

Phragmites Australis, An Indicator of An Ecosystem Out of Balance

Phragmites is ubiquitous. It occurs in wetlands and marshes, alongside canals, alongside and in ditches, and in property owner's yards. Also known colloquially as *common reed*, is a perennial, tall, wetland grass that quickly chokes waterbodies and outcompetes native vegetation. The large, fluffy or feathery seed heads are easy to spot. What is not so easy to spot are the extensive networks of subsurface root systems (rhizomes) comprised of hollow tubes of varying sizes that expand rapidly underground sending up new green shoots seemingly overnight. There may be up to 20 stalks per square foot in well-established stands of phragmites. While genetic studies have shown that there is a native phragmites species in New England that mixes well in native wetland areas, the phragmites people typically see is in invasive variety brought to the Eastern Shore in the 18th and 19th centuries on ships and in cargo or ballast.



Seed dispersal and spread of plant via rhizomes



Phragmites plants create a dense forest of stalks crowding out natural vegetation

Invasive phragmites has expanded throughout the United States, especially in coastal areas (ocean and lake), primarily as a result of shoreline/coastal development, road and railroad construction, and pollution and eutrophication (excessive richness of nutrients in a lake or other body of water, frequently due to runoff from the land, which causes a dense growth of plant life and death of animal life from lack of oxygen). Phragmites thrives in disturbed wetland and salt marsh areas. Phragmites grows rapidly, and each fall, plant material dies back, creating not only a fire hazard but a thick stand of dry stalks that prevent native plants from growing. When people talk about phragmites they often note that once phragmites invades an area that area quickly becomes a thick, monoculture with no or minimal plant diversity.



Phragmites subsurface root system - densely packed tubular structures that must also be removed to eradicate this invasive plant

A fish and wildlife Fact Sheet on phragmites states that “*Phragmites outcompetes and blocks out native salt marsh vegetation and provides little or no food or shelter for most saltmarsh-dependent wildlife. Phragmites can also eliminate small intertidal channels and obliterate pool habitat that offers natural refuge and feeding grounds for invertebrates, fish and waterbirds.*” The Fact Sheet notes that animals, even large deer, have trouble penetrating stands of phragmites.



Phragmites seed tufts

Both small- and large-scale management/development/use decisions and activities in watersheds and coastal areas can encourage the growth of phragmites and the loss of native vegetation and good water quality. Think about lawn and garden chemicals (fertilizers and weed killers), extensive use of herbicides/pesticides, installation of impervious surfaces, construction of roads and buildings, and so forth, can have very significant adverse effects on an ecosystem in terms of killing off native vegetation and encouraging the growth of phragmites. Did you know that phragmites rhizome mats can expand some 30 feet per year with new shoots popping up every few inches?



Phragmites invading wetlands bordering Loop Canal

The Town of Bethany Beach and property owners frequently try to remove phragmites. Please see the weblinks below for information on how to eliminate phragmites.

Techniques range from the application of special herbicides, to burning root systems, to chopping down the stalks and then excavating the rhizome mats. Once rhizome mats are removed, a vigilant property owner can periodically cut, pull, or dig up intruder stalks and keep an area phragmites free. Two broad-spectrum herbicides, Glyphosate and Imazapyr, are commercially available, along with other brands of herbicides, which can

be used to help control phragmites. However, it is best to hire a licensed professional to do this work to make sure it is done properly and with the least amount of chemical added to the ecosystem as necessary.

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Phragmites plants invading the Walcek Tract where the Town is proposing to construct a walking/nature trail

It is always best to take actions that will prevent the growth and spread of phragmites as opposed to letting the plant establish and spread. There are a number of actions property owners or governments can take to fight the spread of phragmites: remove undersize culverts that reduce flows and encourage phragmites growth; reduce negative impacts of constructed drainage ditches on native vegetation and natural

flows; eliminating or reducing the use of fertilizers; and aggressively protecting and expanding riparian buffers consisting of native vegetation.

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Densely packed Phragmites plants bordering, and in, a drainage ditch

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**Well-maintained drainage ditch -
totally overgrown with phragmites
on adjacent property**





Well-maintained drainage ditch

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Finally, it is important to note that the literature includes both pros and cons regarding phragmites, so in order to ensure that the BBLA presents both sides of the matter a few pros and cons examples are listed below.

Pros (in the opinion of some):

- phragmites captures pollutants and keeps captured pollutants out of the rest of the ecosystem
- phragmites effectively sequester nitrogen and carbon dioxide which can kill off native vegetation and fish as oxygen is taken from the water and eutrophication occurs
- birds such as yellowthroat, marsh wren, salt marsh sparrow, least bittern, and red winged blackbirds roost in stands of phragmites
- thick stands of phragmites may provide some protection against storm surge and sea level rise

Cons (in the opinion of some):

- 18-foot tall stalks obscure views and along roadways at intersections, the plants can be a safety hazard

- rapidly growing, thick stands of phragmites raise the surface elevation of the landscape quickly (plant material and captured sediment), eliminating water storage capacity and exacerbating nuisance flooding
- because phragmites significantly reduces or eliminates plant diversity, fish and wildlife (mammals, birds, amphibians, reptiles) populations and diversity typically decline
- loss of recreation values for bird watchers, naturalists, walkers, boaters, hunters • come Fall and Winter, thick stands of tall, tightly compacted, dry stalks can be fire hazards

References

U.S. Fish and Wildlife Service *Phragmites Fact Sheet*:
https://www.fws.gov/gomcp/pdfs/phragmitesqa_factsheet.pdf

Alien Plants, Weeds Gone Wild:
<https://www.invasive.org/alien/pubs/midatlantic/phau.htm>

Michigan State University, *Invasive Phragmites, What Is It and Why Is It A Problem*:
https://www.canr.msu.edu/news/invasive_phragmites_australis_what_is_it_and_why_is_it_a_problem

A Number of Power Point Presentations by the National Park Service: <https://www.nps.gov/search/?affiliate=nps&query=phragmites>