

Aquatic Invasive Species

Lake Waseosa Ratepayer's Association



ONTARIO'S
**INVADING
SPECIES**
AWARENESS PROGRAM

Ontario
Trillium
Foundation



Fondation
Trillium
de l'Ontario

An agency of the Government of Ontario
Un organisme du gouvernement de l'Ontario

Jeff Berthelette
Invasive Species Outreach Liaison

Photo credits: Dayna Laxton (Left) & A. Kirkwood (Right)

Before I begin...



Water springtails, *Podura aquatica*

- Scavenger species, like terrestrial springtails
- Remove detritus and decomposing plant vegetation on the water surface
- Holarctic (Northern Hemisphere) distribution
- Beneficial invertebrate that helps keep water and shorelines clean.

Agenda

1. OFAH & ISAP
2. AIS Identification
3. Reporting
4. Water Steward Project Background
5. Conducting AIS Checks



Invasive Species



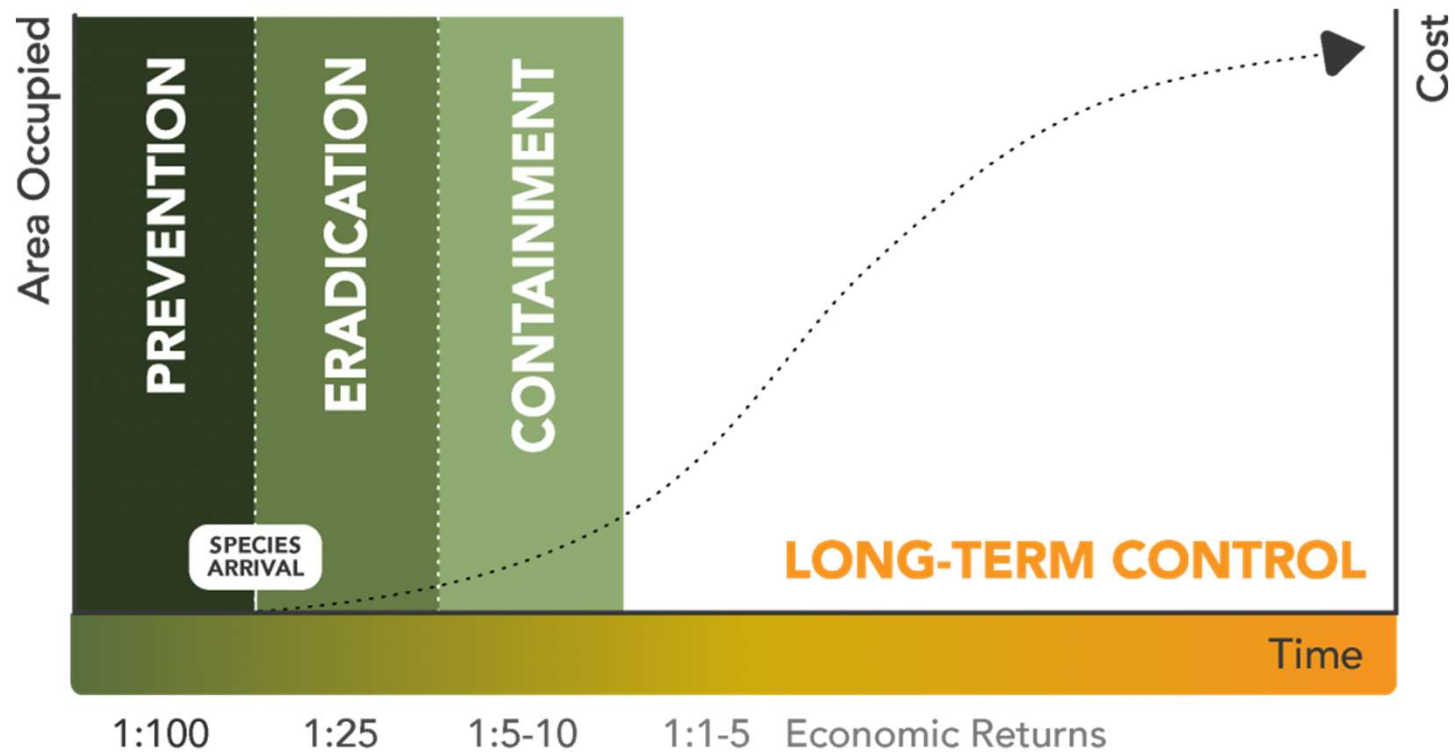
- Invasive species are among the most serious threats to Ontario's biodiversity and the wide range of goods and services it provides for our communities/industries, including fishing and hunting
- Ontario has the highest number of invasive species in Canada
- Estimated impacts (annual)
 - \$1.4 trillion globally
 - \$3.6 billion in Ontario
 - \$50 million to municipalities and conservation authorities

How Invasive Species Spread

Focus on key pathways for introduction & spread



Targeted Outreach



Source: Invasive Species Centre

What is the ISAP?

Long-standing education/awareness partnership of the OFAH & MNRF



Generate Education & Awareness

Focus on key pathways for introduction and/or spread



Facilitate Monitoring & Early Detection

Invading Species Hotline
EDDMapS Ontario



Support Surveillance, Control & Response

Water Soldier Eradication
Invasive Carp early detection



Asian Carp



4 species of Asian carps (Bighead, Silver, Grass, and Black)

Common Carp (*Cyprinus carpio*) is NOT one of the Asian carps

Introduced to aquaculture ponds in the 1960's and 1970's

Escaped enclosures into the Mississippi River

Electrical barrier currently managed by the US Army Corps of Engineers

NO established populations in Ontario's waters

Round Goby (*Neogobius melanostomus*)



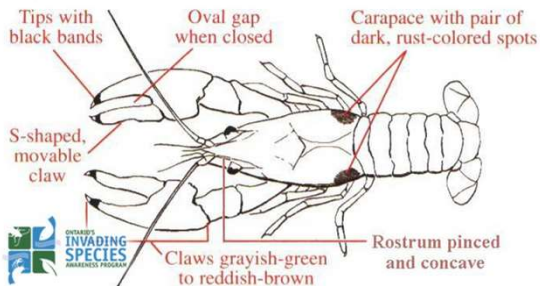
Origin: Nearshore, prefer rock or cobble substrate in Eastern Europe

Identification: Mottled gray and brown with a prominent black spot at the rear of the dorsal fin. Pectoral fins are fused into a disc.

Diet: Feed on fish eggs such as those of native smallmouth bass and are aggressive competitors with small native fish

Size: Less than 7 in.

Rusty Crayfish (*Faxonius rusticus*)



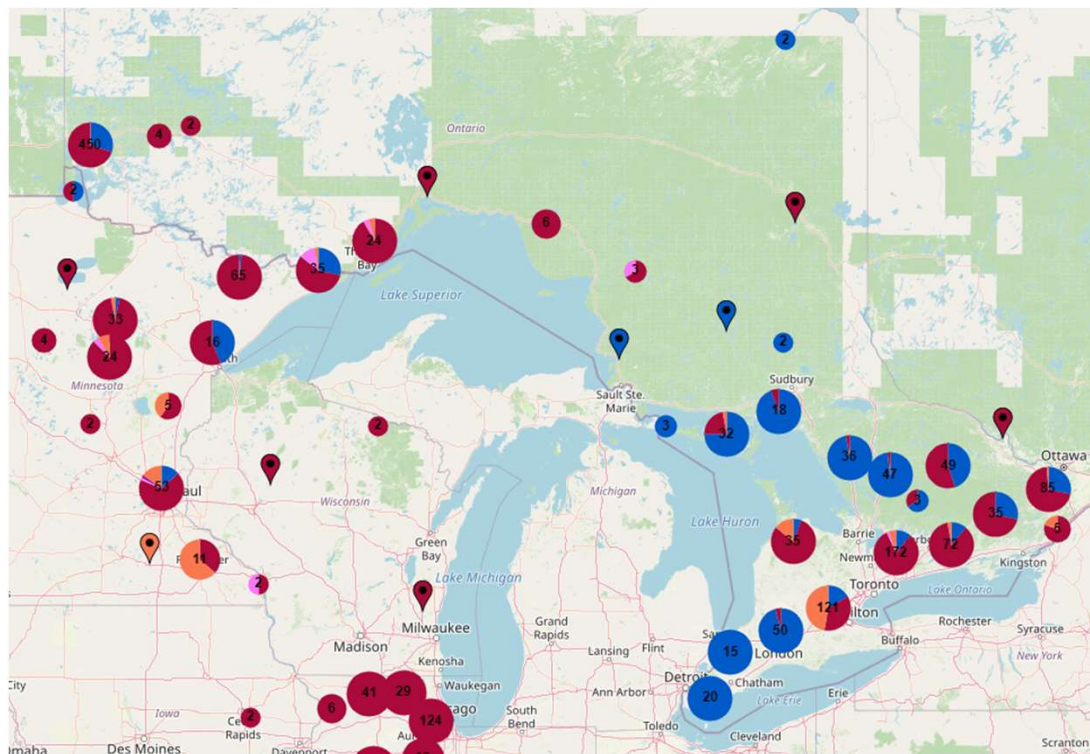
Origin: Ohio River Basin, introduced to Ontario by anglers discarding them as bait, first seen in 1960's.

Identification: Brownish-Green with rusty-red spots on either side of the carapace.

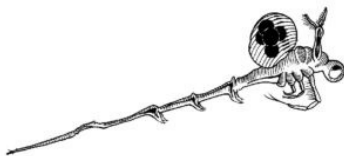
Diet: Compete for resources, can reduce vegetation for native spawning fish.

Size: 4 in.

Rusty Crayfish (*Faxonius rusticus*)



Spiny Waterflea (*Bythotrephes longimanus*)



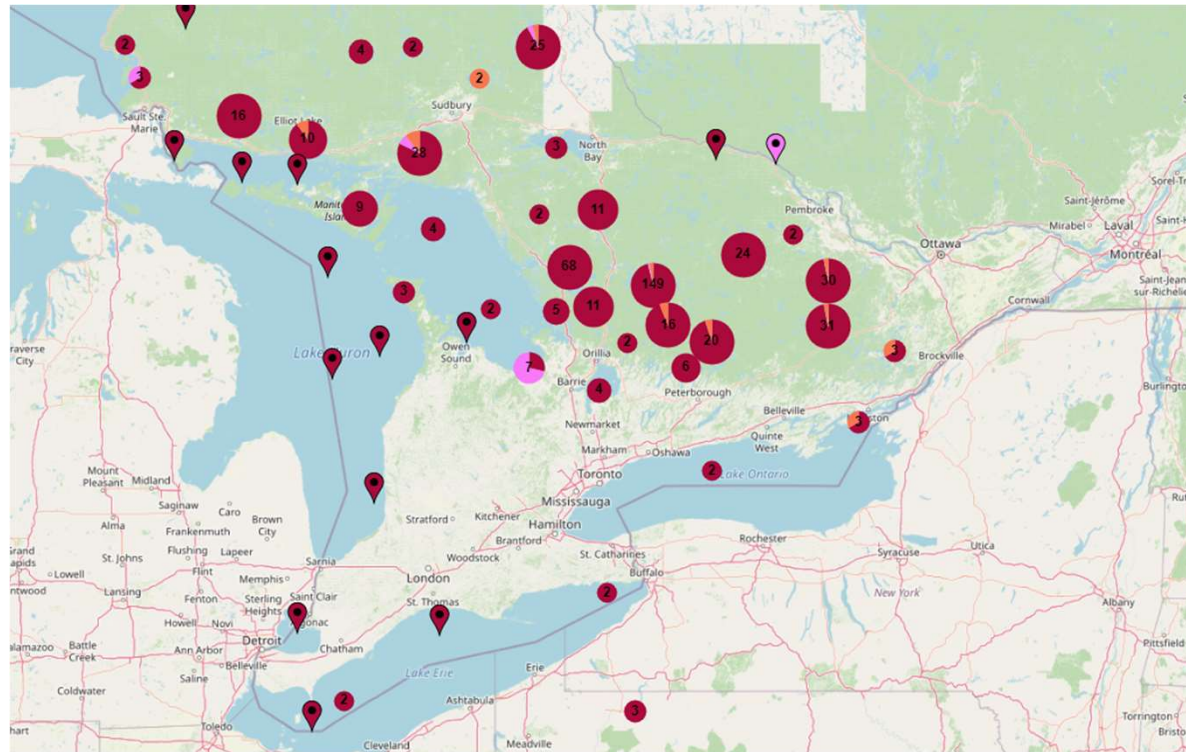
Origin: Northern Europe and Asia, introduced via ballast water, first seen in 1998.

Identification: Large primary black eye, well developed abdomen, long thin caudal tail that can be barbed.

Diet: Compete with larva and small fish for food and can kill fry that choke on them.

Size: 8.5 – 12 mm including tail

Spiny Waterflea (*Bythotrephes longimanus*)



Zebra Mussel (*Dreissena polymorpha*) Quagga Mussel (*Dreissena bugensis*)



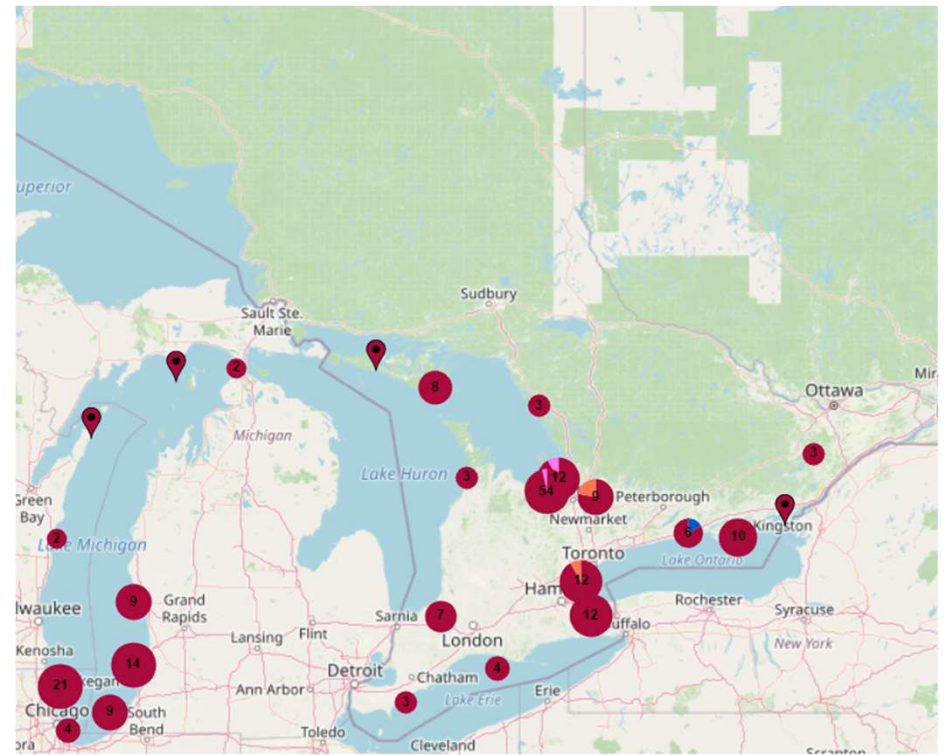
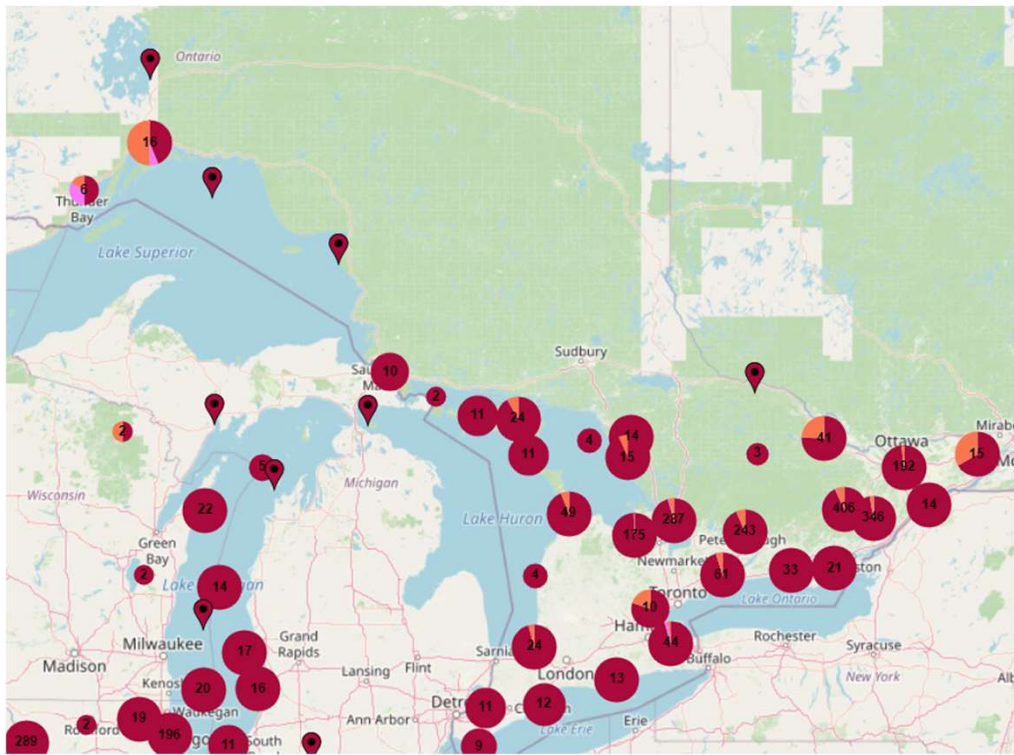
Origin: Black Sea region of Eurasia introduced in the late 1980s via ballast water.

Identification: Zebra Mussels have banding and flat lateral bottom. Quaggas have no banding, does not sit flat and are asymmetrical laterally.

Diet: filter water for plankton, can cause clear water.

Size: 2 - 4 cm.

Zebra Mussel (*Dreissena polymorpha*) Quagga Mussel (*Dreissena bugensis*)



Chinese Mysterysnail (*Bellamyia chinensis*) Banded Mysterysnail (*Viviparus georgianus*)

Origin: Eastern Russia and Asia, first seen in St. Lawrence in 1991. Introduced via aquarium trade.

Identification: CMS is large, brownish to olive, has a spherical shoulder whorls separated by sutures, BMS is smaller, yellow to greenish brown with 3-4 brown spiral bands.

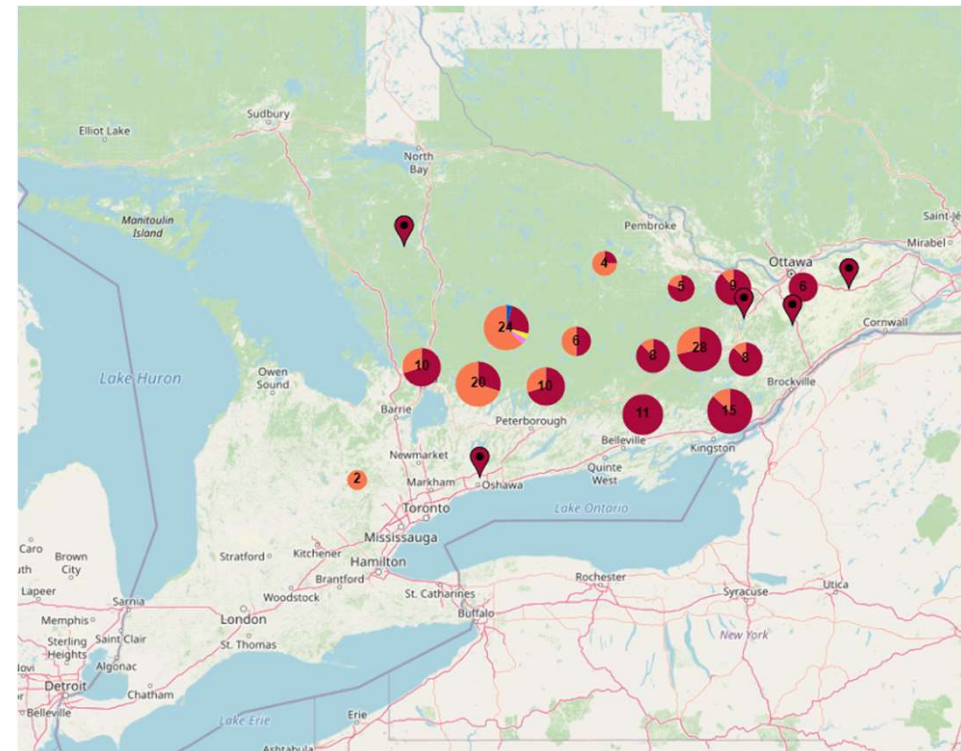
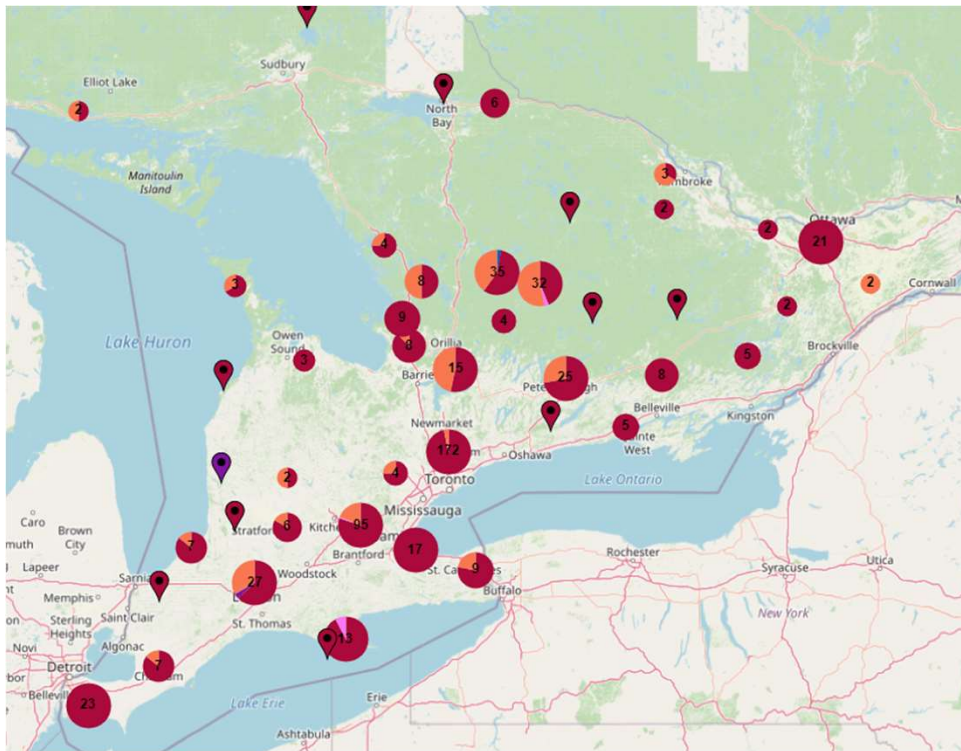
Diet: Fish eggs, native plants

Size: CMS – 6.5 cm, BMS – 3.5 cm

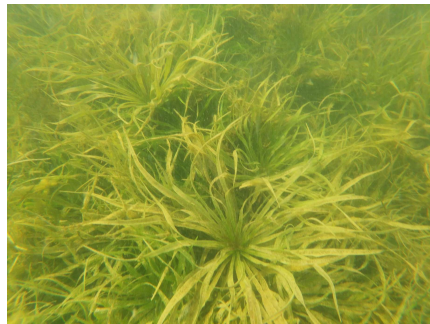


Chinese Mysterysnail (*Bellamyia chinensis*)

Banded Mysterysnail (*Viviparus georgianus*)



Water Soldier (*Stratiotes aloides*)



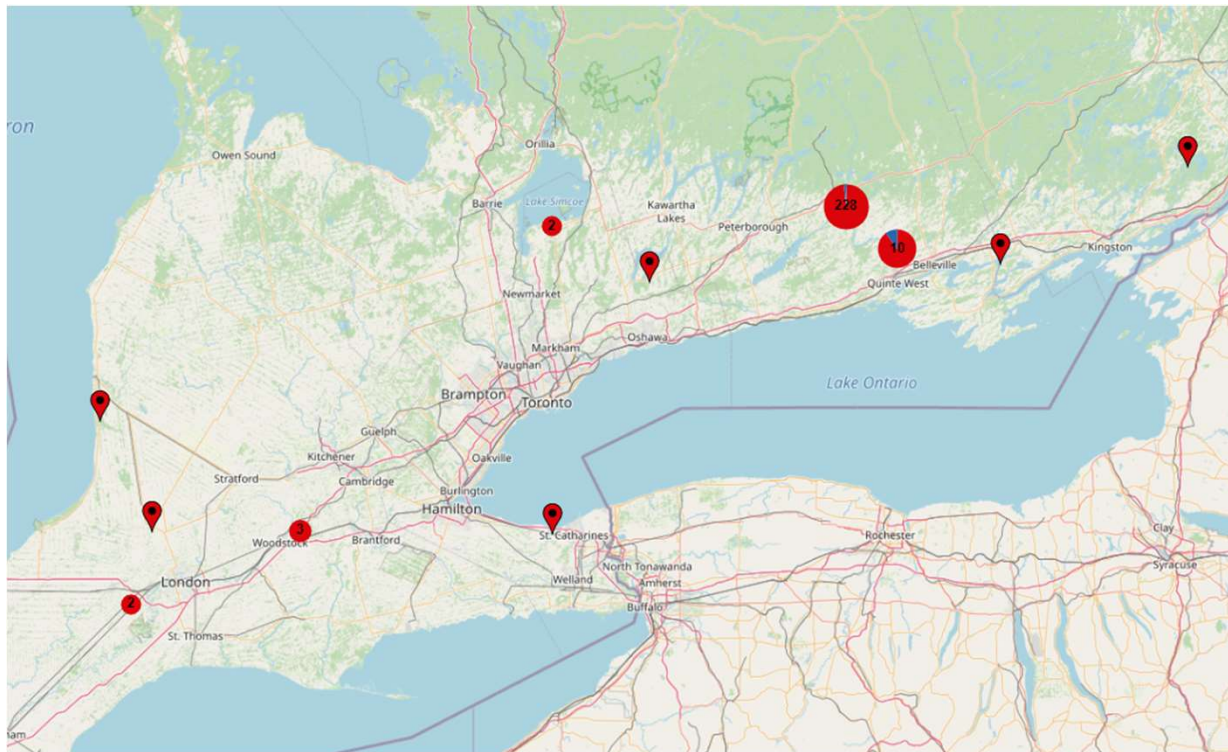
Origin: Europe and Northwest Asia, introduced via water gardens, first seen in 2008 in the Trent River.

Identification: Submerged aquatic plant, becomes buoyant in summer, bright green, serrated, sword shaped-leaves grow in a rosette. Flowers are white with three petals.

Size: 40 cm long leaves

Impact: Can form dense mats, decrease diversity, and hinder recreational activities.

Water Soldier (*Stratiotes aloides*)



- Prohibited under ISA
- Illegal to import, possess, deposit, release, transport, breed, buy, sell, lease or trade.
- MNRF has completed prevention and response plans for WS to allow groups to remove it.

Eurasian Water-milfoil (*Myriophyllum spicatum*)



(Washington State, 2018)



(Lovell, 2021)

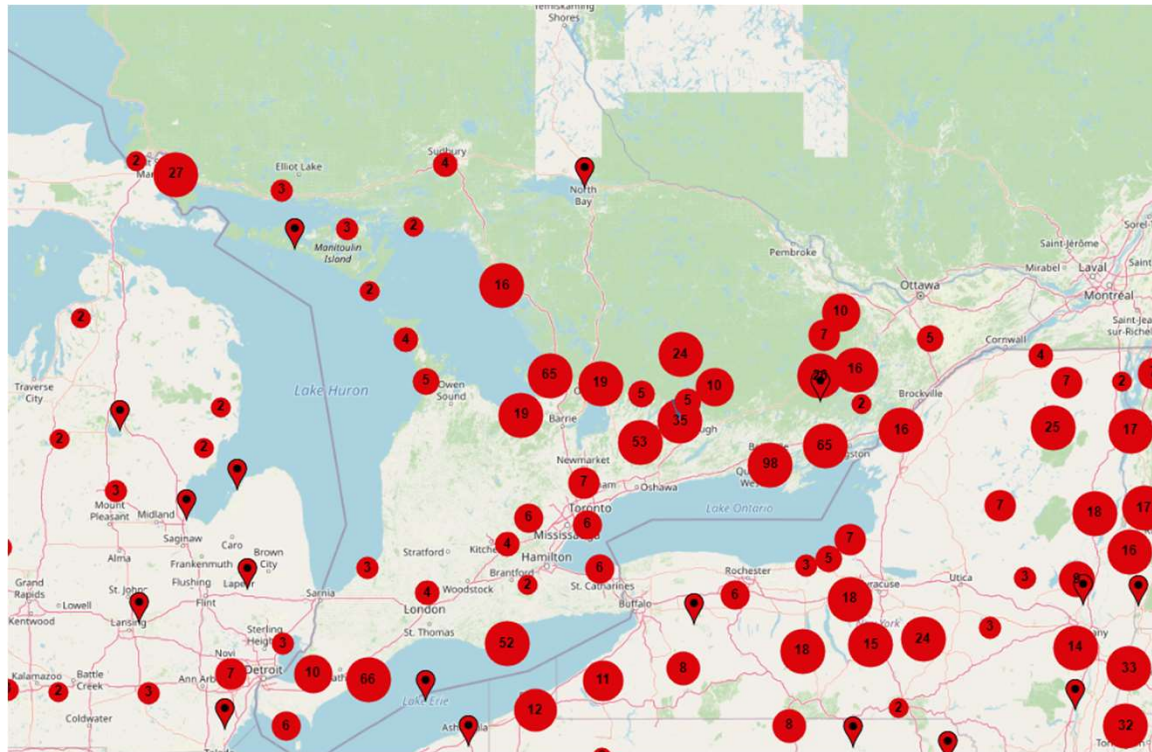
Origin: First seen in Lake Erie in 1961, introduced via ballast water from Eurasia

Identification: Submerged, leaves grayish-green, occur in whorls of 3 or 4 with 12-21 pairs of fine thin leaflets. NA has only 5-9 pairs.

Size: 35 mm long leaves

Impact: Aggressively competes with native plants, reduces oxygen, creates thick mats.

Eurasian Water-milfoil (*Myriophyllum spicatum*)



European Water Chestnut (*Trapa natans*)



(Leslie J. Mehrhoff)



(Leslie J. Mehrhoff)

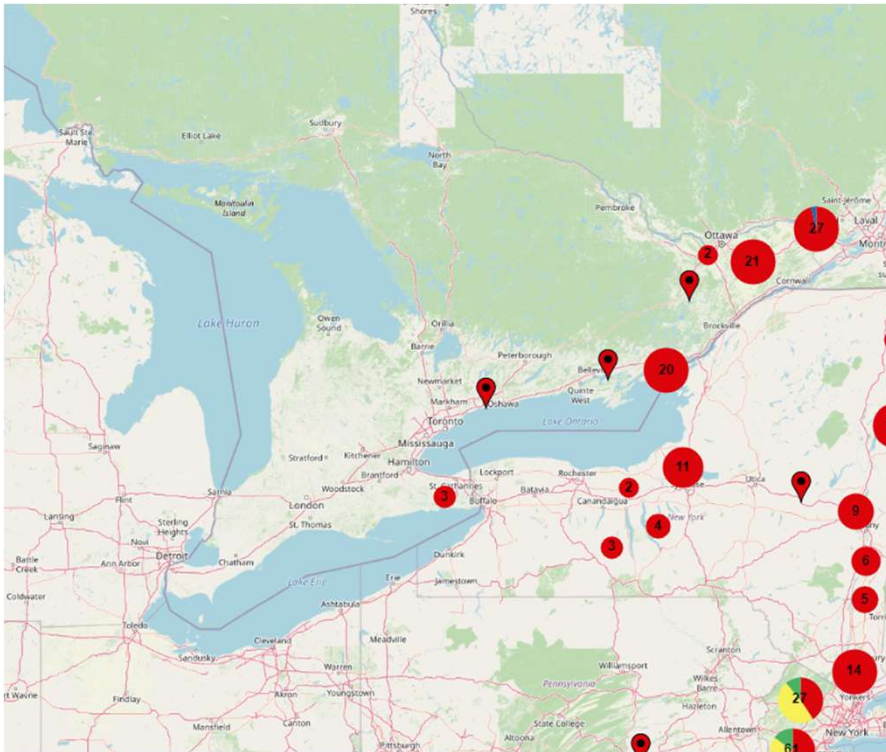
Origin: Introduced to Ottawa River within Voyageur Provincial Park, native to Europe, Asia and Africa. First introduced in 1879 by gardener in Massachusetts.

Identification: Floating leathery leaves, sharply toothed and fan-shaped in a rosette. Produced a woody nut (seed) with sharp barbed spines.

Size: 5 cm wide leaves, stems up to 15 cm long

Impact: Aggressively competes with native plants, reduces oxygen, creates thick mats.

European Water Chestnut (*Trapa natans*)



- Prohibited under ISA
- Illegal to import, possess, deposit, release, transport, breed, buy, sell, lease or trade.
- MNRF has completed prevention and response plans for EWC to allow groups to remove it.

Invasive Phragmites (*Phragmites australis*)



Canada's "worst" invasive species (2005, Agriculture and Agri-food)



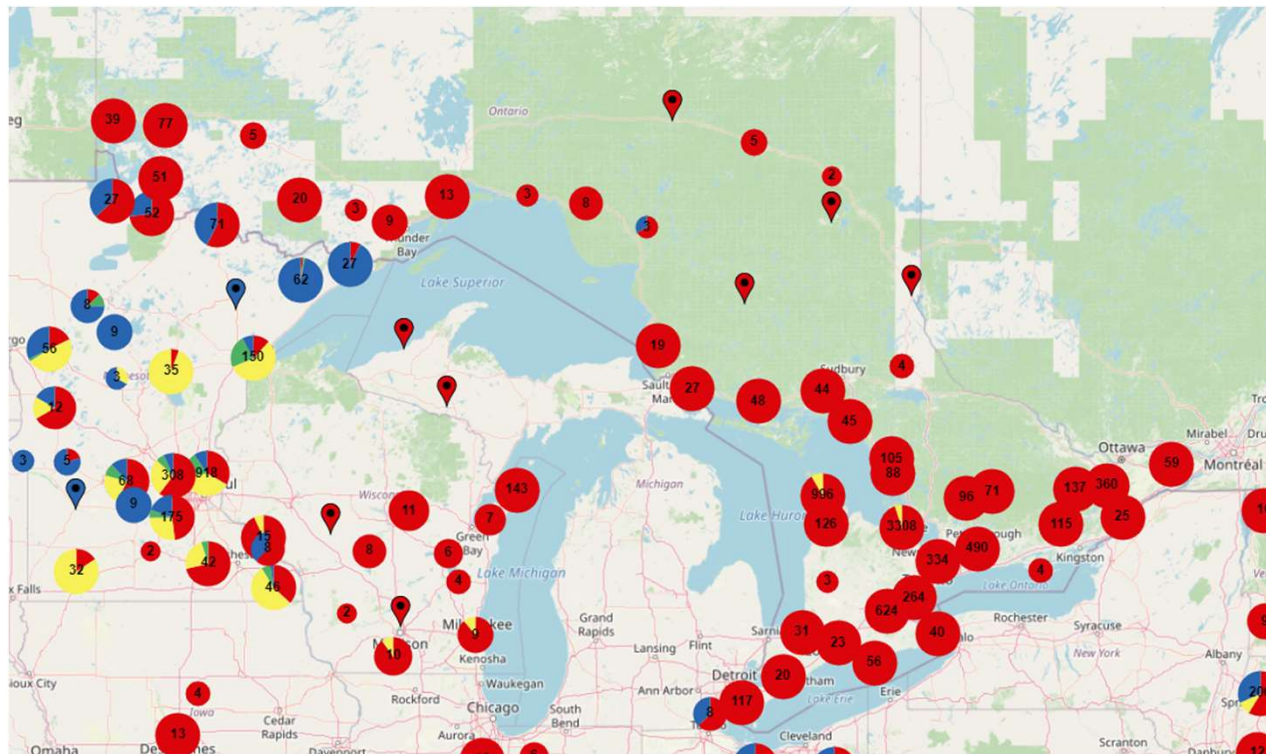
Source: Ontario.ca

Origin: Native to Eurasia, introduced to NA in 1800s. Unclear how it was introduced.

Identification: Grows in dense stands, and can reach heights of up to 5 metres, tan/beige stems. Blue/green leaves and dense seedheads.

Impacts: Decrease native habitat and crowd out native plants, fire hazard, and lowers water levels.

Invasive Phragmites (*Phragmites australis*)



- Listed as a restricted species
- Number of different control methods, each with legislation and rules that have to be followed.
- Flooding, mechanical pulling, mowing, herbicide applications all require special permitting and considerations, such as the presence of SAR and migratory birds or fish.
- Smaller populations may be easier to manage
- Expectation management is important

Report!

Invading Species Hotline: 1-800-563-7711

Email: info@invadingspecies.com

Create an EDDMapS profile: www.eddmaps.org/ontario

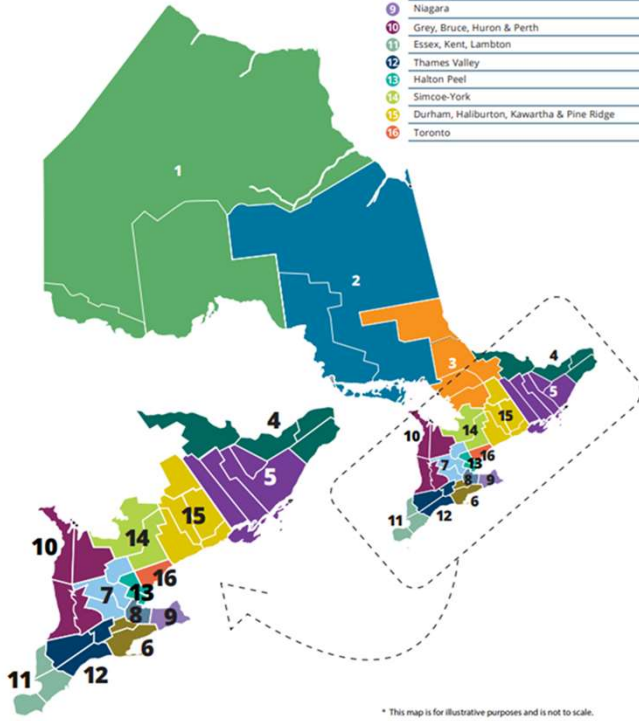
Join our iNaturalist project:

<https://www.inaturalist.org/projects/invasive-species-in-ontario>

Water Steward Program Project Background



1	Northwestern / Nord-Ouest
2	Algoma, Cochrane, Manitoulin & Sudbury
3	Muskoka, Nipissing, Parry Sound & Timiskaming
4	Champlain
5	Quinte, Kingston, Rideau
6	Grand River
7	Waterloo, Wellington & Dufferin
8	Hamilton
9	Niagara
10	Grey, Bruce, Huron & Perth
11	Essex, Kent, Lambton
12	Thames Valley
13	Halton Peel
14	Simscoe-York
15	Durham, Haliburton, Kawartha & Pine Ridge
16	Toronto



* This map is for illustrative purposes and is not to scale.
* Cette carte est fournie à titre d'illustration et peut ne pas être à échelle.

- Started in 2021
- Funded through the Ontario Trillium Foundation's Grow Grant Program
- Focus on educating boaters on preventing the spread of aquatic Invasive Species (AIS) within the Durham, Haliburton, Kawartha, and Pine Ridge regions of Ontario



Conducting AIS Checks

Clean: The hull, below the water line, transom, rear trailer, and watercraft interior

Drain: Ensure transom plug has been pulled, lower motor to release excess water, drain the live-well, drain other water holding containers.

Dry: Instruct the driver on how to dry or disinfect the watercraft, physically drying using rags and sponges is ideal.

- Allow sun-drying afterwards for 5 days
- Alternate disinfection includes:
 - Pressure Washing with 1000 psi
 - Rinsing with hot water of at least 60 °C
 - Steam
 - Chemical treatments



THANK YOU



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