September 3, 2010

Mr. David Evenson
Beaver Dam Lake Management District
1010 Second Avenue
Cumberland, WI 54829

Re: 2010 Library Lake Purple Loosestrife Survey

Dear Mr. Evenson:

During 2010, Barr Engineering Company was commissioned by the Beaver Dam Lake Management District to survey Library Lake to determine locations containing purple loosestrife and to determine whether biological control of purple loosestrife was occurring. Survey methods and results are presented in this letter.

Survey Methods:

A survey of purple loosestrife coverage and density was completed in Library Lake on July 18, 2010 by Endangered Resource Services under subcontract with Barr Engineering Company. Wisconsin Department of Natural Resources methods were used[1] and 139 point intercept sample points were surveyed (Figure 1). Additional inspection of purple loosestrife occurred to determine whether biological control of purple loosestrife was occurring. Ten different clusters on the north and south end of the eastern bog were inspected and a binoculars was used to inspect other clusters of purple loosestrife that were located within the bog and, therefore, not accessible.

Survey Results:

Purple loosestrife was collected at 8 of the 139 surveyed locations and visual sightings occurred at 4 sample locations. Survey results are shown in Table 1 and Figure 2.

Purple loosestrife plants in Library Lake noted large quantities of *Gallerucella pusilla* beetles (Figure 3). Beetle control of purple loosestrife was evident by severe stunting of most plants. Due to beetle pressures, it appears that most plants would have a difficult time flowering. A few flower stalks had fallen off as beetles had chewed all the way through the stems. Pictures of beetle damage to purple

[1] Hauxwell, J., S. Knight, K. Wagner, A. Mikulyuk, M. Nault, M. Porzky and S. Chase. 2010. Recommended baseline monitoring of aquatic plants in Wisconsin: sampling design, field and laboratory procedures, data entry and analysis, and applications. Wisconsin Department of Natural Resources Bureau of Science Services, PUB-SS-1068 2010. Madison, Wisconsin, USA.

loosestrife plants in Library Lake are shown in Figures 4 through 7. Survey results indicate substantial biological control of purple loosestrife occurred during 2010.

If you have any questions regarding the results of the 2010 Library Lake purple loosestrife survey, please do not hesitate to contact me at (952) 832-2810 or mrattei@barr.com.

Sincerely,
BARR ENGINEERING COMPANY

Margaret R. (Meg) Rattei

Attachments

1. Figures

2. Table

Attachment 1: Figures

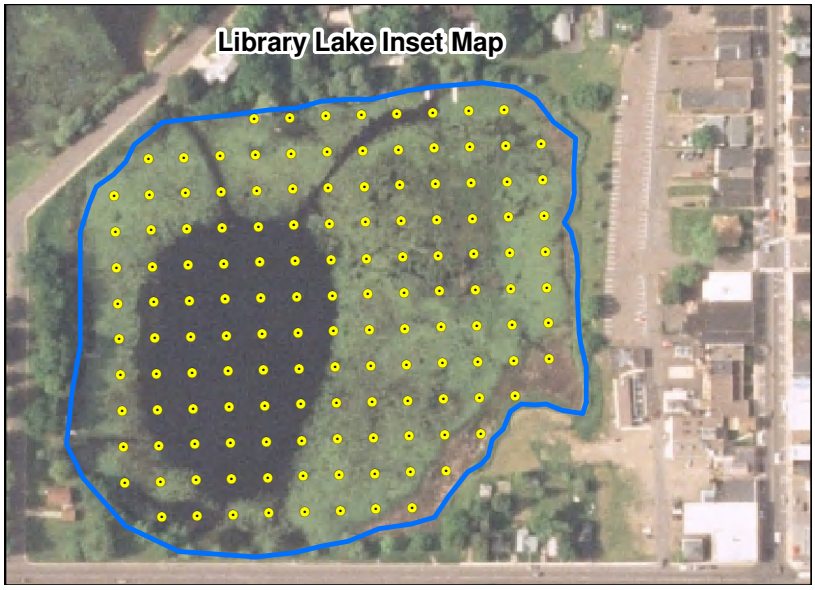

Figure 1. 2010 Library Lake Purple Loosestrife Survey Sample Points

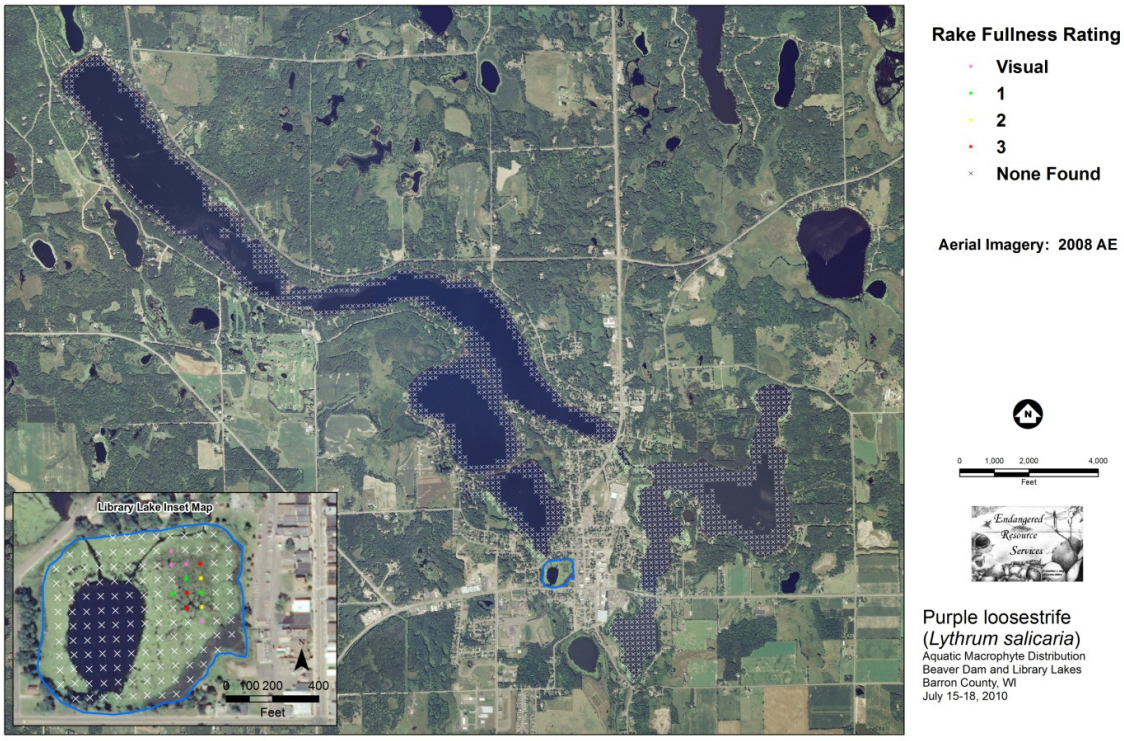

Figure 2. 2010 Library Lake *Lythrum salicaria* (Purple Loosestrife) Distribution
Figure Credit: Endangered Resource Services, LLC (2010)

Figure 3. 2010 Library Lake Beetle Density
Figure Credit: Endangered Resource Services, LLC (2010)

Figure 4. Beetle Damage to Purple Loosestrife in Library Lake
Figure Credit: Endangered Resource Services, LLC (2010)

Figure 5. Beetle Damage to Purple Loosestrife in Library Lake
Figure Credit: Endangered Resource Services, LLC (2010)

Figure 6. Beetle Damage to Purple Loosestrife in Library Lake
Figure Credit: Endangered Resource Services, LLC (2010)

Figure 7. Beetle Damage to Purple Loosestrife in Library Lake
Figure Credit: Endangered Resource Services, LLC (2010)

Attachment 2: Table

Table 1. 2010 Library Lake Statistics for *Lythrum salicaria* (Purple Loosestrife)
Table Credit: Endangered Resource Services, LLC (2010)

Frequency of occurrence within vegetated areas (%)	6.61
Frequency of occurrence at sites shallower than maximum depth of plants (%)	6.15
Relative Frequency	1.9
Average Rake Fullness	1.9