Woodland Dunes Nature Center and Preserve, Inc.

Report for Rapid Response Aquatic Invasive Species Grant, 2007-2010

Introduction

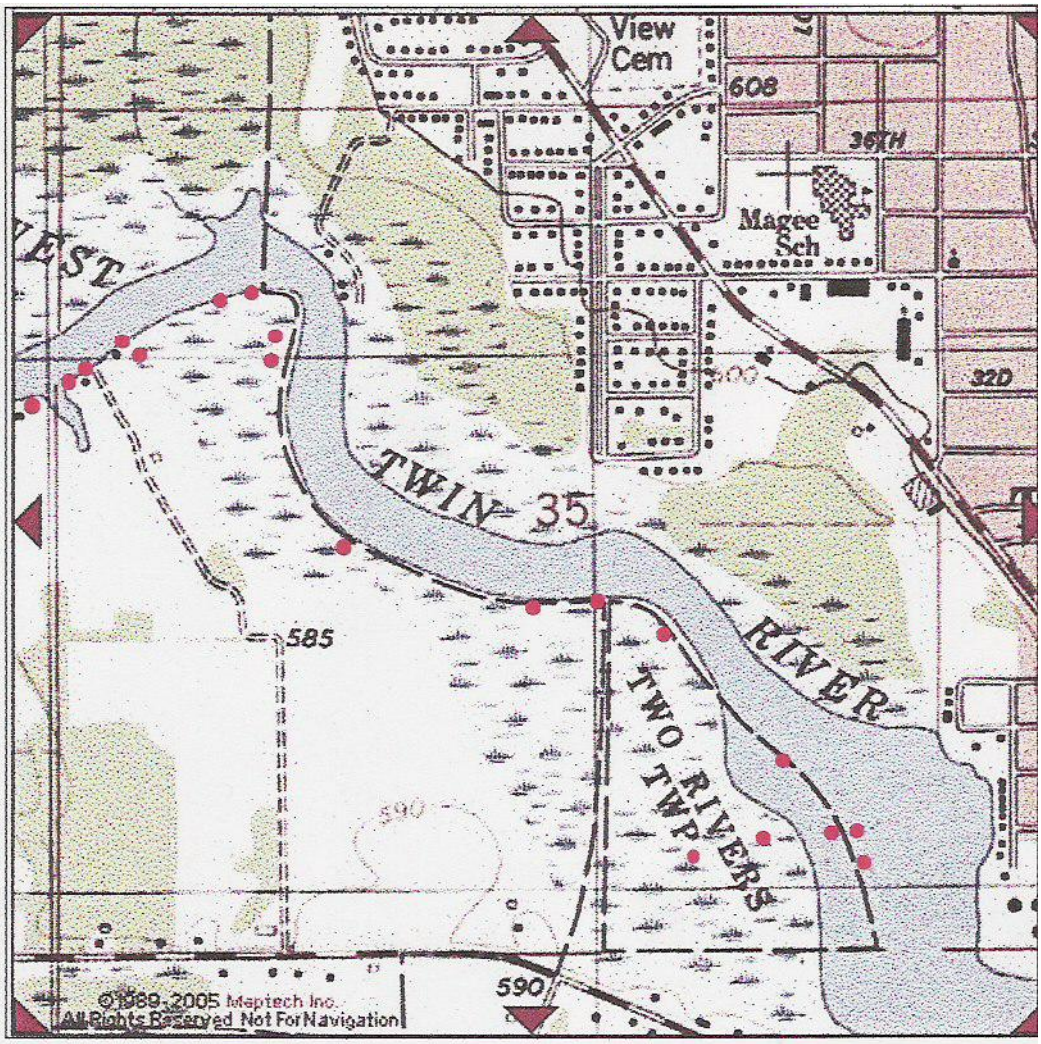
In late 2006 Woodland Dunes purchased a parcel of land comprised of about 30 acres of cattail marsh adjacent to marsh already owned and protected within the preserve. On that property a moderately sized colony of *Pragmites australis* was noted, and subsequently our staff began to become aware of other, scattered small colonies elsewhere in the marsh along the West Twin River. Additional colonies were noted across the river at various points on property not owned by Woodland Dunes. In 2007 Woodland Dunes applied for and received approval for a Rapid Response AIS (Aquatic Invasive Species) grant from DNR to attempt to control the colonies within the preserve. This report describes our activities over the last four years regarding that project.

Interior of *Phragmites* colony at Woodland Dunes

Methods

In winter of 2007, the marsh was surveyed on foot for *Phragmites* (see fig. 1). Stalks with seed heads from the previous fall were visible, and their location was plotted using a GPS receiver.

location	latitude	longitude	colony size/comments
1a	44.15515N	87.38492W	1/2 acre, 8 small colonies
1b	44.15516	87.5846	add'l readings along N edge
1c	44.15538	87.58422	"
1d	44.15538	87.58427	"
1e	44.15526	87.58337	"
2a	44.15562	87.58374	1 acre- plotted along N edge
2b	44.15567	87.58362	
2c	44.15584	87.58319	
2d	44.15536	87.58216	
3	44.15543	87.58137	20 ft. dia. Colony
4	44.15565	87.5814	small colony
5a	44.15567	87.5816	1/2 acre, east edge. Extends 10-50 yards ir
5b	44.15638	87.58274	west edge
6a	44.15656	87.58305	narrow, scattered plants along shore
6b	44.15638	87.58274	west edge
7	44.15917	87.58622	small, 5' x 20'
8a	44.1593	87.58603	east edge
8b	44.15928	87.58617	west edge
9	44.15943	87.58759	1 plant
10	44.15943	87.58869	6' dia. Colony
11	44.16004	87.59227	1 plant
12a	44.16299	87.59513	south edge
12b	44.16336	87.59508	north edge
13a	44.16369	87.59488	1/2 acre, south edge, extends 30 yd inland
13b	44.1646	87.59468	north edge
14	44.16476	87.59532	1 plant
15	44.1647	87.59578	6' dia. Colony
16	44.16262	87.6005	2 plants?
17	44.16565	87.5946	6 plants
18	44.16366	878.5979	
19	44.16386	87.59844	3-4 plants
20			30 feet west of 19, 20 feet inland
20	44.16335	87.59995	
21	44.16335	87.59996	scattered plants to 22
22	44.1631	87.60022	



Phragmites at Woodland Dunes Nature Center & Preserve
mapped 9 March 2007
Jim Knickelbine

scale 1:24,000
● = phragmites colony

In spring and summer of 2007 workshops were attended in Green Bay (UW-Green Bay) and Sturgeon Bay (Door County Invasive Species Team) regarding *Phragmites* control, and materials obtained to prepare for the pesticide applicator certification exam. Upon completion of the exam, a permit was applied for and obtained from DNR to apply herbicide in our marsh. Hand spray equipment and an appropriate herbicide (AquaNeat- glyphosate) was purchased.

On August 31, 2007 the first colonies of *Phragmites* were treated using the bundle/cut/treat method. In these small colonies, several stems of the plants were gathered and bundled with

twine, the stems cut, and the cut ends treated with a solution containing 25% or greater AquaNeat (glyphosate), an herbicide approved for wetland use. Other, denser colonies were treated with 1.5% AquaNeat solution applied as a foliar spray. The solution was applied to the upper parts of the plants so as to reduce impact on sedges and cattails which were sometimes present as understory plants, although in very thick stands nothing but *Phragmites* was observed. Foliar spraying was done by walking backwards through a colony into the wind, spraying several feet on each side of the path created. I then walked back to the downwind side and started a new path a few feet from the previous one and repeated the process until the colony was treated entirely. Both kinds of treatments were done after seed heads had formed, in August, September, and sometimes October.

Methods, cont'd.

Treatment sites were re-checked the following year- there were almost always scattered plants still growing on the sites after initial treatments. In some cases two treatments were sufficient to remove all plants (small colonies), but in the case of the largest colonies treatment has continued throughout the period. When sites were treated, signs were posted as required as a condition of the treatment permit.

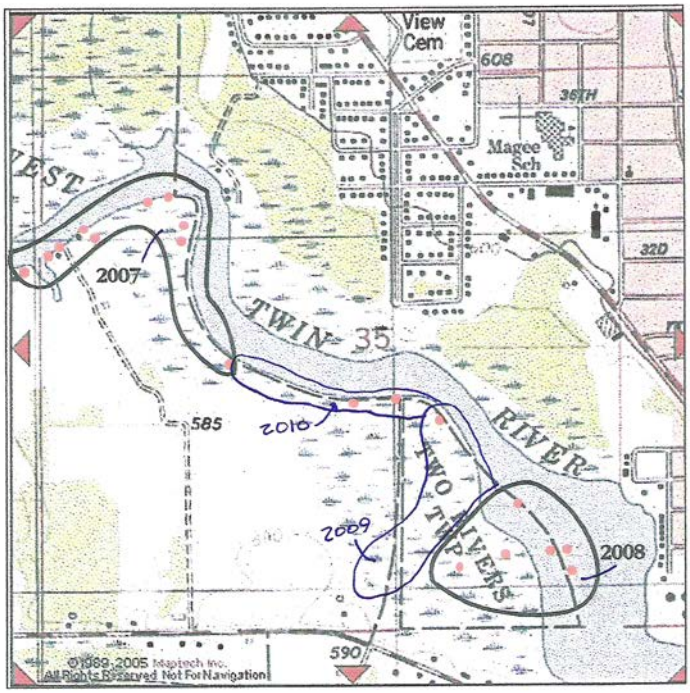
Treatment Equipment

Trail through *Phragmites colony*

Results

Overall, treatments have reduced the area covered by *Phragmites* to a large degree. Nearly all of the colonies identified in 2007, totaling nearly 3 acres, have been treated at least once, and some of those areas have had little or no re-growth of *Phragmites.* It appears that about ½ acre, or about 20% of the original coverage of *Phragmites*, remains at this point, a reduction of

about 80%. Aerial photos taken in 2008 and viewed on Google Earth show the results of treatment in 2007 on two large colonies in the marsh. It is difficult to make an estimate of area treated or the extent of *Phragmites* reduction, as conditions in the marsh are not conducive to making accurate land measurements. Also complicating matters is the rate of expansion of the *Phragmites* colonies from year to year, which is happening while we treat. Fortunately, we have noted that in many cases the non-target native species are still present on site. At the same time we have identified and treated additional small colonies of *Phragmites.*each year. In addition, we have contacted several neighbors and have helped them treat *Phragmites* on their properties, colonies which were not located in wetlands. Unfortunately, we are also watching as colonies across the river from our property continue to expand and will certainly serve as additional seed sources for future colonies in our preserve. The largest colony in our marsh continues to be a challenge- we have reduced its size but after three treatments it is still present, now about ½ acre in size. Several new colonies have also been identified since the project began, as is expected with the growing seed source on the shorelines around the preserve itself.



Phragmites at Woodland Dunes Nature Center & Preserve
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scale 1:24,000
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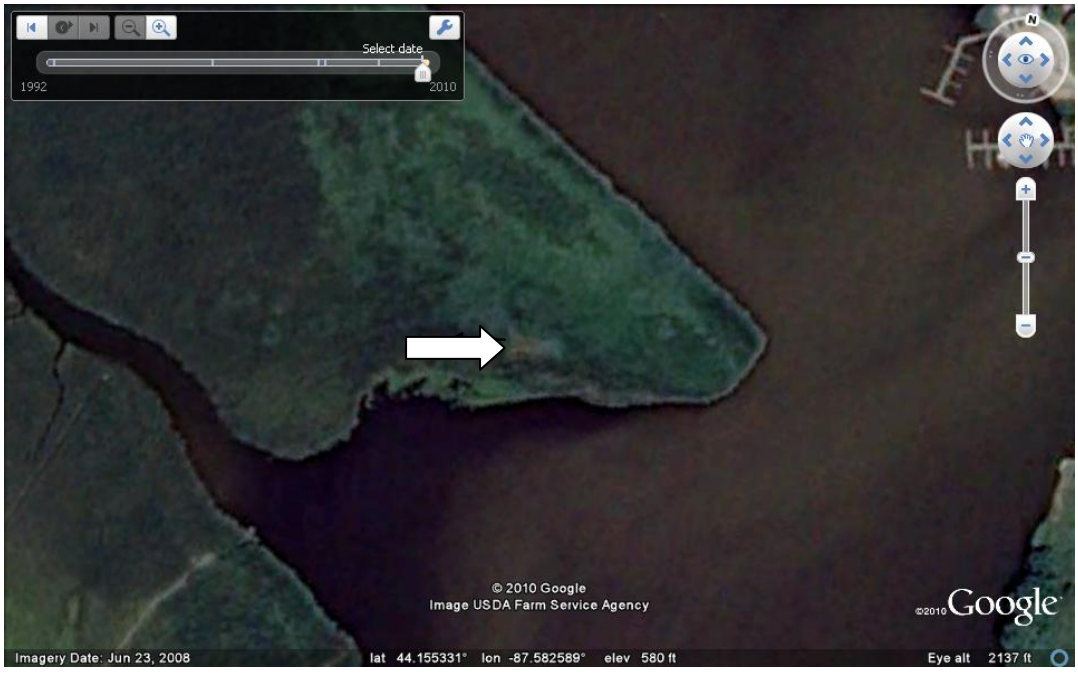
Map showing treatment areas by year

It appears that the bundle-cut-treat method may have been more effective in our case than foliar spray, but we didn't attempt to carefully study a comparison of the methods so that observation is subjective. For large, dense stands, foliar application was the only practical method at the time.

Aerial taken the summer of 2008- areas indicated were treated fall 2007



Taken June 2008, area indicated was treated fall 2007

Discussion

Factors Limiting Efficacy of Control- We realize that complete eradication of *Phragmites* from the marsh at Woodland Dunes is unlikely, and our goal is to manage that invasive to insure that it does not become the dominant emergent plant, preserving diversity of the ecological community. To that end we have been successful, and we will continue to work to manage *Phragmites* each year. That the DNR has been approved for funding for *Phragmites* control through the Great Lakes Recovery Initiative is encouraging, and we are optimistic that treatments planned under that program will enhance our efforts to forestall the progress of this invasive. The impact of *Phragmites* should probably be viewed in combination with that of reed-canary grass, which has not been addressed in our marsh but which is present in some areas affected by *Phragmites*. If the water level of Lake Michigan, which dictates water depth in the lower West Twin River, continues to fall conditions favoring both Phragmites and reed-canary grass will increase in the marsh. Against the two species combined, natives will be harder pressed to compete without our intervention.

The reduction in coverage of *Phragmites* is encouraging, but the persistence of the colonies is impressive. It is unfortunate that the temporal window for *Phragmites* treatment is relatively narrow and also falls during one of the busiest times of year for our organization, making it a challenge to dedicate sufficient time to the effort amidst the many school field trips and events that occur here each late summer and fall.

As pesticide applicator certification is required for treatment of wetland areas, the role for volunteers is limited, as they are not often willing to pursue certification. This limits the numbers of personnel who may actually treat *Phragmites* to few professional staff (one in our case) or hired contractors, which slows treatment and increases cost.

The use of other herbicides with better residual control, such as imazapyr, will be considered in the future to reduce the need for follow-up work. However, we realize that due to the large seed source outside but near the preserve, follow-up work will always be needed.

We purchased boot brushes to be installed at the beginning of trails adjacent to wetlands, and will install them in spring 2011.

We would like to thank the Wisconsin Department of Natural Resources for funding this AIS Rapid Response Grant project. The funding for initial training, equipment, and supplies helped us stem the advance of *Phragmites* into our marsh. Although we have not yet been able to treat all areas as of this time, we were still able to complete a first treatment of the majority of affected areas within the marsh and along the river, something that we would not have been able to do otherwise. We have gained considerable ground toward managing this invasive, and

are optimistic that with the forthcoming help from DNR we can continue to prevent its dominance of our wetlands.

Jim Knickelbine, Executive Director