

2012 Lake Puckaway EPS Planting Report

Andrew Sabai

November 2012

Prior to the construction of the Princeton Dam circa 1899, the primary habitat on Lake Puckaway was emergent vegetation. Emergent vegetation are those plants that have a major portion of their stems and leaves protruding from the water. Thousands of acres of grass-like species of emergent vegetation were present at the time of settlement, providing critical habitat for fish and waterfowl. As part of the Lake Puckaway Restoration and Rehabilitation District's (LPPRD) Emergent Plant Stabilization plan (EPS), grass-like emergent seedlings were planted during the summer of 2012. Low water during the summer's drought provided ideal conditions for establishing the seedlings because they grow best in low water, or even no water. The following is brief synopsis of the 2012 planting projects. As the project is wrapped up in 2013, a detailed report with complete history, results of 10 small experimental plots not discussed here, and future management recommendations will be presented.

In addition to superb planting conditions, the drought provided an opportunity for existing bulrushes to expand vegetatively, and reproduce by seed. Reproduction by seed is a rare occurrence because it requires a combination of exposed sediment and high temperatures during germination and early growth. Seeds will fail to germinate and grow with a water depth greater than half an inch. Seeds remain dormant in sediment for more than 40 years waiting for the right conditions.

Species planted in order of abundance

Hardstem bulrush (*Schoenoplectus acutus*)

Three-square bulrush (*Schoenoplectus pungens*)

River bulrush (*Bolboschoenus fluviatilis*)

Softstem bulrush (*Schoenoplectus validus*)

Creeping Spikerush (*Eleocharis palustris*)



Figure 1. Planting sites.

Table 1. 2012 planting site statistics. Area and shoreline coverage were measured at time of planting. "Plants remaining" are visual estimates from observations on Oct 21, and Nov 15, 2012.

Site Number	Area (ft ²)	Shoreline (ft.)	Number of Seedlings	Plants Remaining (%)	Major Cause of Loss
1	3,310	215	981	40	Erosion
2a	7,016	250	1,867	99	Muskrats
2b	16,786	1,110	4,448	80	Erosion
3	1,184	107	275	95	Muskrats
4	664	82	275	90	Muskrats
5	339	10	128	95	Muskrats
6	942	94	398	60	Unknown
7	1,700	107	448	95	Erosion
8	1,167	60	274	10	Erosion
Total	33,108	2,035	9,094	79%	Erosion

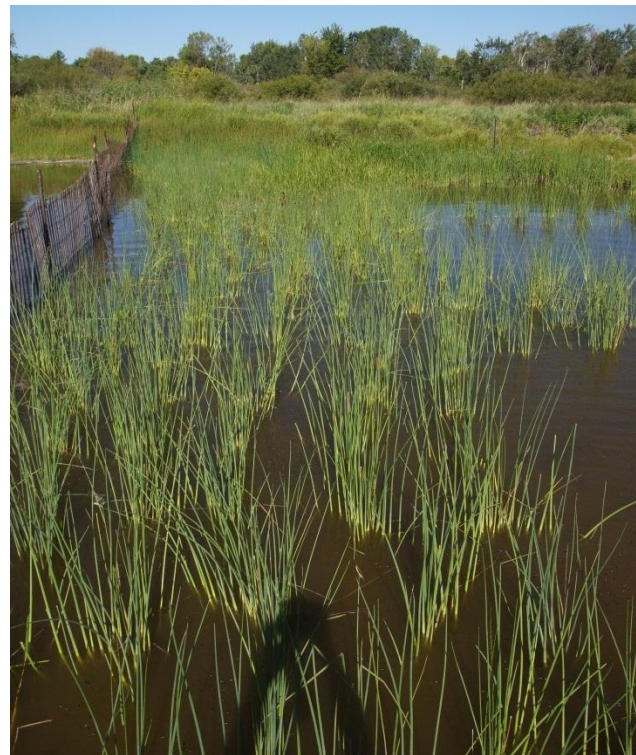


Figure 2 and 3. Site 2a Left photo taken just after planting and before the fence installed, July 8. Right photo Sep. 6, 2012

Table 2. Natural seed germination along 150 feet of shore between planting sites 1 and 2b.

<u>Species</u>	<u>Plants</u>
Hardstem/Softstem bulrushes	67
Three-square bulrush	26
River bulrush	5
Creeping spikerush	14
Burreed	1

Conclusion

As of November 15th I based on visual estimate that 79 % of seedlings planted remained going into the winter season, a high success rate. Most of the success can be attributed to near perfect weather and water level conditions for establishment from late June – late September. Although establishment was highly successful into fall we must realize that lake plantings are not often successful over the long term. Mother Nature provided optimal conditions for establishment this year, but the winter could bring damage by ice and muskrats. The spring could bring another flood, killing or severely stressing plants. We can only say now that seedling establishment was highly successful, giving them better than average chances heading into another growing season.

Acknowledgements

This project would not be possible without the cooperation of landowners adjacent to the plantings. Thank you to Bill Roche, Robert and Ellen Klapper, Mick Masters, and Marquette County for supporting the plantings adjacent to their properties. Many volunteers helped with planting: Mick Masters, Thomas Gerbryshak Christy Sadowski, Mark Sesing, Ron Sabai and Paul Gettelman. Special thanks go to Randy Schmidt for extensive help with planting, fencing, and other projects around the lake. Derek Kavanaugh of Green Lake County Land and Water Conservation Department provided technical advice, fencing supplies, and assisted with planting. Ted Johnson of the WDNR provided technical assistance and DNR staff Eric Evensen, and Chuck Fitzgibbon assisted with planting. Funding for the project was provided by a WDNR Lake Plan implementation grant, and the LPPRD. Quality stock was purchased from J&J Transplant Aquatic Nursery, Wild Rose, WI.



Figure 4. Softstem bulrush plant with the pot it came in 72 days after planting



Site 5 - July 29, 2012



Site 5 - Oct 21, 2012



Site 8 - July 27, 2012: Not all sites were a success. Site 8 experienced a 90% loss by Oct 21, 2012 due mainly to wind storms.



Site 3 – July 27, 2012 Planting in progress



Site 3 – Sept. 9, 2012



Site 2a - June 29, 2012



Site 2a - Sept. 6, 2012



Site 1 – June 29, 2012 first day of planting with Christy Sadowski



SUV overflowing of bulrushes ready to plant site 6- July 5, 2012



Planting site 2b - Aug. 3, 2012: Left to right Derek Kavanaugh, Thomas Gerbryszak, Andrew Sabai, Paul Gettelman, Chuck Fitzgibbon. Photo courtesy Mark Sesing.



Site 2b - Aug 3, 2012: Mick Masters hard at work. Photo courtesy Mark Sesing



Site 2a - July 17, 2012



North shore of East Basin sites 2a, center, and 2b, left, September 10, 2012. Site 2b, planted later in the season and not as far into the lake, is less visible. Photo courtesy Paul Gettelman.



Site 1 - hard and softstem bulrushes August 22, 2012.