	493099
16	5	2084459	493561
17	5	2085639	494920
18	5	2090710	495082
19	1000	2096125	493018
20	5	2097318	492789
21	5	2098081	493145
22	1000	2099007	492720
23	5	2099048	493363
24	5	2098840	493479
25	5	2098272	495056
26	5	2098303	495313
27	30	2097480	495533
28	30	2097296	495642
29	10	2101305	498182
30	5	2109913	496354
31	5	2110227	495940
32	5	2110421	495594
33	5	2110676	495340
34	5	2110787	495228
35	500	2115038	491415
36	10	2116642	494272
37	1000	2114251	499331
38	5	2098732	500091
39	5	2098423	500287
40	5	2098198	500514
41	5	2098015	500517
42	5	2097266	498949
43	5	2096568	499180
44	5	2094852	498894
45	5	2094554	498745
46	5	2094105	498511
47	5	2092028	496772
48	10	2091412	496662
49	10	2091236	496680
50	10	2090852	496614
51	10	2090651	496612

Point ID	Size of Loosestrife Stand	X	Y
52	10	2090434	496658
53	5	2090134	496826
54	5	2088855	497126
55	5	2088557	497508
56	5	2088466	497976
57	5	2087449	499565
58	20	2086357	498173
59	5	2113317	501236
60	5	2115280	498519
61	5	2115706	498541
62	50	2118952	497820
63	20	2119534	498486
64	20	2119607	498698
65	10	2119760	498895
66	10	2120509	499580
67	5	2120689	499570
68	5	2121602	499561
69	5	2119228	500173
70	5	2119286	500465
71	5	2119137	500844
72	10	2118862	501072
73	5	2118785	502054
74	5	2118998	503121
75	10	2118481	504749
76	5	2118459	505791
77	5	2120858	505803
78	5	2121224	506166
79	5	2123295	506772
80	5	2124678	507265
81	5	2125086	507403
82	10	2125610	507454
83	10	2126155	507534
84	30	2127089	507750
85	20	2127121	507943
86	30	2126830	510837
87	10	2126212	510626
88	10	2125567	510636
89	10	2123948	510467
90	5	2121970	509542
91	10	2121591	510415
92	5	2121484	510937
93	5	2121447	511998
94	5	2121626	512515
95	10	2121718	512876
96	10	2122374	513659
97	5	2122521	513796
98	20	2124700	516029
99	1000	2124731	516875
100	1000	2125038	517241
101	1000	2125371	516714
102	1000	2125462	516779

Point ID	Size of Loosestrife Stand	X	Y
103	1000	2125532	516816
104	100	2125625	516874
105	1000	2125705	517276
106	1000	2125853	517457
107	1000	2125949	517704
108	5	2126188	517299
109	1000	2126251	517459
110	500	2126648	517752
111	500	2126808	518005
112	500	2126862	518228
113	10	2132481	525628
114	30	2128985	522398
115	30	2128654	522146
116	30	2128147	521624
117	10	2127768	521318
118	50	2127563	521153
119	30	2127450	521406
120	1000	2126793	520121
121	500	2126508	520217
122	1000	2126209	520189
123	20	2122651	518227
124	5	2121805	514891
125	5	2121681	514728
126	5	2121453	514444
127	5	2121297	514285
128	5	2121093	514113
129	5	2120884	513977
130	5	2120605	513846
131	5	2120179	513511
132	20	2119067	512425
133	5	2118671	511998
134	5	2112915	508927
135	1000	2110854	508607
136	30	2111727	508430
137	5	2110837	507209
138	5	2108216	506064
139	5	2107252	505829
140	5	2106367	505520
141	5	2105005	504952
142	50	2104540	505135
143	5	2102416	503041
144	5	2102061	503010
145	5	2101422	501653
146	50	2080456	495759
147	5	2081943	495528
148	5	2082218	495685
149	5	2083257	495278
150	10	2083008	493860
151	5	2082272	492922
152	10	2084267	496579
153	10	2084020	496984

Point ID	Size of Loosestrife Stand	X	Y
154	10	2081549	497266
155	10	2081279	497020
156	50	2082316	496186
157	1000	2124637	518763
158	1000	2124724	518626
159	1000	2125017	518714
160	1000	2124652	519039
161	1000	2124220	519226
162	1000	2124288	519347
163	1000	2124460	519487
164	1000	2124876	519213
165	1000	2125047	519318
166	1000	2125237	519389
167	1000	2125067	519008
168	1000	2125343	519061
169	1000	2125532	519166
170	1000	2125478	519494
171	1000	2125806	519410
172	100	2125997	519290
173	100	2126256	519223
174	1000	2126289	519396
175	1000	2126446	519224
176	1000	2126619	519139
177	1000	2126843	519124
178	1000	2127117	519522
179	1000	2126719	519658
180	1000	2126787	519727
181	1000	2126510	519950
182	1000	2126130	520033
183	1000	2127340	519731
184	1000	2127131	519937
185	1000	2127182	520075
186	1000	2124626	517900
187	1000	2124918	518075
188	1000	2125210	518198
189	1000	2125487	518062
190	1000	2125385	517854
191	1000	2125093	517783
192	1000	2124903	517799
193	1000	2124713	517728
194	1000	2124541	517641
195	1000	2126699	517518
196	1000	2126904	517847
197	1000	2127160	518228
198	1000	2127227	518488
199	1000	2130668	523340
200	1000	2129971	521201
201	1000	2129747	520908
202	1000	2129138	520112
203	1000	2128895	520223
204	1000	2128750	520093

Point ID	Size of Loosestrife Stand	X	Y
205	1000	2128524	520124
206	1000	2131251	520902
207	1000	2131263	521420
208	1000	2131525	520953
209	1000	2131815	521117
210	1000	2132220	520974
211	1000	2132494	521202
212	1000	2132670	521397
213	1000	2132881	521334
214	1000	2133073	521529
215	1000	2133005	522111
216	1000	2133132	522370
217	1000	2133130	522694
218	1000	2133356	522695
219	1000	2133534	522697
220	1000	2133439	522453
221	1000	2133221	523616
222	1000	2133397	523843
223	1000	2133675	523296
224	1000	2133753	523700
225	1000	2133994	523961
226	1000	2133719	523959
227	1000	2134171	524156
228	1000	2134313	524626
229	1000	2134425	524772
230	1000	2134135	524608
231	1000	2134005	524769
232	1000	2133908	524655
233	1000	2133240	525410
234	1000	2133096	525232
235	1000	2132240	525193
236	1000	2132271	525323
237	1000	2132415	525486
238	1000	2132639	525891
239	1000	2132776	527056
240	1000	2132862	526410
241	1000	2133116	527091
242	1000	2133194	527447