



## Common Reed

*Phragmites australis* (Cav.) Trin. ex Steud.

Grass family (Poaceae)

### NATIVE RANGE

Eurasia

### DESCRIPTION

Common reed, or Phragmites, is a tall, perennial grass that can grow to over 15 feet in height. In North America, both native phragmites (*Phragmites australis* ssp. *americanus* Saltonstall, P.M. Peterson & Soreng) and introduced subspecies are found. Introduced Phragmites forms dense stands which include both live stems and standing dead stems from previous year's growth. Leaves are elongate and typically 1-1.5 inches wide at their widest point. Flowers form bushy panicles in late July and August and are usually purple or golden in color. As seeds mature, the panicles begin to look "fluffy" due to the hairs on the seeds and they take on a grey sheen. Below ground, Phragmites forms a dense network of roots and rhizomes which can go down several feet in depth. The plant spreads horizontally by sending out rhizome runners which can grow 10 or more feet in a single growing season if conditions are optimal.

Please see the table below for information on distinguishing between native and introduced Phragmites.



### ECOLOGICAL THREAT

Once introduced Phragmites invades a site it quickly can take over a marsh community, crowding out native plants, changing marsh hydrology, altering wildlife habitat, and increasing fire potential. Its high biomass blocks light to other plants and occupies all the growing space belowground so plant communities can turn into a Phragmites monoculture very quickly. Phragmites can spread both by seed dispersal and by vegetative spread via fragments of rhizomes that break off and are transported elsewhere. New populations of the introduced type may appear sparse for the first few years of growth but due to the plant's rapid growth rate, they will typically form a pure stand that chokes out other vegetation very quickly.



### DISTRIBUTION IN THE UNITED STATES

Phragmites occurs throughout the lower 48 states and southern Canada. It has been reported to be invasive in natural areas in 18 states including Colorado, Connecticut, Delaware, Georgia, Indiana, Kentucky, Maryland, Michigan, North Carolina, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Tennessee, Virginia, Vermont, and Wisconsin, and the District of Columbia.

### HABITAT IN THE UNITED STATES

Tidal and nontidal brackish and freshwater marshes, river edges, shores of lakes and ponds, roadsides, disturbed areas.

### BACKGROUND

Preserved remains of native Phragmites that are 40,000 years old have been found in the southwest indicating that it is a part of the native flora of that region. In coastal areas, preserved rhizome fragments dating back 3000-4000 years have also been found in salt marsh sediments indicating that it is also native to these habitats. Native American uses of Phragmites include use of stems for arrow shafts, musical instruments, ceremonial objects, cigarettes, and both leaves and stems for constructing mats.

Introduced Phragmites is thought to have arrived in North America accidentally, most likely in ballast material in the late 18th or early 19th centuries. It established itself along the Atlantic coast and over the course of the 20th century, spread across the continent. In Europe Phragmites is grown commercially and is used for thatching, fodder for livestock, and cellulose production. It is also declining in parts of Europe which has been of concern to natural resource managers there. Here in the United States it is not used for many purposes.

## **BIOLOGY & SPREAD**

While each Phragmites plant may produce thousands of seeds annually, seed viability is typically low although there appears to be a great deal of interannual variation in fecundity. Dispersal to new sites is typically by seed except along rivers and shorelines where fragments of rhizomes may be washed down to new sites where they can establish. Along roadsides, rhizomes fragments may also be transported by heavy machinery between sites. At this time, there is no evidence for hybrid native/introduced populations occurring in the field.

## **MANAGEMENT OPTIONS**

Areas with large, established, populations of Phragmites are best restored using herbicides. Other options include mowing and prescribed burning.

### ***Biological***

At this time no means of biological control are available in the United States for treating Phragmites infestations.

### ***Chemical***

Glyphosate-based herbicides (e.g., Rodeo®) are the most effective control method for established populations. If a population can be controlled soon after it has established chances of success are much higher because the below-ground rhizome network will not be as extensive. Herbicides are best applied in late summer/early fall after the plant has flowered either as a cut stump treatment or as a foliar spray. It is often necessary to do repeated treatments for several years to prevent any surviving rhizomes from resprouting. When applying herbicides in or around water or wetlands, be sure to use products labeled for that purpose to avoid harm to aquatic organisms.

### ***Fire***

Prescribed burning after the plant has flowered, either alone or in combination with herbicide treatment, may also be effective. Burning after herbicide treatment also reduces standing dead stem and litter biomass which may help to encourage germination of native plants in the following growing season. Plants should not be burned in the spring or summer before flowering as this may stimulate growth.

### ***Mechanical***

This type of control (e.g., repeated mowing) may be effective at slowing the spread of established stands but is unlikely to kill the plant. Excavation of sediments may also be effective at control but if small fragments of root are left in the soil, they may lead to reestablishment.

**USE PESTICIDES WISELY:** Always read the entire pesticide label carefully, follow all mixing and application instructions and wear all recommended personal protective gear and clothing. Contact your state department of agriculture for any additional pesticide use requirements, restrictions or recommendations.

**NOTICE:** mention of pesticide products on this page does not constitute endorsement of any material.

## **CONTACTS**

For more information on identification and control of Phragmites, contact:

- Dr. Kristin Saltonstall, Adjunct Research Scientist, Horn Point Laboratory, University of Maryland Center for Environmental Science, (914) 526-2498, [ksalton@hpl.umces.edu](mailto:ksalton@hpl.umces.edu)





## **SUGGESTED ALTERNATIVE PLANTS**



Native plant species that are adapted to local conditions should be used in restoration projects and as a substitute for Phragmites erosion control practices.

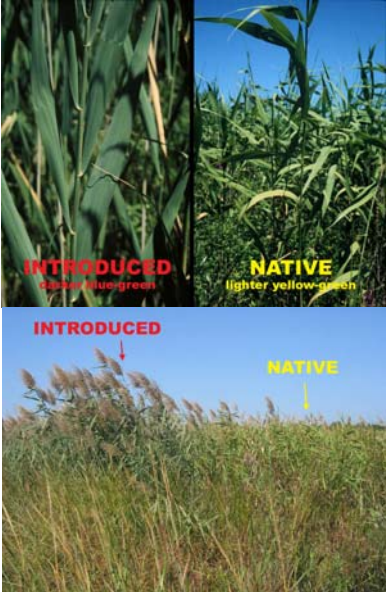
How to Distinguish Native and Introduced Phragmites plants:

It can be difficult to definitively distinguish native from introduced Phragmites plants without genetic testing due to the plasticity of the species and its ability to adapt to a wide range of conditions. However, a number of morphological characteristics have now been identified that can be used to determine a population's type. These characters can be subtle (e.g. color variation) and subjective making positive identification difficult. Given this, an assignment of native or introduced status to a population should not be made unless several characters clearly match the patterns shown in table 1.

Table 1: Morphological characters useful in distinguishing Native and Introduced Phragmites populations.\*

CHARACTER Photo	NATIVE	INTRODUCED
Ligule width** 	1.0-1.7 mm	0.4-0.9 mm
Lower glume length 	3.0-6.5 mm	2.5-5.0 mm
Upper glume length 	5.5-11.0 mm	4.5-7.5 mm
Adherence of leaf sheaths** 	Loose – both leaves and leaf sheaths are usually dropped as the plant senesces	Tight – leaves may drop off but leaf sheaths typically adhere tightly to dead stems

CHARACTER Photo	NATIVE	INTRODUCED
Stem color (look under the leaf sheaths, especially in places where the stem is exposed to sunlight) 	Summer – green to maroon, may have maroon color at the nodes only Winter – yellow to brown	Summer – typically all green with yellowish nodes although some lower nodes may have maroon color Winter – yellow
Stem spots 	Small round fungal spots MAY be present in late summer and on dead stems	Extremely rare. Patches of black filamentous fungi may be seen
Stem density	May occur as a monoculture, often co-occurs with other plant species	Typically grows as a monoculture, young newly established populations and those in areas of high salinity may be less dense

CHARACTER Photo	NATIVE	INTRODUCED
<p>Leaf color</p> 	<p>Yellow-green – usually lighter than introduced</p>	<p>Blue-green in most habitats but may be yellow-green in brackish habitats</p>
<p>Habitat</p>	<p>Undisturbed sites MidAtlantic – fresh to oligohaline tidal marshes Midwest – fens, marshes</p>	<p>Highly disturbed to undisturbed sites, dominates brackish marshes along the Atlantic coast, common along roadsides throughout the U.S.</p>

\* This table should not be used to distinguish between *Phragmites* populations along the Gulf Coast where another type of *Phragmites*, the Gulf Coast type, which looks similar to introduced *Phragmites*, is also found.

\*\* Most reliable characters distinguishing native from introduced *Phragmites*.

#### OTHER LINKS

- <http://www.invasive.org/search/action.cfm?q=Phragmites%20australis>
- <http://www.lib.uconn.edu/webapps/ipane/browsing.cfm?descriptionid=85>
- <http://www.nps.gov/plants/alien/fact/pdf/phau1-powerpoint.pdf>

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