



# Phragmites

*Phragmites australis* (Cav.) syn *Phragmites communis*, *P. vulgaris* (Aka common reed, ditch reed, giant reed, giant reedgrass)



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## Overview:

Phragmites is an erect, aquatic or sub-aquatic, perennial grass with an extensive rhizome system. It is one of most world-wide distributed flowering plants; however it does not act weedy in every country it inhabits. It is genetically variable - from triploid to octoploid - as well as morphologically variable, the latter being adaptation to local environmental conditions, and then perpetuated by vegetative reproduction.<sup>1</sup> One source states there is evidence an indigenous North American species exists and invasive phragmites have been imported from other continents.<sup>2</sup>

New infestations can result from phragmites seed or rhizome fragments, but thereafter stand expansion is predominantly by vegetative reproduction. One study states that rhizome spread in Wisconsin averaged 40 cm per year.<sup>2</sup> Young phragmites stands may also produce stolons, which grow quickly. Phragmites can produce large quantities of seed - which are wind-pollinated and wind dispersed - however germination rates are poor and the habitat requirements for seed germination are quite narrow.<sup>1,2</sup>

Phragmites plants are highly competitive and usually form dense (>100 shoots m<sup>2</sup>), mono-specific stands. The root system is adapted to anaerobic conditions via tissue which can provide gas exchange from the leaves. It develops the combination of a thick, un-branched root into the substrate and smaller, branching roots through the water and top layers of the sediment, optimizing access to available nutrients. The roots, rhizomes and stem bases may comprise up to 80% of total biomass.<sup>1</sup>

Phragmites stands which are increasing while other species are declining have a negative impact on the structure and function of wetland systems. The dead and dried stems in winter can present a fire hazard and control of mosquito breeding is nearly impossible in dense stands.<sup>2</sup>

Phragmites rhizomes live for about 3 to 6 years and buds develop at the base of stems in late summer. The buds typically grow about 1 m horizontally before turning upwards and going dormant for the winter. The following season the vertical rhizome produces more vertical and horizontal rhizome buds. The

aerial shoots grow from the rhizomes.<sup>2</sup>

## Habitat:

Phragmites can grow in freshwater alkaline and brackish waters, but can also thrive in highly acidic wetlands.<sup>2</sup> It prefers stationary or slow-moving waters and irrigation channels.<sup>1</sup> It grows in fine clays to sandy loams<sup>2</sup> and varying nutrient regimes but flourishes in areas of nutrient pollution.<sup>1</sup> It can grow in water to depths of 1 m.<sup>1</sup> Salinity and depth to water table control its distribution.<sup>2</sup>

## Identification:

**Stems:** Are rigid, with many nodes<sup>1</sup>, may be 2.5 cm in diameter, and can grow 2 to 4 m tall.<sup>2</sup> The internodes of the stem are hollow.<sup>1</sup>

**Leaves:** Are alternate and mostly 25-50 cm long and 1-5 cm wide.<sup>2</sup> They are rigid, taper to a spiny point, and are hairless or sometimes covered with a whitish bloom. The ligule can be up to 1.5mm long.<sup>1</sup>

**Flowers:** The inflorescence is a feathery, drooping panicle 15-50 cm long. It is tan

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brown to purplish and composed of many branches. The several-flowered spikelets are 10-18 mm long, with the axis of the spikelet exceeding the florets. The first glume 2.5-5 mm long, the second glume 5-7 mm long, and the lemmas are thin, 3-nerved ending in slender teeth, and densely soft-hairy. The middle tooth extends into a straight awn.<sup>1</sup> Seeds are brown, thin and delicate with a narrow bristle attached. The seed and bristle together about 8 mm long.<sup>2</sup>

## Prevention:

Learn to recognize phragmites and report new infestations. New infestations can start from rhizome pieces, so any soil from area with phragmites is suspect.

## Control:

Integrated control by some countries has proven to be very effective. In Egypt a regime of two herbicide applications followed by burning, then followed by ploughing combined with removal of rhizomes, and then followed by flooding gave near complete control of phragmites.<sup>1</sup>

**Grazing:** In some countries phragmites has been used as feed and bedding for cattle.<sup>2</sup> On site grazing in the soft, wet ground would cause more environmental harm. Invasive plants should never be considered as forage.

**Mechanical:** Cutting to within 15 cm of the soil surface has produced variable results, but is considered the least damaging to the environment.<sup>1</sup> In Russia, autumn ploughing to 25cm deep followed by reploughing in spring proved effective in rice crops. The fragmented rhizomes die under a layer of water.<sup>1</sup> In Dutch reed stands burning retarded growth but plants nearly completely recovered.<sup>1</sup>

**Chemical:** Glyphosate and Imazapyr are registered for use on phragmites. Herbicide applications near water bodies require specific applicator certification and permits from Alberta Environment. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pest Management Regulatory Agency. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.

**Biological:** Phragmites has few natural enemies and none have been thoroughly evaluated for host specificity.<sup>1</sup>



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## REFERENCES

- 1 Datasheet Report for Phragmites australis (common reed). Invasive Species Compendium. [www.cabi.org/isc](http://www.cabi.org/isc). Accessed September 5, 2015.
- 2 Phragmites australis. Global Invasive Species Database. [www.issg.org/database](http://www.issg.org/database). Accessed September 5, 2015.