

Phragmites workshop  
Feb 20, 2008  
9:00 a.m. to 4:00 p.m.  
Phoenix Rooms, UW-Green Bay Student Union

**Welcome:**

Introduction of coordinators of the workshop and layout of the day. Kendra Axness (Basin Educator – UW Extension)

**Case Studies:**

**1. Phragmites Control on Door County State Natural Area's – Mark Martin, WDNR**  
(Power point)

WDNR Bureau of Endangered Resources (BER) natural areas work in Door County. Focus on Door County based on the large number of rare species that Phragmites can impact. Bailey's Harbor is the main focus.

Control work being done in four habitats:

swale – bundle and cut,

bedrock beach – aerial spraying,

lake bed - spraying

river (difficult to control and work with due to changing conditions) – least amount of work been done on this habitat.

The control techniques differed based on habitat type. Lower water levels have increased the spread of phragmites along the shoreline.

Ridges Sanctuary - Work on the Native phragmites was started due to increase in spread of native variety since 1960's. Observations show that native phragmites is spreading and affecting endangered species. Work also focused on controlling the non-native variety as it spread. Majority of the treatment was done by the cut and bundle treatment. The bundling was done by volunteers and herbicide applied by DNR crews. Used all three types of herbicide, Rodeo and Habitat but currently using Clear cast. Clear cast is a new herbicide being developed for aquatic work. First year treatment bundled 2000 stems, following year 30 stems were needed to be treated. Large number of volunteers were needed to bundle the stems. Follow up treatment is required after first major treatment. If not retreated can re-infest the area and spread rapidly. Herbicide damage seen the second year to native vegetation but can rebound with lack of Phragmites.

Issue: Aphids were thick on the canes and volunteers' hands turned green. Wasps were attracted to the aphids and stinging caused an allergic reaction in a volunteer.

Moonlight Bay - Shoreline habitat work due to spread of phragmites in exposed lake bed. Seeds washed in along shoreline increasing the spread of phragmites. Used backpack sprayers to treat 1<sup>st</sup> and 2<sup>nd</sup> year clones which is more manageable than cut and bundle. 3<sup>rd</sup> year the clone will be thicker and more difficult to treat.

North Bay – two clones on sedge meadow that increased when water went down, mixed native/nonnative clones with nonnative closer to water's edge. Spraying both clones. When water levels rise, Phragmites may be drowned.

Mud Bay – 20 acres \$175/ acre. Arial spraying below the high water mark, solid Phragmites clones, 2006 spray, \$100 for the helicopter and \$75 for the herbicide, covered native species with bags to protect them. Worked very well. Mowed the area in winter time after spraying to allow sunlight to reach the ground. Left some areas un-mowed, no native phragmites came back. In areas with deep duff cover, sunlight did not reach the soil and plant regrowth was limited (both native species and phragmites regrowth). In thinner duff areas there was good re-growth of native species but need two more years of survey data to completely understand the dynamics. Hired contractor to spot treatment missed areas and single stems.

In 2007, created GPS wave points for phragmites points in State Natural Areas within Door County.

Partners – used large number of volunteers to assist with bundling, received funding from DOA, NRF, USFWS

Questions from the audience:

- Are you controlling native phragmites as well as the invasive variety? – Yes, we were concerned that the native variety was spreading and taking over the ridge swale complex, so we started controlling it.
- What is the optimal timing for cut stem treatment of phragmites? – late summer to early September (we focused our treatment work after Labor Day). For the bundle and cut method, the phragmites need to be tall enough to be bundled by volunteers at a comfortable height – usually around waist height. Other types of spraying can be done in June prior to it the phragmites growing taller.
- What is the average rate you paid per hour for spot treatment by a contractor? We utilized around 30 hours of spot treatment by contractors, and depending on contractor (and travel costs) the average costs was \$40 per hour.
- How short do you cut the bundles using the bundle/cut method? We use a comfortable height for the person bundling and cutting or usually around waist high. The tops are laid down on the grown. We are not concerned about removing the seeds from the area.

**2) West Shore Green Bay Phragmites Control – John Huff, WDNR**

Work done in Peshtigo harbor (6000 acres), Oconto marsh (coastal river mouth – within dike system), Pensaukee and Pecor point along with spot work along the shore from Green Bay north.

Used old Arial photos to compare how quickly the phragmites has made an impact on the system in a short period of time.

Phragmites:

Native - Filling niche that currently is not filled, shade out other natives, does have impact on the newly exposed shoreline

Non-Native - Perennial grass that grows high, establishes quickly and hard to get rid of.

Pensaukee Wildlife Area: John worked to document water flow from the marsh to the bay through streams and ditches. Fish from the bay use these channels as spawning areas. Aerial images illustrate the current low water levels and the increase in exposed lake bed. Phragmites has changed how the water flows. Water flows through phragmites not as a stream but as a shallow sheet flow. This may change the impact of the phragmites on fish and species reproduction.

Slides illustrated the differences between Native Vs Non-native phragmites.

Mechanical control means used:

Mowing – hand cutting included in this definition

Flooding

Fire

Spraying – Began various spraying techniques work in 2005. Standing dead vegetation can shade out native vegetation. After spraying, crews used mechanical means to remove the standing dead stems. Mowing is done in the winter with dead or dormant stalks. Mowing removes standing dead stems to all workers to get at new growth to best use further herbicide treatments. Mowing frozen ground works best without snow. The winter of 2007-2008 has proved difficult due to early and frequent snow fall.

The public is trying to mow in summer time but many are not receiving the proper permits for this work.

Fire – Longtail Point Site

Challenges with burning:

- puts out tons of smoke
- difficult fuel to burn in due to height of grass/fuel
- you must deal with wet areas in getting fire control equipment near fire
- difficulty with onshore wind in Green Bay, leads to issues with hospitals and such on-shore care facilities

Herbicides:

- Glyphosate – rodeo, roundup
- Imazapyr – habitat (most work has been done using this)

Arial spraying with large areas:

- Economic for large areas
- helicopter pilots are concerned about having a landing place near the spraying location
- part of the cost is staging area and spray area, and the distance between
- Follow up done with back pack spraying

Photos illustrate the lower lake level and increase in exposed lake bed.

**Seagull Bar**: location was chosen due to State Natural Area, federal species nesting, heavy public use, and co-ownership by DNR and Marinette City. Spraying was done on DNR land. Wildfires started on point in DNR land. Piping plovers (an endangered species) have nested on this point. 2001 comparison with 2006 photos increase of phragmites with disappearing plover feeding habitat.

**Oconto Marsh** – enclosed dike system, with pump water system. Phragmites is growing along the dike system. Scattered clones on center and clones stop at deep water. Flooding was considered to manage phragmites in this area, but since water levels are so low the adjacent ditch is pumped dry in only 2 to 3 hours. There is not enough water available to flood the dike system.

Questions: (no time for questions)

### **3) Results of a large scale helicopter herbicide application – Gary Van Vreede, US FWS**

Project funding from grant. Project area is coastal wetland areas in Green Bay that have become exposed lake bed and now vegetation is thick clones of phragmites. Phragmites is now 8-12 ft tall in wet areas and is difficult to control. They have attempted mowing in mid summer in order to control phragmites height, but it is difficult to get equipment into areas and very time consuming. They settled on using helicopter herbicide application.

They treated 160 acres using aerial spraying:

- \$120/acre
- limited range due to gas tank of the helicopter
- Helicopter was guided by GPS, but FWS allowed the pilot to choose some sites
- Took 3-4 days to spray
- helicopter traveled 60 mph when spraying
- very surprisingly accurate
- Produces grids of spray routes after spraying
- 50 ft wide boom
- Accurate next to trees within a 5-10 feet distance
- Removing dead standing canes after the spraying was difficult. Burning, mowing, and other methods tried. Fire was conducted the following spring. On a windy day, fire debris was carried over 10 miles.

Study of results:

Established 10 plots. 1 meter grid, counted living stems of all vegetation.

- Before application – solid dense stand of phragmites, with little native vegetation growing.
- One year after application, standing phragmites canes but dead, notice that not much was growing, some jewel weed, cat tails, thistles, purple loosestrife, mowed areas looked different – not as dense but several plants in the plots, limited native plant re-growth, phragmites did come back. Burned – more diversity but still had phragmites
- 2 years after treatment
  - Un-mowed unburned – small increase in plant growth but purple loosestrife and phragmites return
  - Burned – huge increase in phragmites, some return of native species
  - Mowed - huge increase in phragmites but stunted (sandy soil)

Recommendations:

- Strongly recommend follow up treatment
- don't treat large areas without a follow up
- must be able to reasonably control the re growth
- burning, mowing or some method of cutting standing stems is a must

Observation:

Canada blue joint can possibly compete with phragmites.

What will work? Working on different application methods. Midsummer mowing with fall spraying, wick applicators on tall plants with understory of native vegetation.

**Questions from the audience:**

- Re-growth? Where is it coming from? Some regrowth is attached to existing rhizomes.
- You applied herbicide in September and mow/burned in spring. If you had left the phragmites standing, would the herbicide help kill the remaining plant? What if the standing vegetation was left for 1 full year then do burning or mowing. Then following year do another treatment. Answer: More research is needed. It may be better to leave standing dead instead of mowing or burning after. The shading effect caused the re-growth to be slower, but it will come back.
- Are phragmites seeds stimulated by fire? Unknown
- Did you attempt to reseed areas with native vegetation? No reseeding effort was done, and they are not sure if trying to reseed would be helpful until phragmites was eliminated.

**4) Control and Management of phragmites on the Oneida reservation – Betsy Galbraith, Oneida Nation**

Background on reservation

Effect of invasive species on reservation

Land connection, living off the land,

Traditional crafts provide resources

Medicinal plants

Mapping Invasive Species on Reservation – AmeriCorps person, roadside survey, with population ranges

Phragmites Introduction due to seed, landscape plantings, and erosion control by paper company

Project Site: “Where the Water Birds Nest”

Treatment: cut and treated, bundle, cut and treat both with rodeo (this treatment was not overly effective due to herbicide mixture)

Cut and treated – limited success due to limited staff

Project Site: “Edge of the Woods”

Wetland creation project, phragmites covered site almost completely (23 acres)

Treatment:

2006 – aerial spraying with habitat

2007 – no treatment

2008 – want to mow area but hope to get out in spring to remove standing dead phragmites.

With follow up spray treatment. Will leave small segment unmowed as contrast.

Basic end result goal – reforestation but no trees will be planted until phragmites is under control

Sample pre and post treatment:

- herbaceous layer - Cover decreased in 2007, richness decreased and diversity increased
- Stem density – average number of stems per plot, 25 in 2006, less than 5 in 2007

Future control effort:

- Herbicide with Imazapyr, mowing/hedging, limited fire availability
- Limited funding sources
- Continue mapping entire land base
- Produce more data
- Ranking sites for control effort
- Achieve zero tolerance on specific sites

What works?

Multiyear effort, use variety of techniques, attack early, combine efforts, choose sites based on knowledge, use and feasibility. Uses Michigan approach strategies.

Questions from the audience:

- Does the reservation host native populations of phragmites? No, native phragmites has not been found on the land
- How did phragmites get into the Edge of the Woods site? We are not sure on the vector for this site. There is a pond above site with stream with grass, and it is also along a well traveled road.

## **5) The Partnership Effort** – Dick Campbell, private company working to control phragmites

How do you start a business to control phragmites? Key work is done through partnerships.

Became aware of invasive species through realty connection. Attended Door County Invasive Species Team (DCIST) meetings to learn more and saw need for private company to control phragmites. Worked with DNR to obtain permitting and knowledge. Learned different methods to control phragmites. Learned permitting process and laws regarding areas control work is done. Worked with herbicide companies to obtain the best products and techniques.

Power spraying equipment – main use to treat phragmites. Compact, powerful equipment with storage tank attached to spray applicator and uses high pressure spraying with 300 ft hose to reach shoreline areas without driving on exposed lake beads, 50-70ft spray, contained on small trailer that can be pulled by an ATV, both units can be transported on larger trailer to site. Cost per site has decreased by 75% in dense areas.

DCIST got a grant from BASF company to control phragmites on private property. The grant was administered through Door County Soil and Water Conservation District (SWCD) and for a

small fee private property owners were able to apply for 1 pint of herbicide. The grant paid for the application, the property owner paid for the herbicide. The program was on a first come first service basis and land owners signed up at the SWCD office. Over 120 land owners signed up with 50 landowners contacted and control work done. In some cases the land owners did not receive treatment due to no phragmites on their property, phragmites already treated, or the phragmites not able to be treated. If the site required more than the one pint the land owner had the option to hire the contractor to treat the rest of the site based on a set dollar per acre figure.

To treat large clones, they use a large ladder to reach center and spray in a circle. They have not tested this type of treatment.

Questions from the audience:

- What type of nozzle does your high power equipment use? There are a variety of nozzle types available depending on the individual circumstances of the area.
- How much was your initial equipment cost? \$3000 base equipment needs
- In your Power sprayer tank – is the water mixed with the chemical? Yes, we have a 55 gallon tank with constant agitation. We use two herbicides: habitat and clear cast.
- Target? Established clones, have 12 ft boom to be used in low areas
- Timing of control? August through October

## Lunch

### **6) Evaluation and monitoring of phragmites measures on the west shore of Green Bay – Devany Martin with Ursula Peterson, UW Green Bay**

Concern about use of habitat near endangered species. Got grants to research the use of herbicide

Study to look at four different types of treatment.

No treatment, herbicide only, herbicide and mow, herbicide and burn.

Plot size – five 100meter x meter plots

Four sites (only three treatment types were done at Ridges since they were not able to burn there)

There were issues with burn areas getting out of site areas. Some burns became wildfires.

Survey included 63 plots

Within each plot survey methods included species richness, % cover, litter depth, and phragmites heights (random plants).

Results:

89% of the treatment plots still contained phragmites after the initial treatment

best treatment to control phragmites – all three methods were effective in controlling phragmites. Not significant difference between control methods

Species richness differences? Spray/mow exhibited the highest species richness with spray/burn and spray about equal.

Longtail was higher in species richness. Treated in 2005 and 2006. This was likely due to the increased time between the treatment and the plot examination.

Type of plant species after treatment – total 146 plant species documented, 117 native, 16 introduced, 13 invasive

Overall number of plant species –

What will return after treatment? Control plots have fairly high species richness, abundance and cover. Other species (not phragmites) was low in control plots. Treated plots had higher abundance of cover of native species.

Follow up on sites – one year project no plans to revisit these sites

Herbicide used – habitat 7

Different ages of phragmites stand – will be dealt with in end results

All sites were Aerial sprayed, Timing of burn – will affect the regrowth, No data on pre-treatment vegetation knowledge, Native vegetation is present in stand but for how long?

### **Laws overview:** Kristy Rogers, DNR

Current laws were not designed for controlling phragmites on lake bed. Large number of control techniques involve driving on the lake bed. With the decrease of lake levels, large areas of lake beds become exposed.

Anyone who wants to use a vehicle on lake bed must get a permit. DNR staff must do this also.

Any one applying chemical in a wet area must get a permit. Need to use aquatic use herbicide if in this area. “the label is the law”

If hired by someone to control phragmites, you must have a certified aquatic herbicide application license.

Workers in these shoreline area needs to be concerned about when to work, how to work, what to do, and what we can do. Following regulation is important.

Two handouts – Beach Maintenance Activities & Phragmites

Neighboring land owners can work together to get a permit to control invasive species. DNR encourages landowners to work together.

You need a permit if applying herbicide in a wet area.

### **Invasive Species Regulations – Kelly Kearns, DNR**

Invasive Species council is working to categorize invasive species. Draft rule and draft list of species was open to public comment. Going to Natural Resource Board to get approval of rule and list.

Classification into categories: Prohibited, Restricted, split listed (species that are in certain counties but not others) these get classified differently in different county, Caution, Non-restricted (last two not on list)

At the present time, the prohibition on the movement of water from one water body to another includes things that live in water. DNR is working on best management practices for all invasives (plants and water).

On DNR invasive website, comments and questions can be directed to Kelly.

Noxious weed law is weakened but not gone. DNR has no control over law. County's have control over species on the list and can enforce stronger laws. No state agencies have control over the noxious weed law.

### **BASF Corporation – Dan Barren**

Aquatic invasive Herbicide concentrations: 32 oz per acre – mentioned in early presentation  
48 and 64 oz per acre historically control treatment

Need to factor in northern climate, residual effect, longer native rebound time

Clear Cast – new herbicide in development, well suited for aquatic use, hoping to hear in spring 2008. Wisconsin has assisted with testing sites. Activity on submerged weeds and surface weeds. Less broad spectrum and shorter soil half life. Can go over top of hardwoods with little effect. Use rates 32 – 64 oz, Hope to have product available by fall to customers.

Herbicide is affected by weather, habitat, temperature, species types, species age, density, Surfactants – never skimp on them, MSO is recommended.

Hardwater – habitat is not affected by hardwater, glysophas does have issues with hard water, talk with agricultural agent.

Cost of clear cast - \$175 per gallon with use rates at 2 quart per acre.

Note – price movement on glysophas prices increasing

### **Afternoon Group Discussion::**

**Question: What projects will you be working on next year, and what are the opportunities for collaboration?**

Doug Shultz BC enterprise – comment: people don't have a clue about invasive species and phragmites. Not sure of how to get the word out.

Jim Welnetz woodland dunes - Create media releases to educate about invasive species.

Art Kitchen, US Fish and Wildlife – notice phragmites on roadside ditches, address issue with spreading by highway department. Need to work with highway department and DOT

Tom Kobus DOT – funding issues with maintaining roadways, willing to work with permitting projects

Kelly Kearns – working on standards for management techniques for roadside maintenance.

Greg Cleereman –Marinette Co - Question on issue with phragmites and if other states have done work and can that information be shared – slower moving inland areas away from water. East cost issue

Cornell university study on biological control of phragmites – 26 species found that feed on phragmites, 24 of these are not native, doing work on research on control species

Tom Ward – work with towns on noxious weed laws, spread by road equipment, working with towns, and are flexible with changes vs. state or county. Sanitary concern of cleaning equipment after working in affected area.

Professor in Madison (Dave Barts) did work on phragmites by mowing.

Andy Hinickle DNR – contacted refuge in east coast to develop management work based on their work, used spray burn, spray mow, spray and sit

Bob Bultman DCIST – techniques and strategies, map and monitor area and plan the attack, Control outlying areas of phragmites first and work toward the dense central concentrated areas

Bob Howe – focus can't be on eradicating phragmites but investment directed on areas that need to be protected from Phragmites, rare species, breeding birds, should be the control areas.

Darcy Kind – BER – question – are we working with hunting groups, duck hunting groups that get to the sites not monitored and also as a partner for control?

Dan Olson –Ducks Unlimited – many use phragmites as duck blinds, volunteers can help with the control efforts

Wisconsin Wetland Association – statewide strategy and mapping population, interested but needed funding to begin.

Grants program – AIS funding increased

Greg Sevener – AIS grants: increase funding rate will increase for submergent and surface and increasing cap rate.

Horicon marsh – duck hunters are strong support of controlling phragmites,

John Huff - Wisconsin Wildfowlers has been funding work on the west shore Green Bay

Public meeting in Pestigo – two meetings, talk about issue surround phragmites on private land on lake beds, - interfering with use of property, decreasing home values, looking for ways to

control – mowing, working on general permit to do this but working under permitting processes and thought process was long term and difficult. Speakers at meeting about permitting, control techniques, etc. 175-225 attended meeting of people who were upset about Phragmites. Many people want to use mower on shoreline to create an open beach type situation rather than supporting the native wetland community.

Second meeting – discuss what options from first meeting (not organized by the DNR) didn't have anyone from the department at the meeting. Pursuing legislation that would provide the ability to mow directly on the lakeshore.

Sponsor - Representative Nygren has introduced into both houses,

Shirley Griffin TNC – shoreline with phragmites, treated phragmites with little effect and got spray treatment, contacting neighbors was a mixed bag, mowing will continue until fined, see large amount of funds and difficult permitting process.

Carrie Webb – important to share the need to get rid of the phragmites and process is difficult but not impossible.

Brenda Nordin – AIS Education, Control, and implementation – two year grants (input website link) are available to lake associations, NPO, tribes and local governments,

General information available on the web about AIS

### **What are the needs related to this issues (research, management, monitoring and outreach/education?)**

Chris Anderson – Ducks Unlimited – offer support through volunteers and funding, need to know the need before helping

Aaron McCullough – question on funding sources:

Sea Grant

Working out arrangement with private land owners cooperative units

Tourism units

National Fish and Wildlife Foundation

US Fish and Wildlife Coastal program

Wisconsin Coastal Program

AIS

Local foundations

Besadney Grant – Natural Resource Foundation

Local corporations

Mark Martin – collaboration with partners to share the cost of helicopter fee, work together to use the copter to control invasives

Need for coordination – Suggestions? Wisconsin Wetland Association would like to be the coordinator for invasive work and research and mapping

Christina Painter – DNR- sees the need to create more large plot control vs. spot treatment, reach landowners and work within segments on shoreline instead of random spot treatment method.

Carolyn Rock – DCIST has worked on spreading the word in the media but the best work has been done on a person to person level within small landowner groups or organizations. Difficult due to finding the funding to pay for the person to make those contacts.

Bob Bultman – DCIST – Move from grant funding to county or state funding for positions, CWMP

Phragmites brochure – Great resource – need more

Wild Cards – limited quantity

Michigan Phragmites book – on line able to print off

Mark Renz – University – research needs, gap in restoration and integration, Grant requested by MWIPN to try gather research information and also from resource manager experience, field guide for 50 plants Nature Area coming out summer,

Kelly Kearns – Research needs – biological control for invasive plants, need to know native vs. nonnative issues and concern about hybridization. Spreading due to ?, Concern about eastern states putting native on endangered list,

Gary Fewless – UWGB – “if it is acting badly, kill it” error on the side of caution.

Bob Bultman – where is native phragmites?

Sadie O’dell - native vs. nonnative, look at how the native is acting, needs quick response time and struggle with control of a plant that acts aggressive.

Is there new information available on phragmites?

Gary Fewless – small number of samples of the native species, concerned about creating the strong basis for knowing what is native and non native without action, living in the new world, phragmites is here to stay, continue monitoring and control is required, need organization instead of research, shoreline water level is cyclic, improve grant application to obtain funding,

Matt Sunseri – outreach efforts supported by private landowners, education about pesticide is also needed with all the increase of use of herbicide, toll free number to call about pesticides is a resource for the public and agency folks to call 800-858-7378. website resources and Matt is also a resource, in change of special use permitting and herbicide work (put contact information in) General question about process about registration

Bob Howe – UWGB - priorities need to be identified for research in areas where the issues are noticed or the public has a concern.

Bob Bultman – DCIST – one method that has worked with training others to learn control techniques is creating control workdays in which specific species control techniques are illustrated and then participants are able to practice what they learned.