



Aquatic Invasive Species and the Lower Beverley Lake

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Invasive Species Centre

July 12, 2023

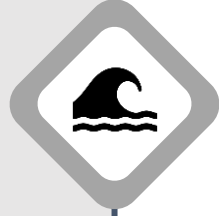


Invasive
Species
Centre

AGENDA



Who Are We?



Background on Aquatic Invasive Species



Meet the Species



Opportunities for Action



Contact Information



Invasive Species Centre

The **Invasive Species Centre** is a not-for-profit organization that connects stakeholders, knowledge and technology to prevent the introduction and spread of invasive species that harm Canada's environment, economy and society.



What do we do?

Priority Outcomes:

Vision: The Invasive Species Centre's vision is a Canada where land and water are protected from invasive species.

1

**Increase and
Diversify Investment**



2

Catalyse Action



3

**Share
Knowledge**



A SPECIES IS CONSIDERED **INVASIVE** WHEN:



It's introduced to an ecosystem **outside of its native range.**



It has potential impacts on **ecology, the economy, or society** in its introduced range.

MANY INVASIVE SPECIES:



Are **fast-growing** and reproducing species.



Lack natural predators that would slow their spread.



Target native species that lack defense mechanisms.

What's the issue with Invasive Aquatic Species?



Decrease Property Value – Invasive species like Phragmites can diminish the aesthetics and usability of lakefront property, decreasing its value



Disrupt Lake Ecology – Through changes in habitat or species composition. Ex. Red Swamp Crayfish can reduce native fish populations through egg predation, spread pathogens to native crayfish and reduce suitable vegetation



Impact Recreation – Through reduction of sportfish populations, blocking recreational waterways and altering waterfront areas. Ex European Water Chestnut which forms dense floating mats that impede swimming and boating and produces hard nuts with barbed spines that can accumulate on the shore and cause injury when stepped on

Meet the Species



Invasive Phragmites



Other Aquatic Plants

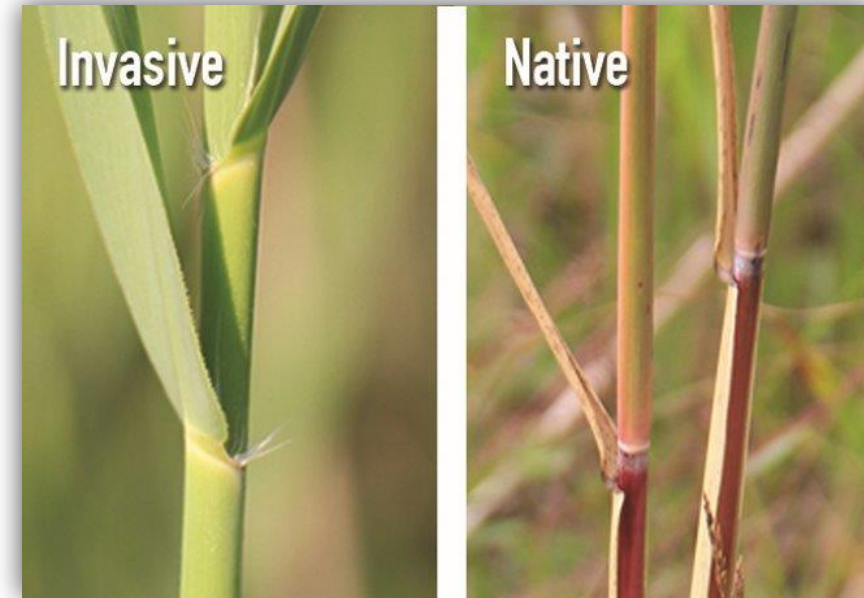


Fish and Aquatic
Invertebrates

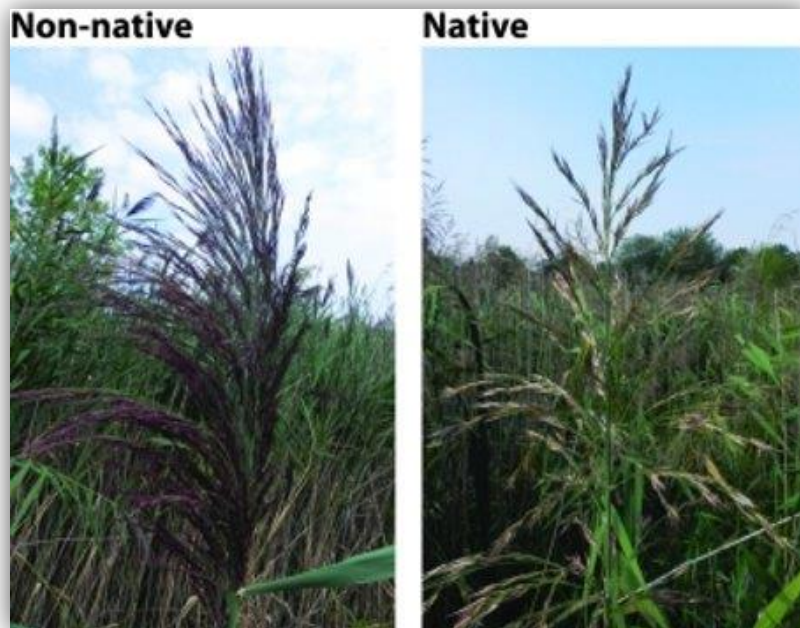


Phragmites

- Native to Eurasia
- Up to 15ft tall
- Prefers wet ecosystems
- Allelopathic
- Grows in dense monocultures



Mitt Watershed Council



Invasive	Native
Rough, dull stem	Smooth shiny stem
Blue-green leaf	Yellow-green leaf
Leaf sheaths remain attached, difficult to remove	Leaf sheaths easily removed in fall
Base stem tan coloured in spring/summer	Base stem red coloured in spring/summer
High density	Low density

Phragmites



Leslie J. Mehrhoff, University of Connecticut



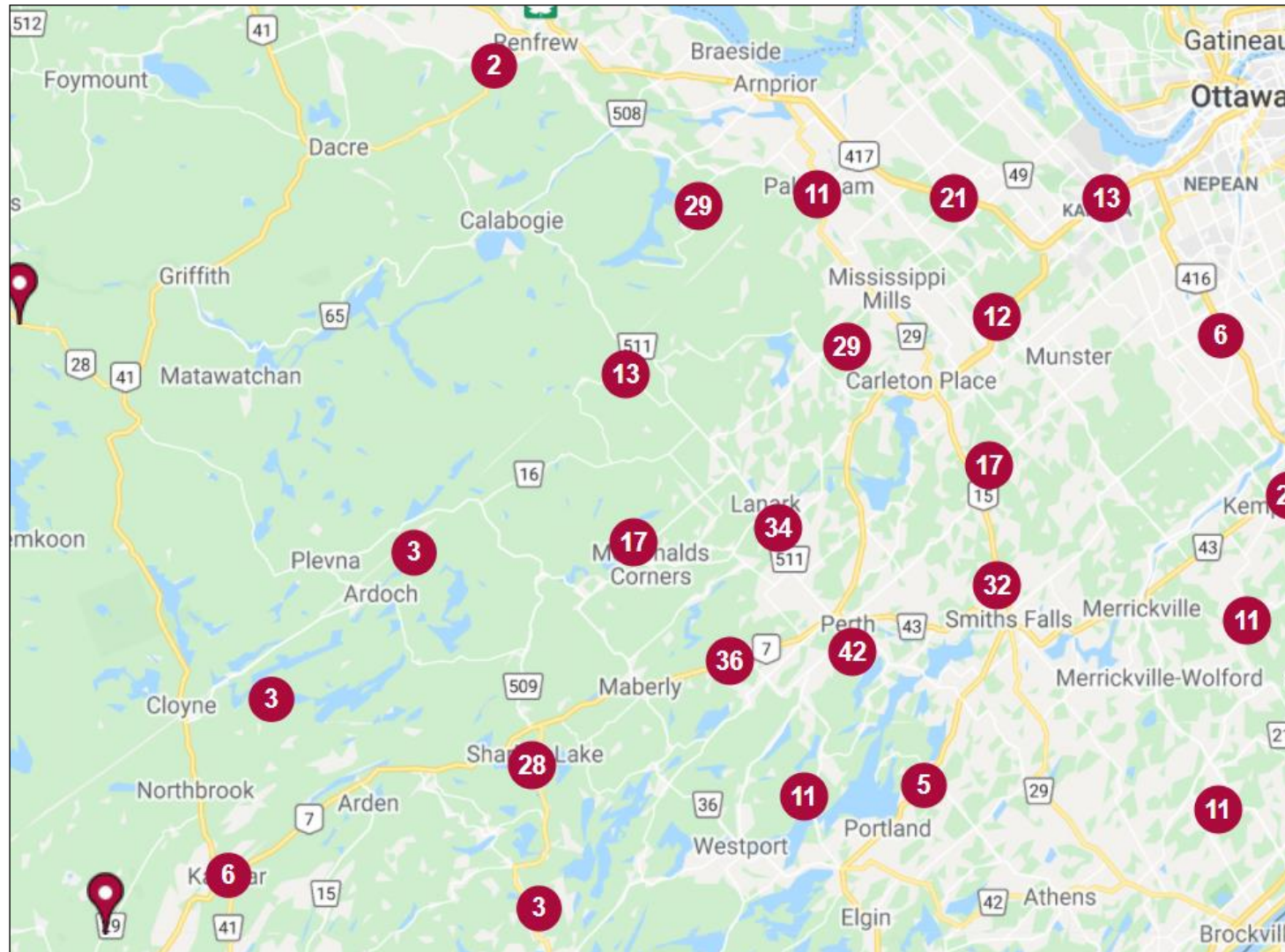
Leslie J. Mehrhoff



MECP

Economic	Social	Ecological
<ul style="list-style-type: none">• High maintenance costs on roadways and private property• Fire hazard• Reduced visibility	<ul style="list-style-type: none">• Impedes access to natural areas• Cut stalks can post health risk	<ul style="list-style-type: none">• Serious losses to plant and animal diversity• Affecting all reptiles that are considered SAR

Phragmites



EDDMapS. 2021. Early Detection & Distribution Mapping System. The University of Georgia - Center for Invasive Species and Ecosystem Health.

Invasive Phragmites Control Fund



Invasive
Species
Centre



Centre des
espèces
envahissantes



The Invasive Phragmites Control Fund



- Seeks to support groups or organizations implementing Phragmites control activities in Ontario by providing grants
- Grant of up to \$10,000 available for Groups or organizations in Ontario
- Now accepting funding proposals! Applications must be submitted electronically by 11:59pm, Friday, July 21st, 2023
- Visit <https://www.greenshovels.ca/invasive-phragmites-control-fund/> for more information



Contact Kendra Jolley at: kjolley@invasivespeciescentre.ca for questions or additional information



Other Invasive Aquatic Plants



Eurasian watermilfoil



Water soldier



Curly pondweed

Impacts of Invasive Aquatic Plants

Economic	Social	Ecological
<ul style="list-style-type: none">• Decreased property value• Impacts to commercial fishing• Damage to Boat Motors	Monocultures: <ul style="list-style-type: none">• Inhibit boating and swimming• Create still water breeding grounds for mosquitos	<ul style="list-style-type: none">• Crowd out native vegetation• Decrease oxygen levels• Impact fish populations• Alters water chemistry (ex. water soldier)

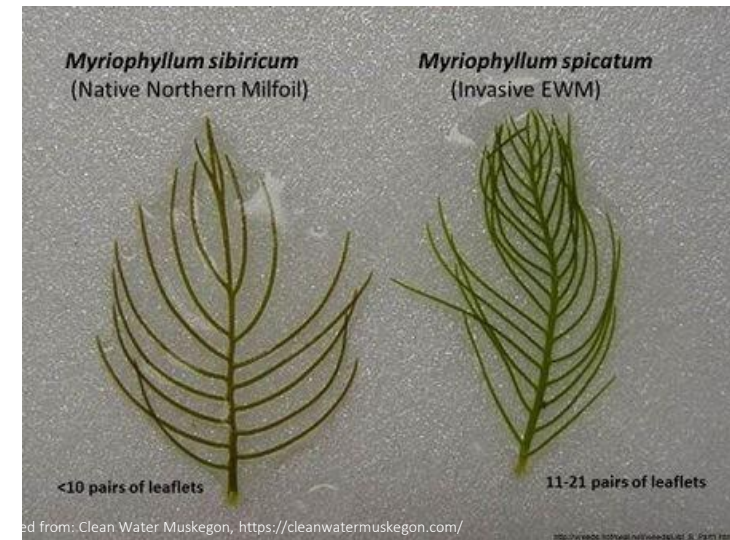
Eurasian Watermilfoil

- Perennial plant that grows under the water surface.
- Feather-like green leaves circle the stem in groups of four or five.
- Leaves have 12 or more thread-like segments (leaflets).
- Reproduced from fragments and seed, making total eradication unlikely once established
- Tiny, reddish flowers grow on spikes five to 20 centimetres long that rise above the water in late July and early August.
- Not sure if it's EWM? Snap a photo and report it to EDDMapS!

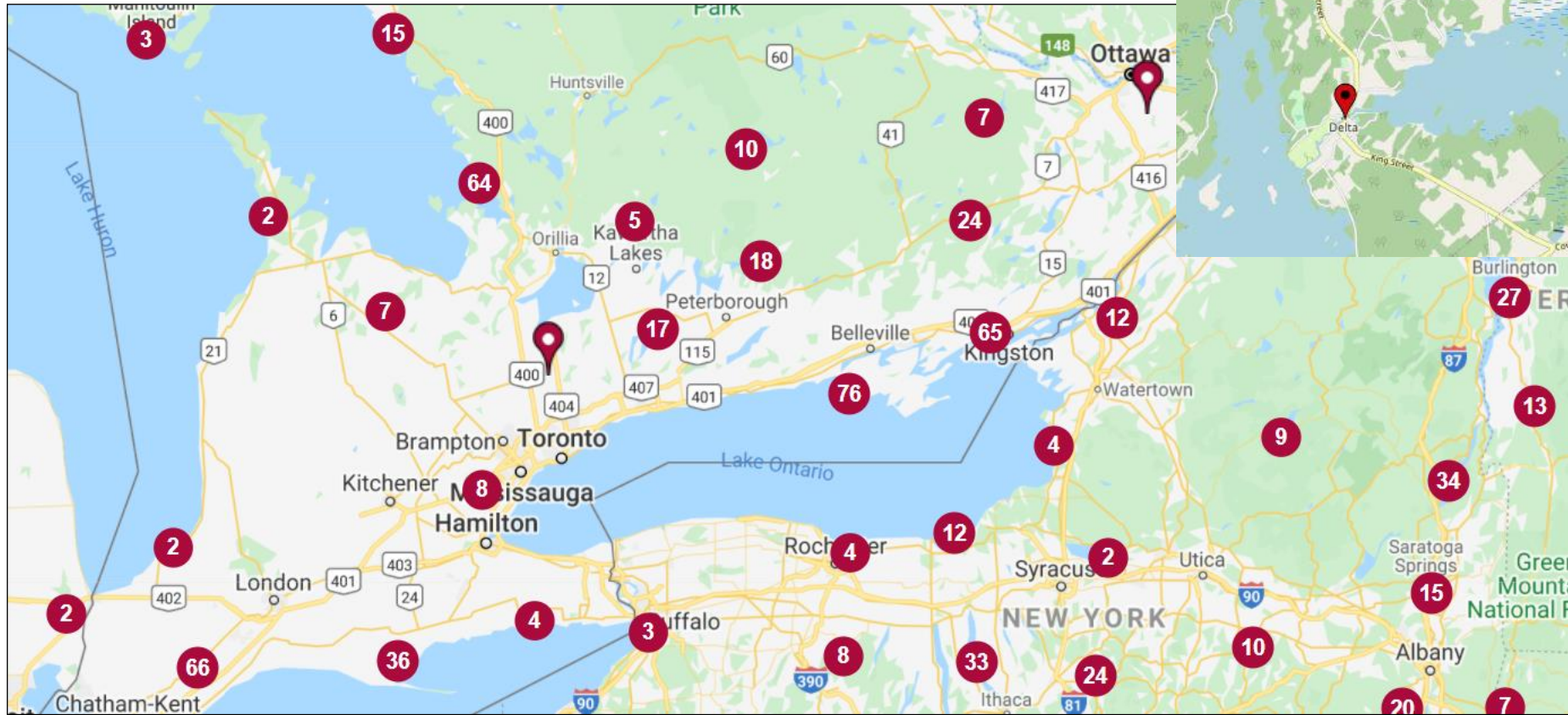


Native vs invasive watermilfoil

Species	# of leaflets
Eurasian watermilfoil (invasive)	12-21
Northern watermilfoil (native)	5-9
Hybrid watermilfoil (invasive)	8-12



Eurasian Watermilfoil



EDDMapS. 2021. Early Detection & Distribution Mapping System. The University of Georgia - Center for Invasive Species and Ecosystem Health.

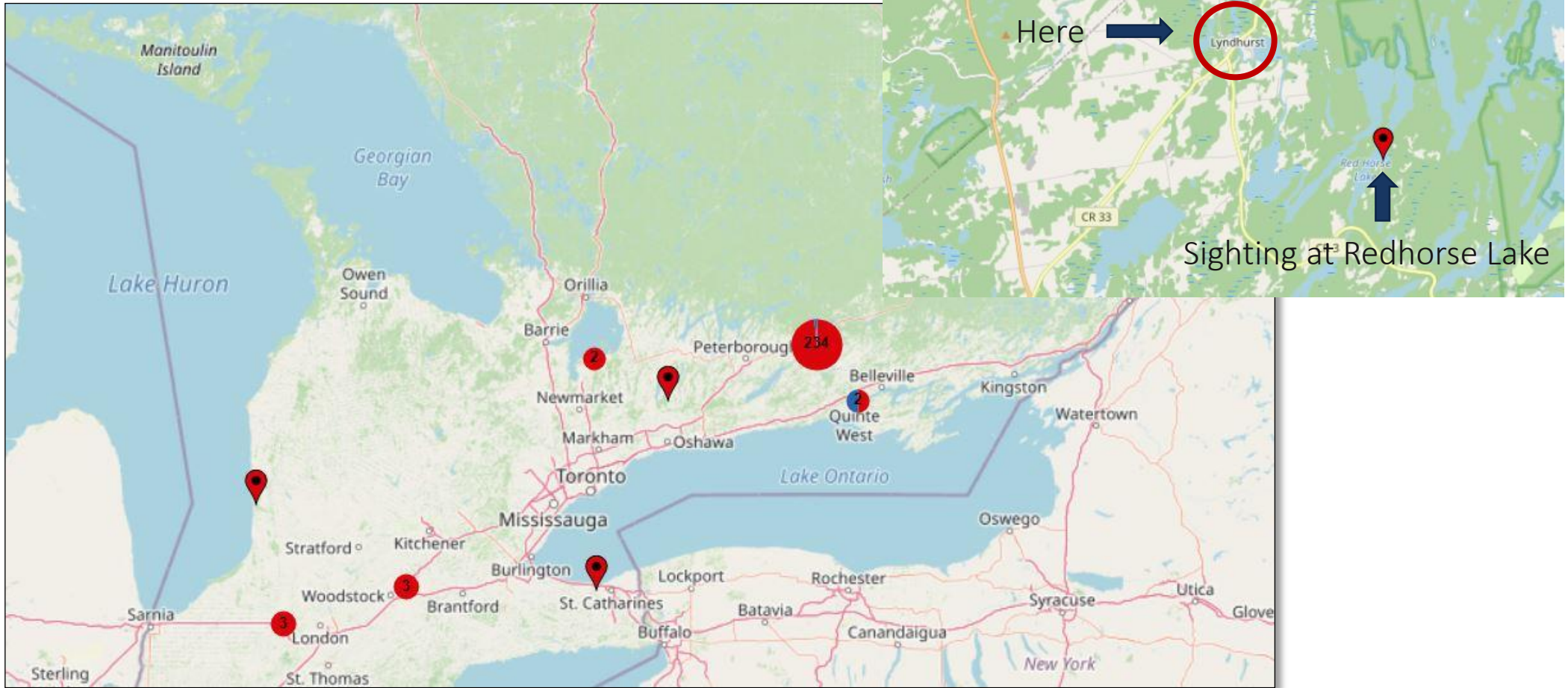
Water Solider

- Native to Europe and northwest Asia
- Looks like aloe plant, spider plant, or the top of a pineapple
- Native look-alikes include bur-reed, arrowhead, or eelgrass
- Mature water soldier plants produce offsets

Leaves
40 cm long
thin swords
sharp serrated edges
bright green
form large circle



Water soldier



EDDMapS. 2022. Early Detection & Distribution Mapping System. The University of Georgia - Center for Invasive Species and Ecosystem Health.

All detections are under management by the MNRF and OFAH

Curly-leafed pondweed

- Can grow at low temperatures with little light and can survive through the winter
- Thrives in polluted environments
- Dense colonies can:
 - Hinder fish movement
 - Cause eutrophication and algal blooms
 - Outcompete native plants and reduce biodiversity

Identifying features

Grows up to 5 m long

Has wavy, toothed, alternate leaves

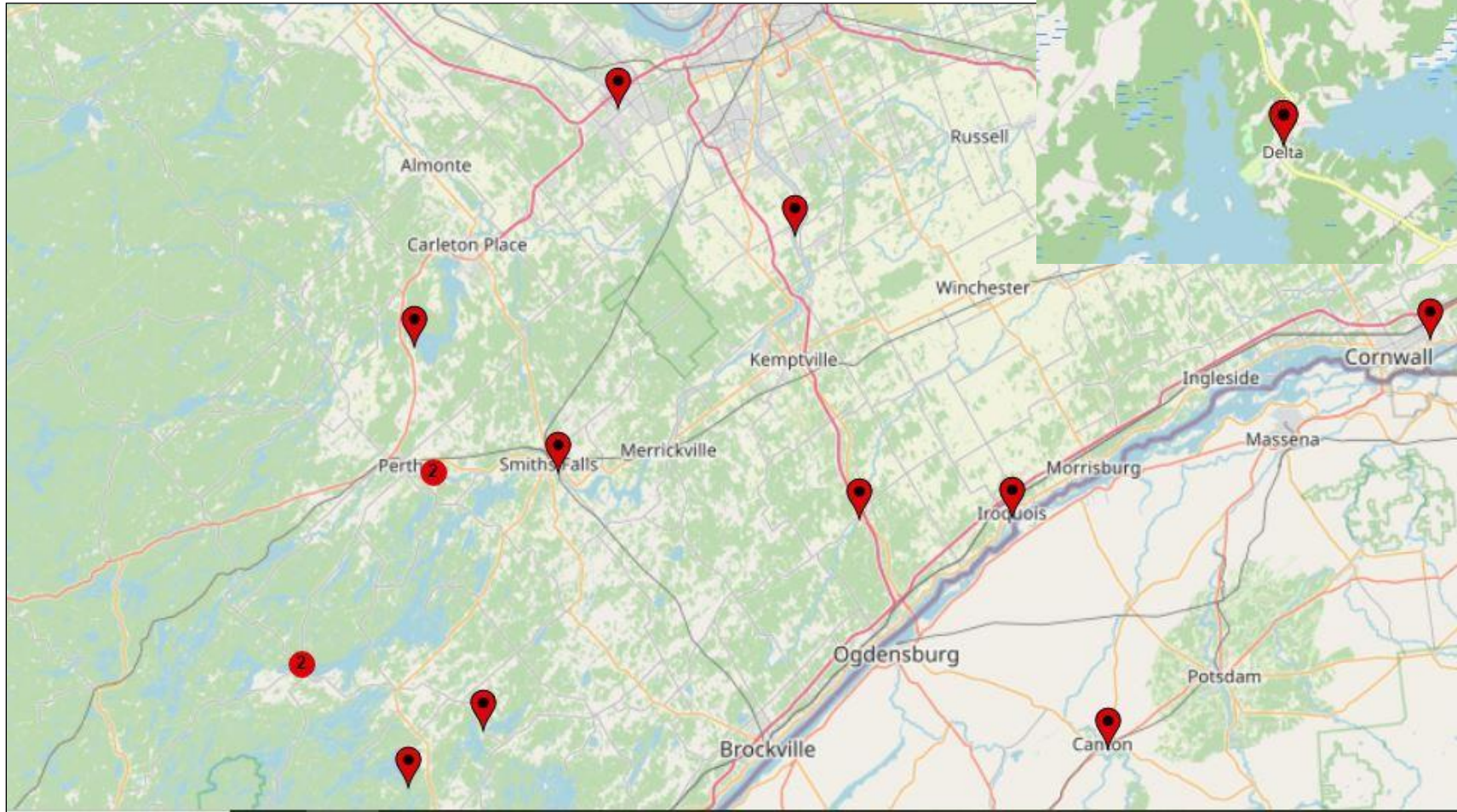
Sharp serrated edges

Leaves are green, reddish, or brown

Yellow or red rhizomes



Curly leaf pondweed

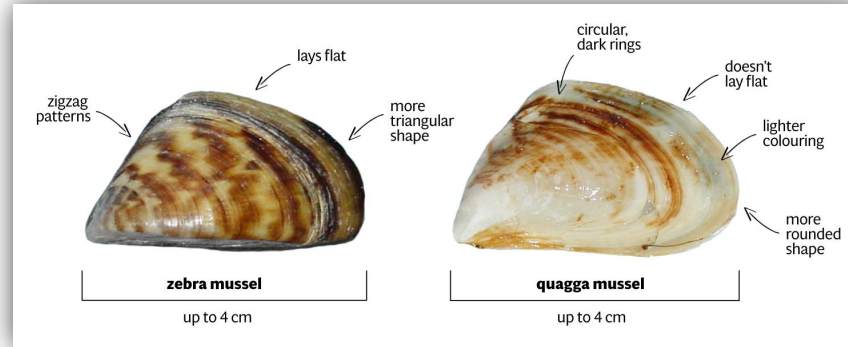


EDDMapS. 2021. Early Detection & Distribution Mapping System. The University of Georgia - Center for Invasive Species and Ecosystem Health.

Invasive Fish and Aquatic Invertebrates



Spiny waterflea



Zebra and quagga mussels



Goldfish

Impacts of Invasive Aquatic Plants

Economic	Social	Ecological
<ul style="list-style-type: none">Impacts to the fishing industry due to declines in native fish populationsZebra/quagga mussels can obstruct water intake pipes and accumulate on boats	<ul style="list-style-type: none">Impede recreational water activities such as swimming and boatingImpacts to native fish populations impact recreational fishingSpiny waterflea can damage fishing equipment	<ul style="list-style-type: none">Alter food webs by decreasing food available to native speciesAlter water properties to the detriment of native speciesOver predation on native species

Spiny waterflea

- Spiny waterfleas are just visible with the naked eye at approximately 1.5 cm in length
- 1-3 paired barbs on its tail spine, which are used as a defence mechanism to deter predation by small fish
- Spiny waterfleas can appear orange, blue, or green in colour with a stripe of red running halfway down the length of the tail
- Waterbodies that have been infested will contain jelly-like globs of spiny waterfleas with black dots and bristles
- These blobs can get caught on fishing lines or other equipment

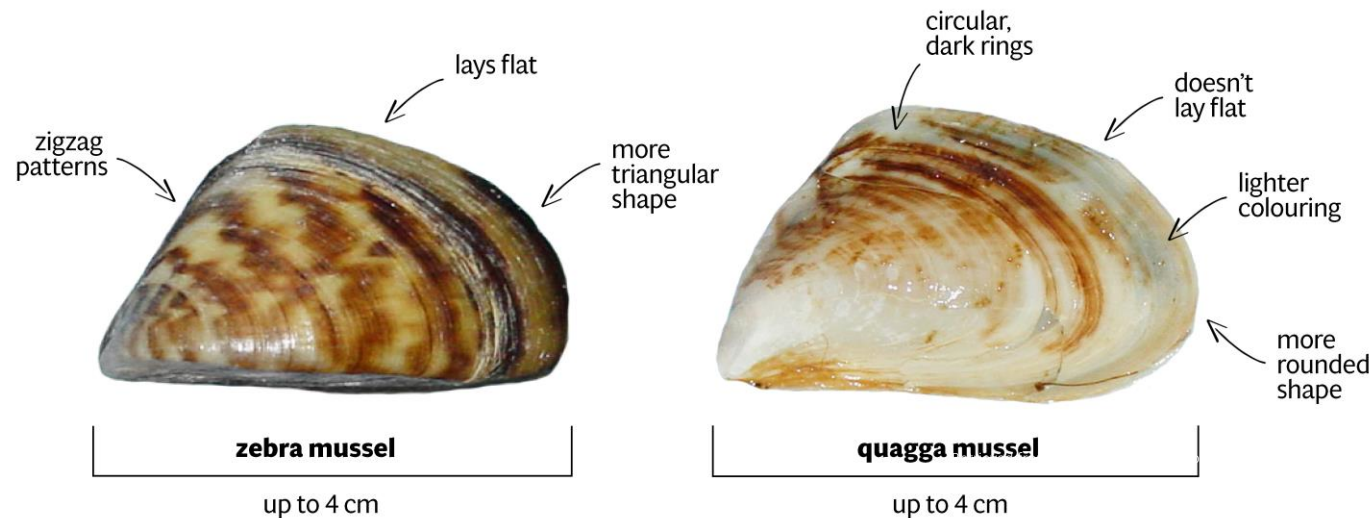


Trait	Description
Size	1.5 cm in length
Tail	With 1-3 paired barbs
Colour	Orange, blue, or green with a stripe of red down the tail
Abdomen	Has 6 legs with an egg sac located on the dorsal side



Zebra and quagga mussels

- Small freshwater mussel named for the striped pattern of their shell
- typically found attached to objects, surfaces, or other mussels
- They latch on to boats and can be easily spread between water bodies.
- Filter plankton out of the water, which depletes it as a food source for native species.
- Clog water intake lines because of their dense colonies



Pet Release

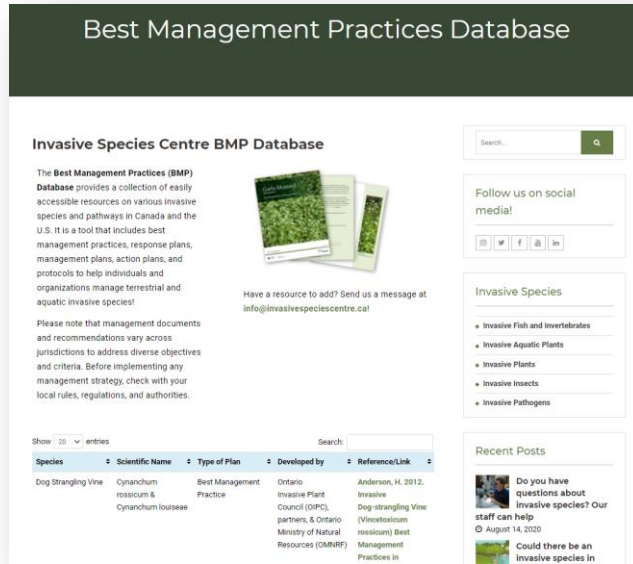
- Species popular as pets, like goldfish, marbled crayfish and red-eared sliders may be released into the environment accidentally or purposefully by pet owners
- Overfeeding on native species (fish eggs, fish larvae, and aquatic plants) magnifies their impact on ecosystem health and biodiversity
- Can spread disease to native species such as native turtles and native crayfish
- Public education on the environmental impacts of pet release is vital to prevent introduction
- Overall message: Don't let it loose!



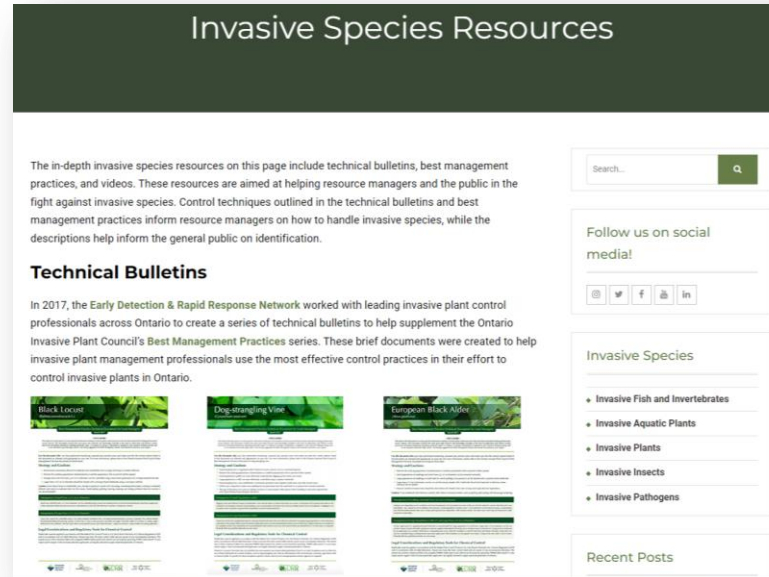
Opportunities for Action



Available Resources



[Visit our Best Management Practice Database!](#)



See our [resource page](#) for Technical Bulletins, Factsheets, and more!



See our [species profiles](#) for prevention, identification and more!

You can also check out the [Land Owner Guide for Invasive Plants in Ontario](#) for management information!

What you can do!

- Identify species and prevent accidental spread - [Visit our species profiles!](#)
- Avoid and reduce speed for infested boat areas
- Inspect you boat, trailer and equipment
- Ask garden centers and aquarium dealers for non-invasive plants or animals



Invasive species prevention is as easy as clean, drain, dry!

Ensuring your watercraft is invasive species free takes just 3 quick and easy steps!

Clean any plants, mud, mussels or debris from your boat and equipment.

Drain all standing water from your bilge, motor and livewell.

Dry your boat for 2-7 days or disinfect it with hot or pressurized water.

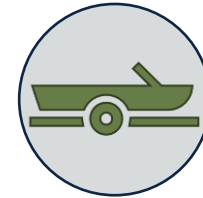
Here are common places aquatic invasive species may be hiding:



No equipment needed!



[New Regulations](#)



[Ontario Boater Guidelines](#)



[More Information](#)

Report it!



The **Early Detection and Distribution Mapping System** (EDDMapS) allows anyone to report invasive species.

All sightings are verified by invasive species specialists.



[Visit EDDMaps.org](https://www.eddmaps.org)



[Download the app on your Apple or Android Device](#)

Thank you!



**Invasive
Species
Centre**

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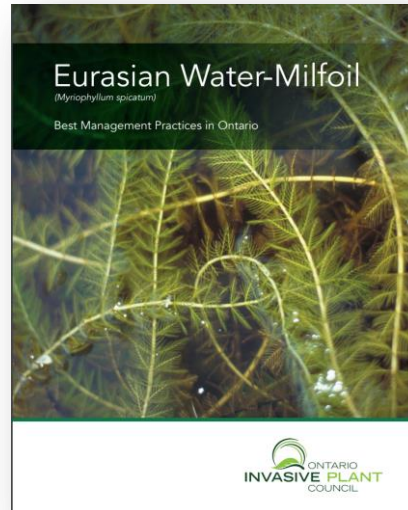
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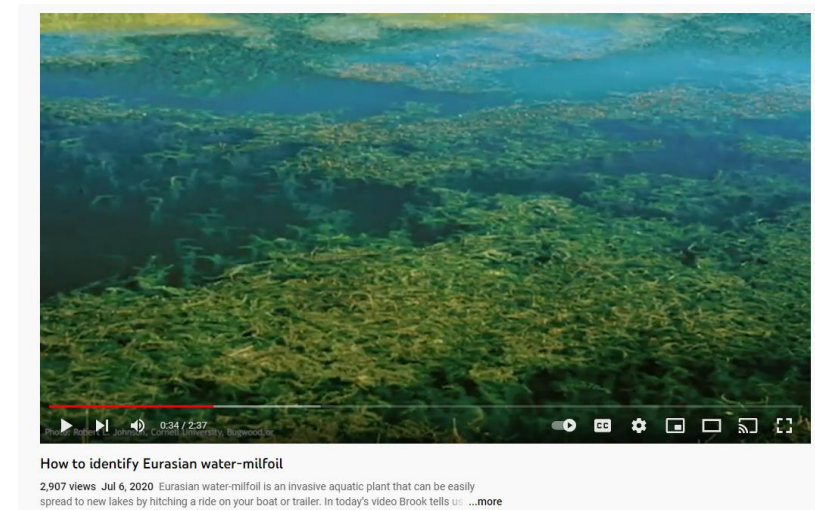
Eurasian Watermilfoil Resources



Fact Sheet



Best Management Practices



How to identify Eurasian Watermilfoil



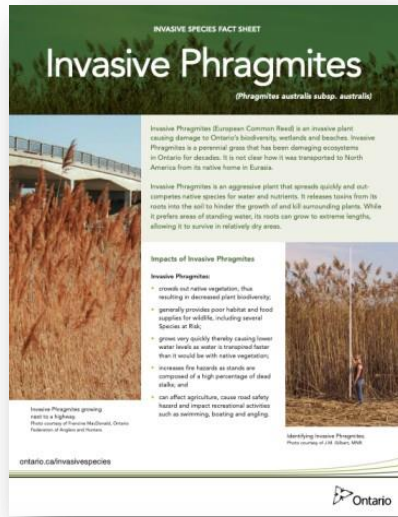
Eurasian Watermilfoil – Profile and Resources | Invasive Species Centre



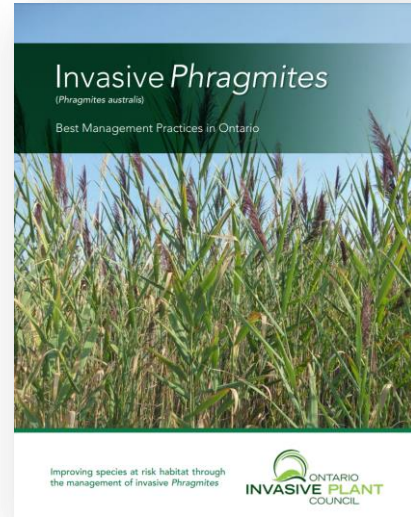
Ontario Invasive Plant Council

Invasive Species Centre

Phragmites Resources



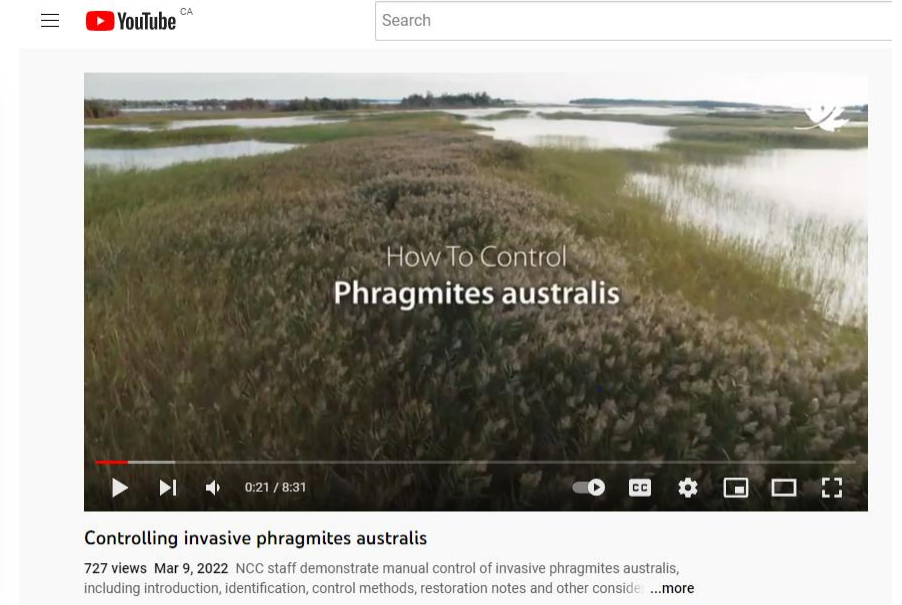
[Ontario Factsheet](#)



[Best Management Practices](#)



[Technical Document for Land Managers](#)



[Controlling invasive phragmites australis - NCC YouTube Video](#)



[Invasive Phragmites Control Centre](#)



[Green Shovels](#)

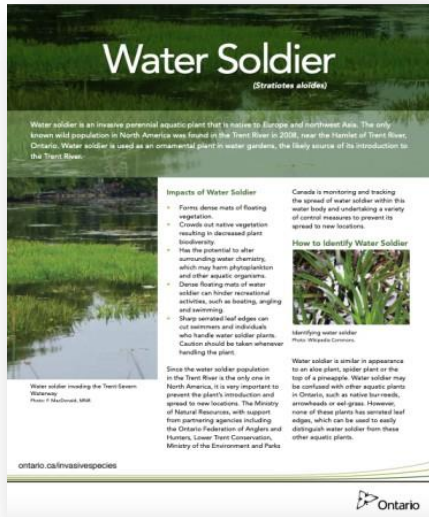


[Ontario Invasive Plant Council](#)



[Invasive Phragmites – Profile and Resources | Invasive Species Centre](#)

Water Soldier Resources



[Ontario Factsheet](#)



[Red Horse Lake Early Detection and Rapid Response \(39 minute mark\)](#)



[Webinar: Water soldier \(*Stratiotes aloides*\) eradication efforts in Ontario](#)



[Water Soldier – Profile and Resources | Invasive Species Centre](#)



[Ontario Invasive Plant Council](#)

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