



A Landowner's Guide to Invasive Phragmites in Wetland Habitats

*Identifying and Managing an Invasive
Plant that Threatens Wetlands*



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Canada's Leader in Wetland Conservation

Ducks Unlimited Canada (DUC) is the national leader in wetland conservation. In Ontario, we've conserved more than one million acres (more than 400,000 hectares) of wetlands and adjacent habitats such as grasslands, forests and waterways.

Since 1974, we've delivered more than 5,000 conservation projects across the province. Our science-based approach to wetland conservation delivers healthy, resilient ecosystems. Our work has real-world impacts that you can walk in and wade in.

Wetlands are power players on the landscape, filtering sediment and helping to recharge groundwater, sequester carbon and reduce flood damage from storm and melt events—all while providing sustainable green spaces and beautiful wildlife for everyone to enjoy.

Learn more about us

A registered charity, DUC partners with governments, industry, other non-profit organizations, Indigenous peoples and landowners to conserve wetlands and adjacent habitats that are critical to waterfowl, wildlife and the environment. To learn more about DUC's innovative work to reduce invasive species, visit ducks.ca/invasive-species



A Habitat Guide from Ducks Unlimited Canada

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For print readers: You can download this guide at ducks.ca/invasive-phragmites-guide

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The Race Against Invasive Species

DUC's thousands of conservation projects are vulnerable to non-native wildlife species, or **invasive species**. These species are spreading and they're changing the places we love across Canada. The race against invasive species is a race for conservation.

Wetlands and wetland wildlife are especially vulnerable to these changes. That's because wetlands function best and support more wildlife when the habitat is rich in native wetland vegetation. It's important to find invasive plants before they're established and become more difficult to remove from the wetland.

DUC is using our expertise in wetland habitat and restoration to take the lead on invasive aquatic species that impact wetland and waterfowl habitats — but we can't do it alone. We need your help. Please take a few minutes today to review this guide. It will help you identify invasive aquatic plants — particularly invasive Phragmites, the most concerning invasive plant in Canada — and take the right steps to manage them.

If you have questions about invasive species and the wetland habitat on your land, reach out anytime to our dedicated team at ontario@ducks.ca or call us at **705-721-4444**.



A Threat to Biodiversity in the Great Lakes Region and Beyond

What are invasive species?

Invasive species are plants, animals or other organisms that are transported — generally by people, often accidentally — to a new region and manage to survive and thrive there. They spread quickly, can displace beneficial native wildlife, are costly to remove or manage, and can change the landscape, causing environmental, economic and social harm. Climate change is also creating paths for many species to move northward, with new and potentially negative effects on our northern ecosystems.

Why are they a problem?

Invasive species are one of five main threats to biodiversity which also include habitat destruction, climate change, pollution and over-exploitation. It's estimated that the spread of invasive species is second only to habitat loss as a major cause of plummeting wildlife populations.

Ontario hosts more invasive plants (more than 400 species) than any other province in Canada. The problems caused by invasive aquatic plants:

- ⊕ They degrade habitat for waterfowl and other wildlife
- ⊕ They have an outsized impact on Ontario's species at risk
- ⊕ They block waterways for boaters, anglers, hunters and swimmers

The Invasive Species Centre in Ontario estimates the combined impacts at \$3.6 billion annually, affecting agriculture, fisheries, forestry, healthcare, tourism and recreation. **In addition, they report that more than \$3 million is spent every year by municipalities and conservation authorities to control invasive Phragmites alone.**





Mighty Phragmites: Canada's worst invader

The European common reed (*Phragmites australis subsp. australis*), generally known as invasive Phragmites, is well established in southwestern Ontario and eastern Ontario near the Quebec border. The plant is also spreading north into Ontario's boreal region.

The fast-growing perennial grows up to six metres (18 feet) tall in a wide range of conditions, often found in wetland habitats and along roadsides or ditches. The reeds grow very close together and reduce open water in wetland habitats and impede water movement within ecosystems.

The tightly packed plants create dense stands that squeeze out other wildlife including turtles, which are already under population pressure in Ontario. Under the right conditions, stands of invasive Phragmites can spread up to 30 per cent in a single year. This growth happens through seeds, underground roots (rhizomes) and above-ground runners (stolons). **Without decisive action, Phragmites will continue to expand its range and become a serious obstacle for more and more Canadians.**

- + Loss of wetlands and waterways
- + Reduced land values
- + Loss of traditional medicines
- + Blocked and damaged utilities and infrastructure
- + Increased fire hazards and reduced road sightlines
- + Increased costs for construction, forestry, agriculture

Protect your wetland and upland habitats

We encourage you to examine the landscape around your wetland for invasive plant species. As a landowner who partnered with DUC on a conservation project, you can help protect that wetland habitat from invasive Phragmites. Winter and spring are the best seasons to spot Phragmites because the reedy stems stay upright and can be easily identified—especially as they form their characteristic dense clusters of stems.

What to watch for on your land

- + Tall reedy stems
- + Large seedheads
- + Blue-green leaves in summer
- + Tan-grey leaves in winter

Native Phragmites in Ontario

There is a native subspecies of Phragmites in Ontario that doesn't have negative impacts on wetland biodiversity. The native plant has smaller seedheads and is generally less imposing in height and thickness.

Download the *Ontario Best Management Practices Guide for Invasive Phragmites* and other resources at www.ontarioinvasiveplants.ca/resources



DUC's approach to Phragmites management

Many of DUC's conservation projects in Ontario include the added expense and disturbance of removing invasive Phragmites from the immediate area. DUC uses an integrated approach to invasive species management with different techniques according to the situation. Local removal projects are often successful but still the plant's local expansion and overall range continue to grow.

Collaborative research and management

DUC is collaborating with other conservation innovators to find management techniques that reduce the ongoing ecological damage caused by invasive Phragmites:

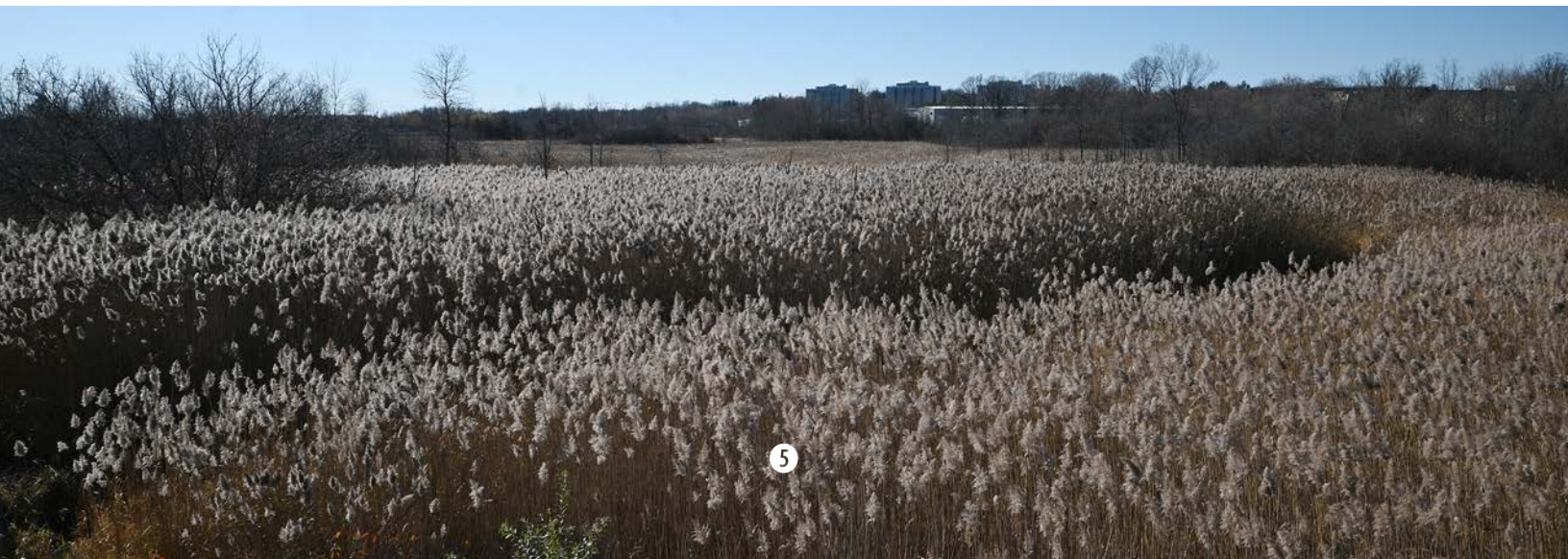
- Partnerships with like-minded organizations such as the Green Shovels Collaborative (www.greenshovels.ca)
- Protection for threatened coastal wetland habitats
- Drone program to map and monitor wetland habitats
- Teamwork for a nature-based solution to invasive Phragmites

Seeking to use nature-based management

The fight against Phragmites just got a little more interesting. In 2019, following more than two decades of rigorous research and testing, the Canadian Food Inspection Agency approved the use of two European moths (*Archanara neurica* and *Lenisa gemnipuncta*) as a biocontrol for invasive Phragmites. DUC is proud to be working with Agriculture and Agri-Food Canada and the University of Toronto to (re)introduce the moths to invasive Phragmites in targeted areas on the landscape.

Results of initial releases have been promising to date and we feel biological control will be an important component to an integrated management strategy for invasive Phragmites in Ontario. While other control techniques are still an important component in the fight against Phragmites, biological control provides a more economically sustainable and ecologically safer approach to traditional control options.

We have a successful history of testing and implementing biocontrol measures for invasive species. The introduction of beetles (*Galerucella californiensis* and *G. pusilla*) to control purple loosestrife—another invasive plant found across Canada—is an excellent example of how the introduction of an otherwise benign insect can effectively reduce invasive populations as an alternative to chemical controls.



Fast facts about biological control

Biological control is a necessary tool: Invasive Phragmites has become so prolific and is spreading so quickly that the use of herbicides and physical control techniques alone cannot control the problem. A multi-faceted, integrated pest management program is required.

Biological control is safe: Biocontrol is safe and based on sound science confirmed through decades of testing and research before approval in 2019.

⊕ Both moth species are specific to Phragmites australis. They are specialist species that cannot complete their life cycle on other plants and have proven through controlled field releases to be safe for crops and other native plant species.

Biocontrol has many advantages:

- ⊕ It reunites the invasive species with a “natural enemy” to manage populations.
- ⊕ It is specific to the host (i.e., the problematic invasive species) with low environmental impact.
- ⊕ It is cost effective and self-sustaining year to year (the moths, rather than people, do the work).
- ⊕ In the case of Phragmites, the European moths feed solely on the invasive plant. As populations of the biocontrol agents increase, the added herbivore pressure will suppress the weed’s growth and allow native plants to compete.

Biocontrol works: The introduction of biocontrol insects on purple loosestrife, another invasive plant, has proven extremely effective. We are following the same model with invasive Phragmites.



Help reduce transfer of invasive species

How invasive species spread to wetlands

Spread by nature



WIND AND WATERWAYS



SPREAD FROM GARDENS TO NATURAL AREAS



MOVEMENT OF INSECTS AND ANIMALS



Spread by people



TRANSPORTATION CORRIDORS



RECREATIONAL VEHICLES MOVING FROM SITE TO SITE



BOOTS, WADERS AND OTHER OUTDOOR GEAR



MOVEMENT OF GOODS

Help reduce the transfer of invasive species from site to site, trail to trail, river to river—and wetland to wetland. One small change can make a difference.

Clean your gear

Be sure to clean your boots, bikes and equipment after you’ve been hiking, boating, fishing or trail riding, so you don’t accidentally take invasive seeds or plants to the next adventure.

Plant a wetland-friendly garden

Become an informed gardener by researching and planting non-invasive native plants to support local ecosystems with food sources for birds, insects and other wildlife while safeguarding wetlands.

Power-wash big equipment

Take time to clean heavy equipment, tractors, and all-terrain vehicles, so you don’t move invasive seeds or plants between fields, ponds, streams and bush lots.

Learn to identify invasive species

Learn to identify invasive species. Early detection is very important for control and elimination.

Report sightings with your smartphone

Try to notice invasive plant groupings on shorelines, wetlands and shallow bays. Record and report your sightings to eddmaps.org

Learn to identify invasive aquatic plants



European water chestnut
(*Trapa natans*)

First discovered in Eastern Ontario, invasive water chestnut has now been found in the Welland River in Central Ontario. The rooted plant has sharp-toothed, floating green leaves that form a dense rosette typically found in shallow, sheltered bays amongst white or yellow pond lilies in lakes and ponds. Watch out for the nut seed's sharp, barbed spines underfoot in the sediment.



Flowering rush
(*Butomus umbellatus*)

Flowering rush is easiest to identify when in bloom and has been reported along the shores and coastal wetlands of the Great Lakes and throughout Ontario's inland lakes and waterways. Growing in clusters, each flower has three white to pink petals on a leafless stalk up to 1.5 metres (5 feet) tall. Single flowering rush plants can develop into dense stands that crowd out native plants and block shorelines.



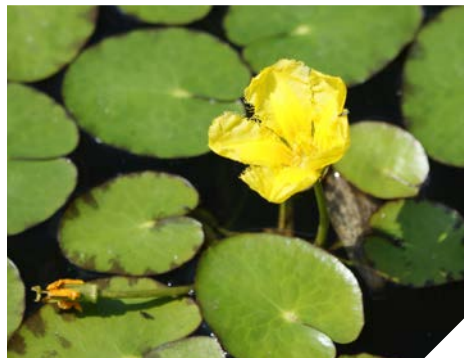
European Frog Bit
(*Hydrocharis morsus-ranae*)

Introduced in 1939, European frog bit has spread across wetlands in Eastern Ontario and coastal wetlands of Lake Erie and Lake Ontario. This free-floating plant grows in slow-moving waters such as sheltered inlets, ponds, slow-running rivers and ditches. It has a white flower with three petals and a yellow centre and small leaves that cluster in a rosette at the water's surface.



Water soldier
(*Stratiotes aloides*)

Water soldier is underwater until summer when it becomes buoyant with its sword-shaped, bright green, serrated leaves like an aloe plant or the top of a pineapple. This plant was introduced as a garden species and has been found in the Trent River, Redhorse Lake, Black River and various isolated ponds.



Yellow floating heart
(*Nymphoides peltata*)

This floating-leaved plant was originally introduced from Asia and Europe for use in water gardens. It grows in slow-moving waters within similar conditions as native lily species. Yellow floating heart can be easily identified by the yellow, five-petal flowers and round floating leaves that grow up to 10 centimetres (4 inches) in diameter.



Parrot Feather
(*Myriophyllum aquaticum*)

Parrot feather is an emergent plant from South America that is popular for aquariums or water gardens. The plant grown in shallow water and the stems become rigid as they emerge. The leaves are whorled and feathery underwater but bluish-green where they emerge. This plant has been discovered in Ontario but is not established here.



Ducks Unlimited
Canada



We use science to find solutions — and every day we find new opportunities to help conserve some of Canada's most important habitat.

Together we can make an impact.

Acknowledgements

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For more information about invasive species and wetlands:

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