

Upper Peninsula

Resource Conservation
and Development Council

Working to De-Phrag the UP!

July 28, 2014

Dear Delta County Landowner,

I am contacting you to inform you about an opportunity for you to take part in a UP-wide project to control the non-native invasive plant *Phragmites australis*. Dense stands of non-native phragmites have infested the Lake Michigan shoreline in Delta County in many places, replacing the native vegetation that native insects and animals depend on for food and habitat. These dense stands of phragmites are also restricting access to the beach and recreational opportunities for landowners and the general public and potentially decreasing property values. The Upper Peninsula Resource Conservation and Development Council has been awarded a competitive grant from the National Fish and Wildlife Foundation's *Sustain Our Great Lakes Program* for our project entitled "Invasive Phragmites Control in Michigan's Upper Peninsula". You are receiving this letter because **your property in Ford River Township is located in an area that we have targeted for treatment with grant funds. These treatments would be conducted at no cost to you the landowner by certified pesticide applicators who are insured and licensed to do business in the state of Michigan.** One of our project partners, the Delta Conservation District, has applied for a Certificate of Coverage under the DEQ Aquatic Nuisance Control General Permit which is required when treatments are conducted below the high water mark of Lake Michigan or in any areas where standing water is present at the time of treatment. **These treatments can only be conducted under this DEQ Certificate of Coverage if landowner permission is obtained.** The treatment consists of spraying the leaves of the non-native phragmites plants with a 2% solution of an aquatic formulation of glyphosate sometime between August 28 and September 30, 2014 (no treatments will be conducted during the Labor Day weekend from Friday, August 29 through Monday, September 1). This is the optimal time for treatment as the plant is flowering and trans-locating nutrients down into the extensive underground rhizome system. Treatments must be conducted prior to the first killing frost to be most effective.

If you are interested in having the non-native phragmites on your property treated with grant funds, please complete both sides of the enclosed landowner permission form (*please sign the form even if you have previously completed a permission form - be sure to fill in all the blanks or it won't be valid*) and return it to the project office at this address:

UP RC & D Council
129 W Baraga Avenue, Suite F
Marquette, MI 49855

In order to have your non-native phragmites treated with grant funds we must have your permission form in our office by Friday, August 15, 2014.

Important—If you wish to have the non-native phragmites on your property treated with grant funds in late August/early September 2014—**Do Not Mow** the infestations prior to that time. In order for the herbicide treatments to be most effective, the plants need to be vigorous, with flowering tassels so that the chemical can be translocated down into the rhizomes.

More about "Invasive Phragmites Control in Michigan's Upper Peninsula"

Utilizing grant funds, the UP RC&D Council is working with partners to map all the non-native phragmites in the UP and restore or enhance at least 400 acres of priority coastal shoreline and interior wetlands in the UP during 2013 and 2014 by controlling non-native phragmites. These restoration activities will help to minimize a serious threat to native coastal wetlands and improve habitat for vulnerable species. We are attempting to establish long-term control by coordinating control efforts across jurisdictions and land ownerships to maximize benefits and efficiency. Since invasive phragmites appears across the landscape on both private and public lands, a truly collaborative approach is necessary. Coordinating treatment throughout several counties and across jurisdictional

Invasive Phragmites Control in Michigan's Upper Peninsula

boundaries has the potential to significantly reduce treatment costs when compared to the uncoordinated private landowner control efforts that have taken place to date in the Upper Peninsula. Taking control of non-native phragmites in the UP is going to require a long-term commitment on the part of private landowners and public land managers.

A survey of all the non-native phragmites infestations along the Lake Michigan shoreline in both Delta and Menominee counties was completed last year. Almost 600 acres of infestation were mapped along the shoreline in Menominee County and more than 1200 acres were mapped along the Delta County shoreline. Surveys along many of the interior roadways of both counties turned up another 136 sites totaling 13 acres in Menominee County, and 54 sites totaling 12 acres in Delta County. Treating these interior infestations is a high priority as they represent the leading edge of the infestation which is escaping from the Great Lakes coastline. We have also chosen the Ford River Township shoreline in Delta County as a high priority for treatment with grant funds. During September and early October of 2013, more than 150 acres of non-native phragmites infestations were treated in this area, all with grant funds and at no cost to the landowner. The re-sprouts in the areas that were treated last year will be re-treated this year and we hope to secure permission from many more landowners to treat infestations on their property that went untreated last year.

It's possible that this letter will be mailed to a few (lucky) landowners whose property is in the treatment area but does not contain non-native phragmites. If this is the case, we would appreciate you letting us know that. We would also appreciate knowing if you do not want the free treatment for your infestations.

During 2013, with the help of our project partners, we successfully treated 487 acres of non-native phragmites in the UP. Please refer to the enclosed "Project Updates" document for more details on accomplishments to date.

Some of the most comprehensive and up-to-date information about the biology of this plant can be found at the website maintained by the Great Lakes Phragmites Collaborative (www.greatlakesphragmites.net). You will find information about how to distinguish the native phragmites (*Phragmites americanus*) from the non-native sub-species, and information about which control techniques are most effective and which techniques might make the infestation worse. We have also enclosed the first two pages of a 5-page phragmites informational document developed in 2011 by the Great Lakes Commission. The full document can also be obtained on this website.

This is a collaborative project and the UP RC&D Council is relying on assistance from a diverse group of partners to help in the implementation of this project. Many of them were onboard during the development of the grant proposal and have also pledged in-kind match to us. The Nature Conservancy of Michigan, MDNR, Michigan Natural Features Inventory, MDEQ/Office of the Great Lakes, Huron Pines, Wisconsin DNR, Hiawatha National Forest, and several UP conservation districts have each committed staff members to serve as consultants on the project Steering Team. Their expertise and experience being involved with all other large-scale phragmites control projects in the Upper Great Lakes region has been invaluable. They are providing a linkage between our project and other basin-wide strategies to control invasive species. We appreciate their commitment to this project and certainly couldn't do this without them! We are also working with MDOT, all five of the Cooperative Weed Management Areas in the UP, several tribes, other state and federal agencies, and local units of government. Many of these partners provided letters of support for our grant proposal.

If you have questions about our project, please contact us at 906-225-0215, or by email at phragmites@uprcd.org. You can also check out our project website at www.phragmitesintheup.org. Thanks for taking time to learn more about non-native phragmites!

Sincerely,



Darcy Rutkowski, UP Phragmites Project Coordinator

This project is funded by a grant to the Upper Peninsula Resource Conservation and Development Council from the National Fish and Wildlife Foundation and includes funding from the U.S. Fish & Wildlife Service.

Upper Peninsula

Resource Conservation
and Development Council

UP Phragmites Project Update - March 2014

Working to De-Phrag the UP!

The Upper Peninsula Resource Conservation and Development (UP RC&D) Council has completed the first year of our project entitled "Invasive Phragmites Control in Michigan's Upper Peninsula". We worked with partners to map all the native and non-native phragmites (*Phragmites australis subsp. australis*) in the UP, prioritize these infestations for treatment with grant funds, and contract with certified pesticide applicators to conduct herbicide treatments on almost 500 acres of public and private land. This is a brief summary of project accomplishments.

Public Outreach and Education

UP RC&D collaborated with personnel from the Michigan Natural Features Inventory and local county conservation districts to sponsor 8 public workshops in 2013 where 387 residents were educated about the biology of phragmites, the negative impacts of this species, and how they could participate with our project. The workshops were held in Mackinac, Schoolcraft, Delta and Menominee counties.

Mapping of Phragmites in the UP

One goal of this project is to collect accurate information about the location, size and density of non-native phragmites infestations in the Upper Peninsula. The majority of these infestations are located along the Lake Michigan shoreline in Menominee and Delta Counties. During 2013, native and non-native phragmites infestations were mapped along this entire 200 mile shoreline and these data are now part of a regional database where this information is available to the general public and natural resource managers. All phragmites infestation data for the UP can be found at <http://www.misin.msu.edu/>.

Project partners also re-visited infestations that were mapped a few years ago along the Lake Michigan shoreline in Schoolcraft, Mackinac and Chippewa counties, and surveyed sites that were identified as potential phragmites infestations from high resolution aerial photos, and any sites reported by project partners and landowners. These survey and mapping efforts have shown that there are approximately 1,950 acres infested with phragmites in the UP! Phragmites infestations in Delta and Menominee counties alone total 1,852 acres (1,256 acres in Delta and 596 acres in Menominee). Known infestations in the remaining 13 UP counties account for only about 100 more acres and at this time no infestations have been found in Keweenaw and Baraga counties.

Phragmites Treatment in 2013

Unfortunately, our grant funds are not sufficient to treat all the phragmites infestations in the UP, so we had to prioritize the infestations for treatment. Our first priority is to treat the infestations in close proximity to high quality natural communities, rare species, and other highly valued sites. The second priority is to treat isolated, outlying patches which would be considered the leading edge of the infestation. Treating these outliers will prevent further spread to interior wetlands, and adjacent coastal sites. All remaining grant funds were used to conduct treatment on the large, monotypic source infestations along the Lake Michigan shoreline in Menominee and Delta counties. We are also coordinating efforts with the Michigan Department of Transportation to ensure that all infestations in road rights-of-way are being treated.

This project is funded by a grant to the Upper Peninsula Resource Conservation and Development (UP RC&D) Council from the National Fish and Wildlife Foundation and includes funding from the U.S. Fish and Wildlife Service.

487 Acres of Phragmites were treated in 2013

224 acres - Menominee County
174 acres - Delta County
38 acres - Mackinac County
26 acres - Luce County
18 acres - Schoolcraft County
1.5 acres - Marquette County
1.5 acres - Alger County
1.5 acres - Iron County
1.5 acres - Dickinson County
1.0 acres - Chippewa County



Large, dense infestations in Menominee and Delta counties were sprayed from tracked vehicles with boom sprayers. Targeted spraying of re-sprouts in areas treated in previous years was done using hoses mounted on these vehicles or with backpack sprayers.



Backpack spraying and hand-swiping techniques were utilized for smaller, less dense infestations that were growing with native plants or in areas where threatened or endangered species were known to exist. The infestation above is the only one known to exist along the Lake Superior shoreline.

Herbicide treatments on 367 acres were paid for by grant funds. Private landowners paid for treatments on 68 acres in Menominee County and the Michigan DNR funded treatment of 52 acres on state land in Luce and Mackinac Counties. All treatments were done using a 2% solution of the aquatic formulation of glyphosate.

Project partners obtained all necessary DEQ, MDOT, and MDNR permits required to conduct these treatments as well as obtaining signed permission forms from all landowners.

The dead-standing biomass in many of the large, dense stands that were treated with herbicide in 2013 are scheduled to be mowed during the winter/spring of 2014 (dependent on weather conditions). All infestations that were treated with grant funds in 2013 will be re-treated in 2014.

What You Can Do to Help Us De-Phrag the UP

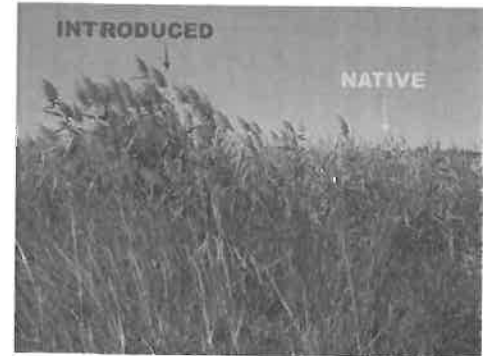
Learn As Much As You Can About the Biology of Phragmites and the Most Effective Control Strategies: Some of the most comprehensive and up-to-date information about the biology of this plant can be found at the website maintained by the Great Lakes Phragmites Collaborative. Visit that website at <http://greatlakesphragmites.net/>. Encourage your constituents, friends and neighbors to educate themselves about non-native Phragmites as well. Thanks for your support of this project!

Contact Us: Darcy Rutkowski, Project Coordinator
Email—phragmites@upred.org Website—www.phragmitesintheup.org

NON-NATIVE PHRAGMITES (*Phragmites australis*)

Problem Overview

Phragmites australis, also known as common reed or phragmites, is an invasive perennial grass that has spread rapidly throughout coastal and interior wetlands, riparian corridors, roadside ditches and other disturbed areas within the Great Lakes basin. There are varieties of phragmites native to the Great Lakes region, but these grow more slowly and less aggressively than the non-native strain, which is thought to have originated in Europe. The European strain was probably transported to the Atlantic Seaboard of the United States through ballast material transported by ships at some point between the late 18th and early 19th centuries. Since introduction, the non-native strain of phragmites has spread pervasively through the Great Lakes region and other regions of the United States by both natural and human-driven dispersal mechanisms.



Phragmites is a warm season grass with hollow, rigid, woody stems and a vigorous root system consisting of horizontal underground stems called rhizomes. This extensive underground root system provides a means of dispersal of the plant, as the rhizomes can continue to support new growth when fragmented. Mature phragmites plants can produce up to 2,000 seeds annually, which are spread by wind and water, providing another significant mechanism for spread. In low water conditions, phragmites can also expand via horizontal above-ground stems, called stolons or "runners." Non-native phragmites does not grow as aggressively in wetlands with established flora; however, tolerance to a range of water qualities and soil conditions such as those at disturbed sites has contributed to the rapid expansion of this invasive plant.

Due to its dense growth both above and below ground, phragmites can create mono-dominant stands 10-15 feet in height that effectively crowd and shade out native wetland and coastal species. As native assemblages are replaced by phragmites, species diversity is reduced and wildlife habitat quality is degraded. Dense phragmites stands can even alter the hydrologic regime of invaded wetlands by increasing evaporation and trapping sediment. Economic impacts of invasive phragmites infestations include reductions in property values and revenue loss from impacted recreational activities due to impeded access to coastal areas and restricted views. There is concern over the aesthetic impacts of phragmites when large stands alter views of lakes and wetlands. Public safety is also an issue, as large stands of phragmites near residential development represent a fire hazard. Considerable research has been conducted on the management of phragmites, but control practices are often expensive, long-term and complicated (see Management section).

Photo: 2008 Fact Sheet: Giant Reed, Plant Conservation Alliance, Alien Plant Working Group. <http://www.nps.gov/plants/ALIEN/fact/phau1.htm>
Revision Date: 1/14/2008

Identification

Non-native phragmites is a perennial grass that returns every year without re-seeding. The plant consists of hollow, tan, ribbed stems that can grow up to one inch in diameter. Phragmites can be recognized by its purple-brown seed head which develops into long feathery panicles (branched clusters of small flowers) by late July. The panicles can grow up to 8 inches in width and 6 to 20 inches in length. Phragmites has alternating leaves that are flat, stiff, and dark gray-green in color. The leaf span is 2 to 2.5 inches in width and 8 to 15 inches in length, tapering into a point at the end. Phragmites is supported by a deep rhizomous root system which can penetrate the soil between 1 to 6 feet and grow horizontally over 60 feet in length. The white to light yellow rootstalks can host up to 60 stems per square foot. In order to differentiate between native and non-native forms of phragmites, one must observe multiple characteristics including the ease of removal of leaf sheaths, density of stems, and stem color, texture, and flexibility, among others. Differentiation between native and non-native phragmites can be difficult; helpful resources are available from the Michigan Natural Features Inventory (<http://web4.msue.msu.edu/mnfi/phragmites/native-or-not.cfm>). In addition, a free diagnostic service is offered by Cornell University (<http://invasiveplants.net/diag/diagnostic.asp>).

Size: Phragmites can grow over 15 feet in height, forming dense stands and root masses.

Native range: Phragmites is found worldwide except for Antarctica and in every U.S. state except Alaska and Hawaii.

Occurrences in the Great Lakes Basin

Peat cores suggest that native phragmites has been present in wetlands in North America for more than 3,000 years. Non-native phragmites likely arrived in the Great Lakes in the late 19th century and is now found in every Great Lakes state as well as the provinces of Ontario and Quebec. The distribution of non-native phragmites in the Great Lakes is largely coastal, with inland infestations common in some states.

Means of Introduction and Spread: Phragmites is believed to have arrived in the United States between the late 18th and early 19th centuries, via peat and sediments in ship ballasts that were discharged into Atlantic coastal marshes. Vegetative spread of phragmites through rhizomes and stolons is a significant means of range expansion, often accelerated by human activities such as construction and transport of dredge materials; the species can also spread naturally through dispersal of seeds by wind, water, and animals. Rhizome fragments and seeds of phragmites can also be dispersed naturally by wave action. Phragmites has been intentionally

introduced to some areas as a filter plant in water treatment lagoons and as a tool to stabilize shorelines in restoration projects. Growth of phragmites is often facilitated by human disturbances, such as increased salinity due to runoff containing road salt, that allow it to out-compete native species.

Status: Non-native phragmites has become established throughout the United States; it is of particular concern in the Great Lakes region where over the last two decades it has rapidly spread through freshwater wetlands and coastal areas.

Distribution Maps: Geographic information on the national distribution of phragmites for individual states on a county level at: <http://plants.usda.gov/java/profile?symbol=PHAU7>. This database is provided by the U.S. Department of Agriculture National Resources Conservation Service.

Management

Due to the hardiness and extensive root system of phragmites, complete eradication is extremely difficult once the plant is established. Furthermore, management and control techniques must account for cases in which there is a need to protect the native strain of phragmites in areas infested with non-native phragmites. Unlike the non-native strain, native phragmites populations provide many ecosystem benefits including bank stabilization and native bird habitat. Appropriate management plans should determine the type of phragmites strain prior to treatment and assess potentially undesirable consequences of removal, given the potential for damaging the native strain, if present.

Phragmites eradication and control techniques currently in use are listed below. It is important to note that effective phragmites management plans typically require a combination of these methods over several years. Strategies will vary depending on the density of the phragmites stand and the characteristics of the invaded site. Most sites will require ongoing treatment on a long-term basis to prevent recolonization by this persistent invasive plant. The Michigan Department of Environmental Quality (DEQ) offers a helpful phragmites control and management guide for resource and land managers, summarized below and available at http://www.michigan.gov/documents/deq/deq-ogl-ais-guide-PhragBook-Email_212418_7.pdf.

- **Chemical Control:** Herbicide application is usually recommended as the primary control method, and is often the first step in control programs. Glyphosate and imazapyr, both broad-spectrum herbicides, have proven effective at controlling phragmites.
- **Prescribed Fire:** Controlled burns are often implemented following herbicide treatments to remove phragmites biomass and promote resurgence of native species.
- **Mechanical Removal:** Mechanical removal, either by hand cutting or the use of equipment such as weed whips and small mowers, also serves to remove excess phragmites biomass and to promote growth of native plants. This type of removal is particularly useful when prescribed burning is not possible.
- **Water Level Management:** In sites where water levels can be controlled, such as impoundments, flooding is often used as a follow-up treatment to herbicide application and prescribed fire.

Landowners can find phragmites control information from the Michigan DEQ at http://www.michigan.gov/documents/deq/deq-ogl-Guide-Phragmites_204659_7.pdf. Additionally, a video has been developed on phragmites infestations on Beaver Island located in Peaine Township, Mich. outlining a useful ten-step management plan for newly established phragmites stands. Visit <http://www.agreatlakesjewel.org/phragmites/> to watch the video and learn more about the plan.

Relevant Policy and Regulatory Issues: Non-native phragmites is not listed as a noxious weed by any of the U.S. states or Canadian provinces in the Great Lakes region. Some Great Lakes jurisdictions (e.g., Michigan and Wisconsin) have listed phragmites as a restricted invasive species, regulating its possession and transport. For instance, in Michigan it is unlawful for a person to knowingly possess live phragmites unless there are plans to submit the specimen for identification, or if possession is in conjunction with lawful removal activities.

Most phragmites control activities require permits from state and/or federal agencies. For example, in Michigan a General Permit from the DEQ is required to mow or otherwise mechanically remove phragmites below the ordinary high water mark of the Great Lakes (the approximate location of the highest line on the shore established by water level fluctuations, as indicated by physical characteristics; see http://www.lre.usace.army.mil/kd/go.cfm?destination=Page&pge_id=1879&dialog=0 for more information). A different permit is required to apply herbicides in standing water or below the ordinary high water mark of the Great Lakes. It is recommended that herbicides be applied by a licensed, certified applicator; for some herbicides this is mandatory. A permit from the U.S. Army Corps of Engineers is required for any phragmites control activities that affect Great Lakes coastal areas. (For more information on permitting in Michigan, see http://www.michigan.gov/deq/0,1607,7-135-3313_3681_3710-178183--,00.html.)

Some jurisdictions have promulgated regulations on a local level to combat phragmites. For example, in Peaine Township, Mich., an ordinance was passed in 2008 allowing all phragmites-infested properties, including privately-owned properties, to be accessible to officials for inspection and treatment (see <http://www.beaverislandassociation.org/phragmites/>). A resolution passed in 2010 in Clay Township, Mich. establishes a support system for local landowners dealing with invasive phragmites on their properties (see <http://www.claytownship.org/Phragmites/>).

References

- Clay Township, Michigan. Clay Township Phragmites Management Advisory Board Homepage. <<http://www.claytownship.org/Phragmites/>>

- Cornell University Ecology and Management of Invasive Plants Program. Phragmites: Common Reed. Morphological differences between native and introduced genotypes. < <http://invasiveplants.net/phragmites/morphology.htm>>
- Global Invasive Species Database. *Phragmites australis*. <http://www.invasivespecies.net/database/species/ecology.asp?si=301&fr=1&sts=sss&lang=EN>
- Gucker, C.L. 2008. *Phragmites australis*. Fire Effects Information System. U.S. Department of Agriculture (USDA), Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory. <http://www.fs.fed.us/database/feis/>
- Michigan Department of Environmental Quality. A guide to the control and management of invasive phragmites. http://www.michigan.gov/documents/deq/deq-ogI-ais-guide-PhragBook-Email_212418_7.pdf
- Michigan Department of Environmental Quality. Control and Management of Invasive Phragmites. http://www.michigan.gov/deq/0,1607,7-135-3313_3681_3710-178183--,00.html
- Michigan Legislature. Natural Resources and Environmental Protection Act 451 of 1994. Part 413: Transgenic and Nonnative Organisms. [http://www.legislature.mi.gov/\(S\(na2mm4554yhk3t45smoz1y3x\)\)/mileg.aspx?page=getObject&objectName=mcl-451-1994-III-2-1-WILDLIFE-CONSERVATION-413](http://www.legislature.mi.gov/(S(na2mm4554yhk3t45smoz1y3x))/mileg.aspx?page=getObject&objectName=mcl-451-1994-III-2-1-WILDLIFE-CONSERVATION-413)
- Peaine Township, Beaver Island, Michigan. Invasive Phragmites: What It Is, What We Can Do. <http://www.agreatlakesjewel.org/phragmites/>
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- U.S. Army Corps of Engineers, Detroit District. Ordinary High Water Mark and Low Water Datum. http://www.lre.usace.army.mil/kd/go.cfm?destination=Page&pge_id=1879&dialog=0
- U.S. Department of Agriculture, Natural Resources Conservation Service. 2010. The PLANTS Database. PLANTS Profile: *Phragmites australis*. National Plant Data Center, Baton Rouge, LA 70874-4490 USA. <http://plants.usda.gov>
- Wisconsin Department of Natural Resources. Chapter NR 40: Invasive Species Identification, Classification and Control. <http://www.legis.state.wi.us/rsb/code/nr/nr040.pdf>

Studies, Assessments and Management Plans

Radar Detection and Monitoring of Invasive *Phragmites* in the Coastal Great Lakes (2011)

Michigan Technological University

Michigan Tech Research Institute in collaboration with the U.S. Fish and Wildlife Service and the U.S. Geological Survey has compiled phragmites distribution maps for the entire U.S. portion of land area within the Great Lakes basin. They also conducted ground surveys to confirm results.

<http://mtri.org/phragmitesmaps.html>

Clay Township Phragmites Management Plan (2010)

Clay Township, St. Clair County, Michigan

<http://www.claytownship.org/phragmites/docs/PhragmitesManagementPlan.pdf>

This long-term management plan is an example of actions at the local government level to coordinate and improve management and control of invasive phragmites on private property.

Control of Phragmites in a Michigan Great Lakes Marsh (2007)

Getsinger, K.D., LS. Nelson, L.A.M. Glomski, E. Kafcas, J. Schafer, S. Kogge, and M. Nurse. 2007. U.S. Army Engineer Research and Development Center, Vicksburg, MS.

This report presents the results of small- and large-scale invasive phragmites treatment demonstrations, comparing and assessing outcomes from different treatment regimes and providing recommendations.

Phragmites Control Plan (2007)

U.S. Fish and Wildlife Service

http://www.fws.gov/bearriver/Phragmites_Control_Plan.pdf

This document outlines a management plan for phragmites in the Bear River Migratory Bird Refuge in Utah.

Official Assessment of *Phragmites Australis* in Indiana's Natural Areas (2003)

Indiana Department of Natural Resources, Invasive Plant Species Assessment Work Group

Assessment Results: <http://www.in.gov/dnr/files/phragmitesresults.pdf>

Recommendations: <http://www.in.gov/dnr/files/phragmitesrecommendations.pdf>

This assessment analyzes different aspects of phragmites management in Indiana, including: invasion status, ecological impacts of invasion, potential for expansion, difficulty of management, and commercial value. Recommendations are provided to various government entities and stakeholder groups.

Common reed (2002)

In: Van Driesche, R., et al. 2002. Biological Control of Invasive Plants in the Eastern United States. USDA Forest Service Publication FHTET-2002-04.

<http://invasiveplants.net/monitor/9CommonReed.aspx>

This report summarizes research into natural insect enemies of phragmites and makes recommendations for future work.

Phragmites: Common Reed

Cornell University, Ecology and Management of Invasive Plants Program

<http://invasiveplants.net/phragmites/Default.asp>

Researchers at Cornell University are investigating potential biological control methods for use in phragmites management. Their website also contains information on a free diagnostic service to assist in distinguishing between native and non-native phragmites.

A Guide to the Control and Management of Invasive Phragmites

Michigan Department of Natural Resources and Environment

http://www.michigan.gov/documents/deq/deq-ogl-ais-guide-PhragBook-Email_212418_7.pdf

This document provides phragmites management guidance to land and resources managers. It describes the methods of phragmites eradication and control currently in use, and suggests comprehensive management strategies for various management situations based on stand characteristics and site hydrology.

Meeting the Challenge of Invasive Plants: A Framework for Action

Michigan DNR, Wildlife Division

<http://web4.msue.msu.edu/mnfi/education/InvasivesDNREStrategicPlan.pdf>

This document assesses the status of invasive plants in Michigan and outlines a strategy to address their negative impacts to wildlife. Strategic goals are described, creating a central framework of prevention, early detection and rapid response, and long-term control. Non-native phragmites is used for illustrative purposes throughout the document.

Fighting Invasive Phragmites

The Beaver Island Association

<http://www.beaverislandassociation.org/phragmites/> and <http://www.agreatlakesjewel.org/phragmites/>

This website and video tell the story of a phragmites rapid response initiative on Beaver Island, Michigan, located in northern Lake Michigan. Local governments, landowners, and the Michigan Department of Natural Resources (DNR) joined forces beginning in 2006 to eradicate phragmites populations on the island. Featured in the video is Peaine Township, one of two townships on the island, where an ordinance was passed allowing all phragmites-infested properties to be accessed for treatment. In the first year of treatment, the area of phragmites infestation on the island was reduced from 27 to only 3 acres. As of 2011, phragmites on Beaver Island is almost entirely eradicated and requires only moderate control efforts. This success can be attributed to rapid mobilization and response, cooperation of multiple stakeholder groups, and public outreach and education. The Beaver Island initiative can serve as a model for other local communities dealing with the early stages of phragmites invasion.

U.S. and Canadian Federal Resources

General Information on Phragmites

Plant Conservation Alliance, Alien Plant Working Group

<http://www.nps.gov/plants/ALIEN/fact/phau1.htm>

This fact sheet includes an illustrated guide for distinguishing native and alien phragmites species

PLANTS Profile: *Phragmites australis* (common reed)

United States Department of Agriculture-Natural Resources Conservation Service

<http://plants.usda.gov/java/profile?symbol=PHAU7>

Species Profile: Common reed

U.S. Department of Agriculture, National Invasive Species Information Center

<http://www.invasivespeciesinfo.gov/aquatics/commonreed.shtml>

Phragmites australis

USDA Forest Service, Fire Effects Information System

<http://www.fs.fed.us/database/feis/plants/graminoid/phraus/all.html>

***Phragmites australis* Article Citation Search**

USDA National Agricultural Library - AGRICOLA Database

[http://agricola.nal.usda.gov/cgi-](http://agricola.nal.usda.gov/cgi-bin/Pwebrecon.cgi?DB=local&CNT=20&CMD=%28%22Phragmites+australis%22%29+AND+%28inva?+OR+introduc?+OR+alien+OR+exotic+OR+weed?%29&STARTDB=AGRIDB)

[bin/Pwebrecon.cgi?DB=local&CNT=20&CMD=%28%22Phragmites+australis%22%29+AND+%28inva?+OR+introduc?+OR+alien+OR+exotic+OR+weed?%29&STARTDB=AGRIDB](http://agricola.nal.usda.gov/cgi-bin/Pwebrecon.cgi?DB=local&CNT=20&CMD=%28%22Phragmites+australis%22%29+AND+%28inva?+OR+introduc?+OR+alien+OR+exotic+OR+weed?%29&STARTDB=AGRIDB)

GRIN Taxonomy for Plants: *Phragmites australis*

USDA Agricultural Research Service, Beltsville Area - Germplasm Resources Information Network

http://www.ars-grin.gov/cgi-bin/npgs/html/tax_search.pl?phragmites+australis

Managing Invasive Plants: Concepts, Principles, and Practices

U.S. Fish and Wildlife Service, National Wildlife Refuge System

<http://www.fws.gov/invasives/staffTrainingModule/index.html>

This training module for USFWS staff contains excellent information on formulating invasive plant management plans, the importance of assessments and monitoring in invasive plant management, and commonly-used management and control techniques.

Common reed, *Phragmites australis*

Environment Canada

<http://www.ec.gc.ca/stl/default.asp?lang=En&n=1ED761A5-1>

State and Provincial Resources

Common Reed (*Phragmites australis*)

Illinois-Indiana Sea Grant, Exotic Aquatics on the Move
<http://www.iisgcp.org/EXOTICSP/commonreed.htm>

Common/Giant Reed

Indiana Department of Natural Resources
<http://www.in.gov/dnr/files/PHRAGMITES2.pdf>

Invasive Plant Species Fact Sheet: Common Reed (*Phragmites australis*)

Indiana Department of Natural Resources, Invasive Plant Species Assessment Work Group
<http://www.in.gov/dnr/files/Phragmites.pdf>

Control and Management of Invasive Phragmites

Michigan DEQ
http://www.michigan.gov/deq/0,1607,7-135-3313_3677_8314-178183--,00.html

Phragmites (*Phragmites australis*)

Midwest Invasive Species Information Network
<http://www.misin.msu.edu/facts/>
(Browse for "Phragmites" or "*Phragmites australis*" in the species search windows)

Invasive Plants of Ohio: Common reed grass

Ohio Department of Natural Resources
<http://www.dnr.state.oh.us/Portals/3/invasive/pdf/invasivefactsheet5.pdf>

Common reed: *Phragmites australis*

Pennsylvania Dept. of Conservation and Natural Resources
http://www.dcnr.state.pa.us/forestry/invasivetutorial/common_reed.htm

The Common Reed (*Phragmites Australis*): A Threat to Quebec's Wetlands?

Report prepared for the Government of Quebec's Interministerial Committee on the Common Reed and for Ducks Unlimited Canada
http://www.ducks.ca/fr/province/qc/nouvelle/pdf/phra_08e.pdf

Phragmites australis (Common reed grass)

Wisconsin Department of Natural Resources, Bureau of Watershed Management
<http://dnr.wi.gov/org/water/greatlakes/Phragmites2007.pdf>