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FACT SHEET

Phragmites-Distinguishing the Native from the Non-native

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INTRODUCTION

Invasive common reed (*Phragmites australis* ssp. *australis*) is a non-native, highly aggressive, perennial wetland grass that rapidly outcompetes its native relatives (*Phragmites australis* ssp. *americanus*), and other vegetation. It is a native of Europe and was introduced to the United States in the early 19th century.

IMPACTS

Non-native phragmites is a serious threat to native biodiversity. It replaces native plant species, reduces fish and wildlife populations, and creates ideal breeding grounds for mosquitoes.

Dense, monotypic stands degrade wetlands and coastal areas; reduce recreational value of water bodies for swimming, fishing, and hunting; and can increase the risk and intensity of wildfire.

PROPAGATION AND SPREAD

Invasive *Phragmites* can reproduce sexually via seed and asexually via stolons, and rhizomes (Figure 1) that are spread by wind, water, and human and animal activities.

Stolon: A thin, horizontal above-ground structure that bears roots at the nodes. Stolons can grow several feet a year and new plants can spring from every node.

Rhizome: An underground horizontal stem capable of regenerating new plants. Rhizomes create thick underground mats and can grow more than 30 feet a year.

Figure 1: Seed Rhizome Stolon

NATIVE VERSUS NON-NATIVE

Native and non-native *Phragmites* can be distinguished by several characteristics.

PLANT SIZE AND COLOR

Invasive *Phragmites* plants can attain a height of 6 meters or higher and have dark or bluish green leaves while the native *Phragmites* plants are typically 2 meters tall or less and have yellowish green leaves (Figure 1).

Figure 1: Variation in plant color of non-native and native *Phragmites*

LEAF SHEATH

Leaf sheaths of **invasive** *Phragmites* remain tightly attached to the stems whereas the leaf sheaths of **native** *Phragmites* are loosely attached and the lower leaf sheaths fall off naturally resulting in stripped stems (Figure 2).

Figure 2: Leaf sheaths of non-native and native *Phragmites*.

STEM DENSITY AND COLOR

Invasive *Phragmites* have a high stem density resulting in dense, impenetrable, monotypic stands that often block the shoreline view. **Native** *Phragmites* have sparsely scattered stems producing thin see-through stands (Figure 3).

Figure 3: Stem density of non-native and native *Phragmites*.

Invasive *Phragmites* stems are rigid, rough in texture, and have dull light green or tan color basal nodes. **Native** Phragmites stems are flexible, smooth, shiny, and reddish-brown or chestnut in color (Figure 4). The area near the node of **native** Phragmites is studded with black spots caused by a native fungus (Figure 5).

Figure 4: Stem color of non-native and native *Phragmites*.

Figure 5: Fungal spots in non-native (absent) and native (present) *Phragmites*.

LIGULE

The ligule is a hairy structure located inside the leaf sheath and near the base of the leaf blade. The i**nvasive** *Phragmites'* ligule is comparatively shorter (0.4 - 0.9 mm) than that of the **native** *Phragmites* (1.0 - 1.7 mm) (Figure 6).

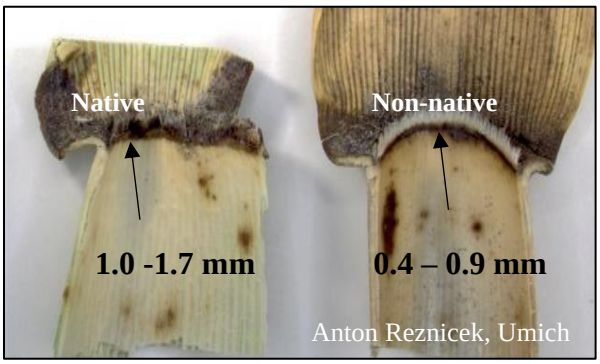

Figure 6: Leaf collar and ligule of a non-native and native *Phragmites*.

INFLORESCENCE

The seedhead of *Phragmites* is called a panicle, which is more compact and longer in **invasive** *Phragmites* while it is more open and smaller in the case of **native** *Phragmites*. Panicles are multi-branched, and each branch bears multiple spikelets (**Fig 7**). Each spikelet contains several florets. At the base of each spikelet are two bracket-like structures called glumes.

Figure 7: Inflorescence of a non-native and native *Phragmites*.

GLUME

In the **invasive** *Phragmites*, the basal glume usually measures 2.6 to 4.2 mm while that of the **native** *Phragmites* is 4 to 7 mm in length (**Fig 8**).

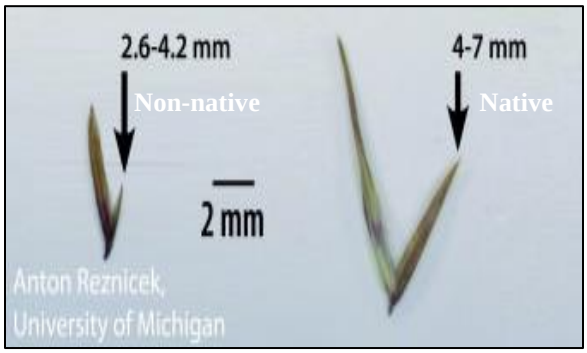

Figure 7: Glume of a non-native and native *Phragmites*.

PHRAGMITES MANAGEMENT

Invasive *Phragmites* can be controlled by several methods, but the practicability and effectiveness of each method varies with the size, density, and the site of infestation:

CULTURAL METHODS

Mowing*, Hand Cutting, Prescribed Fire etc., (effective only following an herbicide treatment)

*No pre-herbicide mowing should be done between March 1 and July 15 to avoid impacts to nesting birds and animals.

CHEMICAL METHODS

Glyphosate, Imazapyr, or their combination

INTEGRATED MANAGEMENT APPROACH

1) Apply herbicide in midsummer (mid-May through June) or late summer (mid-July through August) and wait at least 2 weeks to allow the herbicide to work.
2) Conduct the prescribed fire or mowing the next year in late summer or fall until prior to spring green-up.
3) Check the site in the following growing season for Phragmites regrowth and spot treat with herbicide if needed.

Once a control level of 85% or greater is achieved, it is recommended to implement an annual monitoring and maintenance program. The Integrated approach will control *Phragmites* for 1 to 2 years without additional action. However, *Phragmites* usually reinvade 3 years after treatment if follow-up management is not implemented.

INFORMATION SOURCES

1) Distinguishing Native and Exotic Forms of Common Reed (*Phragmites australis*) in the United States:
https://www.mdvnaturalist.com/images/phau1-powerpoint.pdf
2) Phragmites: Native or Not:
https://mnfi.anr.msu.edu/pdfs/phragmites-native-non-native.pdf
3) Phragmites australis:

https://www.fs.usda.gov/database/feis/plants/graminoid/phraus/all.html
4) A Landowner's Guide to Phragmites Control: https://watershedcouncil.org/uploads/7/2/5/1/7251350/deq-ogl-guide-phragmites_204659_7.pdf
5) A Guide to the Control and Management of Invasive Phragmites: https://www.michigan.gov/-/media/Project/Websites/invasives/Documents/Response/Status/egle-ais-guide-phragmites.pdf?rev=99773b1ab927407ba5cd7e4532a3ad4d

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