



Phragmites

Phragmites australis (Cav.) Trinius ex Steud. ssp. *australis*
(aka common reed, European reed, giant reed grass)

Alberta Regulation:
Prohibited Noxious



Kallum McDonald, Alberta Environment & Protected Areas



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Overview:

Phragmites is a tall, aquatic or semi-aquatic, perennial grass with an extensive rhizome system. It is one of most widely distributed flowering plants globally; however, it does not behave invasively in every country. This is due to identification of several subspecies and wide genetic diversity amongst populations. *Phragmites australis australis*, was introduced to North America in the late 1700s or early 1800s⁴ and has spread aggressively in eastern Canada and much of the United States.

Phragmites plants are highly competitive and can form monocultures of dense (>100 shoots m²) stands, exacerbated by the persistence of old stems from previous years. Over time, stands can overtake shorelines, displace native aquatic and riparian vegetation and reduce habitats for birds, fish, amphibians, and insects, ultimately diminishing overall ecosystem health. Phragmites can also restrict recreational access to lakes and rivers as well as overtake drainage easements and irrigation canals, impeding the flow of water. The dead and dried stems in winter can present a fire hazard and control of mosquito breeding is nearly impossible in dense stands.^{1,2}

It primarily spreads via rhizomes, which can grow up to 40 cm in one

season², steadily crowd out surrounding plants.

Phragmites actively kills off neighbouring plants through allelopathy, a process in which the roots exude chemicals into the soil that inhibit the growth of other plants.³ Rhizome fragments can also break off and float away, producing new infestations. The seeds bear tufts of hairs that allow wind dispersal, although viability is low.^{1,2} This species is increasingly spreading in ditches along railways and highways, with trains serving as the likely initial vector of spread.

There is a native Phragmites subspecies present in Alberta known as American Common Reed (*Phragmites australis americanus*), which is not nearly as aggressive as its invasive counterpart. The native Phragmites can be identified by several key features: intense red-purple coloration in the lower stems, relatively sparse (less dense) seed heads, black disease spots on the stem in the fall, leaves do not persist on the stems after winter, and through genetic testing (contact the Aquatic Invasive Species program regarding sample collection for testing).

Habitat:

Phragmites can tolerate brackish waters, but not salt water, and a wide range of pH conditions.² Prefers still or slow-moving waters, typically up to 1 m deep.¹

Identification:

Stems: Are tall, rigid, and hollow with many nodes¹, up to 2.5 cm in diameter, and can grow up to 6 m tall.²

Leaves: Are blue-green, alternate arrangement along the stem, and 25-50 cm long and 1-5 cm wide.² They are long, thin point, and hairless. The ligule can be up to 1.5 mm long.¹

Flowers: The florets are dark purple in bud and during early flowering, then fade to tan or brown. The inflorescence is a feathery, drooping panicle 15-50 cm long that blooms from August to October. Seeds are brown and thin with a narrow bristle attached. The seed and bristle together are about 8 mm long.²

Prevention:

Learn to recognize phragmites and report new infestations - under the Fisheries (Ministerial) Regulation, there is a 14-day requirement to report new populations of phragmites. New infestations can start from rhizome pieces, so any soil from area with phragmites is suspect. Always follow GrowMeInstead and avoid growing it as an ornamental or purchasing grass bouquets online.

Control:

Integrated control by some countries has proven to be very effective. In Egypt, a regime of two herbicide applications, burning, ploughing with rhizome removal,

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and flooding nearly eliminated phragmites.¹

Grazing: In some countries phragmites has been used as feed and bedding for cattle.² 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.¹ In Russia, autumn ploughing to 25 cm deep followed by reploughing in spring proved effective in rice crops. The fragmented rhizomes die under a layer of water.¹ In Dutch reed stands burning retarded growth but plants nearly completely recovered.¹

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: Two moths (*Archanara neurica* and *Lenisa geminipunctata*) have been released in Ontario for biocontrol of phragmites. As larvae, these two species will bore into the stem of phragmites and damage the plant through feeding, causing less biomass and much shorter stems that rarely produce seed.



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USDA PLANTS Database, USDA NRCS PLANTS Database, Bugwood.org



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REFERENCES

- 1 Datasheet Report for Phragmites australis (common reed). Invasive Species Compendium. www.cabi.org/isc. Accessed September 5, 2015.
- 2 Phragmites australis. Global Invasive Species Database. www.issg.org/database. Accessed September 5, 2015.
- 3 Rudrappa et al. 2009. Phragmites australis root secreted phytotoxin undergoes photo-degradation to execute severe phytotoxicity. Accessed November 8, 2024.
- 4 USDA. 2012. Invasive Species Technical Note: Ecology and Management of Phragmites. Accessed November 8, 2024.