

## Fact Sheet

# *Phragmites australis* (European Common Reed)



### Description

Invasive *Phragmites australis* (European Common Reed) is a large, perennial grass or reed with creeping rhizomes. The woody, hollow stems can grow to 5 metres (~16 feet) tall. It grows in stands that can be extremely dense with as many as 240 stems per square metre (~200 per square yard). Much of the biomass of invasive *Phragmites* is found underground, in an intricate system of roots and rhizomes. Leaves are lanceolate, ranging from 20 to 40 centimetres (~8 to 16 inches) long, and 1 to 3 centimetres (~.5 to 1.5 inches) wide. The sheath of the blade is smooth and loose, allowing it to twist in the wind, so the blades turn to one side. Dense, silky flowers develop in mid-July through October. The densely flowered floral spikelets are feathery, tawny or purplish, 15 to 40 centimetres (~6 to 16 inches) long, with the branches ascending. Each seedhead contains upwards of 2000 seeds. New growth comes mainly from rhizome and stolon spread, although seed dispersal, particularly into disturbed soils, will facilitate reproduction.

### Impacts

While both native and exotic strains of *Phragmites australis* are found in Canada, native strains are not problematic, occupying only small niches in relatively few areas. Native *Phragmites* grows in stands that are usually not as dense as the invasive plant. Well-established stands are frequently mixed with other plants and usually have more reddish-brown stems, yellow-green leaves and smaller, sparser seedheads. No significant populations of native strains of *Phragmites* have been documented in Lambton County. On the other hand, exotic strains of invasive *Phragmites* can quickly take over a wetland community, crowding out native plants, changing wetland hydrology, altering wildlife habitat, and increasing fire potential. Its high biomass blocks light to other plants and occupies all the growing space so plant communities can turn into an invasive *Phragmites* monoculture very quickly. In addition, it exudes from its roots an allelopathic compound that literally disintegrates the structural protein in the roots of neighboring plants, eliminating the competition. *Phragmites* can spread both by seed dispersal and by vegetative spread via fragments of rhizomes and stolons that break off and are transported elsewhere. Wetlands and watersheds become spread vectors for seeds and fragments which can float, contaminating downstream areas.

In the agricultural community, invasive *Phragmites* can quickly become a problem by blocking drainage and irrigation ditches and ponds. It can also clog drain fields and pumping systems. In addition, large stands in roadside ditches can impair vehicle operators' visibility at rural intersections. Fields and lawns next to wetlands are frequently invaded by *Phragmites* in part because of ongoing soil disturbances and fertilization. Low, wet areas of farm fields are most likely to become infested. Cessation of cropping practices for even one year can result in rapid spread of *Phragmites* into farm fields, especially along edges. Mowing, herbicides, and tillage all provide some control, and establishing winter cover crops can also help to prevent *Phragmites* infestation.



### Control Options

Management options for the control of invasive *Phragmites* include mechanical excavation, flooding, herbicide application, and prescribed burning. However, none of these methods are fully effective when used alone. When used improperly, these control measures may actually worsen the problem. As indicated by current research and field experience, the most effective management plan for most situations includes a combination of herbicide application, cutting/rolling, and prescribed burning, following very strict timelines. Site conditions and access will dictate which options are best-suited for controlling invasive *Phragmites*. Due to herbicide label restrictions that prohibit the use of the herbicide in or over water in Ontario, sites that remain flooded for the entire growing season cannot be controlled using the available herbicides. This limits control options, and unfortunately, for some sites, none of the currently available options may be feasible or effective. When performing these control measures it is important to determine the best treatment and timing to limit wildlife disturbance and damage to the habitat.

Rapid response with cutting equipment, herbicide treatments or both helps keep new infestations from becoming too large, making it difficult and expensive to control.



### ► Manual / Mechanical

Cutting has been used successfully to control invasive *Phragmites*, but, since it is a grass, cutting several times during a season, at the wrong times, can actually increase the stand. However, if cut just before the end of July, most of the food reserves produced that season are removed with the aerial portion of the plant, reducing the plant's vigour. This regime may eliminate a colony if carried out annually for several years. Care must be taken to remove cut shoots to prevent their sprouting. Using this technique may be difficult due to the issue of access to the site in aquatic and wetland areas. For very small stands, cutting the rhizomes below the ground surface by using a sharp spade, may be effective. Repeated spading will be required to ensure all rhizomes have been cut.



Regardless of the cutting method selected, proper disposal of plant material is an important consideration for preventing unintended spread. If feasible and practical, plant material can be placed into paper yard waste bags and moved to a location to dry out. The bags of dried *Phragmites* could then be safely incinerated in burn barrels or fire pits. Larger amounts of biomass could be piled onto tarps and moved to an appropriate location for disposal. If plants have seed heads it would be best to cut these off first and immediately place into yard waste bags to be burned when dry.

If cut material is to be taken to a local landfill, ideally the disposal site would have a location dedicated for quarantining invasive plant material. The *Phragmites* biomass could be piled and covered with thick plastic to kill viable plant parts. Once dried, the piles could be incinerated if appropriate and permitted by local by-laws. Alternative options include burying or leaving as debris piles. If not covered, these piles may have to be sprayed with the appropriate herbicide to control establishing plants. Due to the recalcitrant nature of the stalks, composting would likely only be achieved with the addition of a large amount of animal manure.

### ► Biological

There are currently no biocontrols available for controlling *Phragmites*.

### ► Chemical Techniques

Control of *Phragmites* within sensitive habitats using an approved herbicide has been found to be effective and, when done properly, has a very low negative impact. Legal chemical options in Canada are currently limited to two products, Weathermax® and Vision Max®. Both herbicides are glyphosate based and, although this active ingredient is safe for overwater application, the surfactant polyethoxylated tallowamine (POEA) is also present and has been shown to be harmful to aquatic life. Vision Max, is more expensive, is used by the forestry industry, and can be applied aerially. Weathermax is the best option available for on-the-ground *Phragmites* control when no surface water is present.

The active ingredient glyphosate, is a broad spectrum chemical that kills all vegetation non-selectively by shutting down key enzyme production within the belowground plant structures. Since these same enzymes are not present in non-plant life, research has shown little, if any, risk to humans and wildlife. However, due to its broad spectrum tendencies, care must be taken when spraying in areas that have not yet become a mono-culture. Harm to non-target vegetation, including Species At Risk plants, can be reduced through proper selection of the mode of application and timing. These same considerations also reduce potential harm to wildlife that may be using the edges of *Phragmites* cells or adjacent habitats. Proper timing is also important to allow for some of the seasonally wet sites to be controlled.

For coastal areas, the timing window for dewatered conditions can be rather short and change daily, monthly and annually. Usually, even with dewatered sections, there remain wet areas interspersed, making effective and efficient control difficult. Currently there is a concerted effort underway to have the same herbicides available in Canada that have been used in the United States for over two decades to control *Phragmites* in water. Until these products become available, management can, and should be, undertaken where possible to curtail *Phragmites* expansion and reduce negative impacts.



### ► Herbicide Application

With proper timing, concentration and application methods, *Phragmites* mortality can be accomplished using herbicides effectively, efficiently and environmentally responsibly. The recommended herbicide is Weathermax® (registration No. 27487) which should be mixed at a concentration of 4.5% – 5% to increase rhizome mortality and reduce possible resistance to glyphosate. The surfactant MSO Concentrate Methylated Seed Oil (Adjuvant commercial, active ingredients 70% methylated soybean oil, Registration No. 28385) should also be added at a 1% concentration to increase plant uptake and improve herbicide efficacy. It is important to note that only licensed pesticide applicators can purchase and legally use the required herbicide. Also, only reputable professionals with experience working in sensitive habitats should be contracted to do this work.