

Invasive Species and Prevention

PATHWAYS OF SPREAD



Pathways are routes by which an invasive species is transferred from one ecosystem to another. Below are some common pathways and how you can help reduce the negative impacts of invasive species on land and water.

- *Movement of Firewood*
- *Trail Use*
- *Boating & Fishing*
- *Horticulture*
- *Pet Release & Escapes*
- *E-commerce*
- *Shipping & Ballast Water*
- *Canals & Water Diversions*



Firewood Movement

Firewood can harbour eggs and larvae of invasive insects, which can establish in other ecosystems if moved undetected to another location.

- ✓ **Don't Move Firewood** - Only burn firewood in the same location where you buy it (within 15 km of purchase). The movement of firewood into Canada is prohibited unless labelled and heat-treated
- ✓ Learn how to identify and report forest pests and other invasives on www.invasivespeciescentre.ca



Boating & Fishing

Invasive plant seeds and forest pests have the ability to stick onto your gear and spread along the trail, or even come back home with you!

- ✓ **Clean** your shoes, pets, and gear of any debris, mud, seeds, and burrs before arriving and leaving a natural space
- ✓ **Stay** on designated trails and keep your pets on a leash

Some species can easily stick onto boat trailers, motors, or transducers or be present in any lake water in the boat like the bilge and bait buckets. They can then travel with you when you move your boat over land to a new waterbody and establish themselves.

- ✓ **Clean, Drain, Dry** your boat and fishing gear
- ✓ **Dump** your bait live or dead at least 30 meters away from a waterbody
- ✓ **Know** the rules and regulations to protect waterbodies of the province you are travelling to as to avoid fines and disruptions



Horticulture

Some plants that can be purchased in stores (such as periwinkle and goutweed in Ontario) are invasive and have the potential to spread outside your garden, outcompeting native species for resources.

- ✓ **Purchase** native plants from a reputable nursery and avoid invasives
- ✓ **Ask** your garden supplier about the source of their plants before buying
- ✓ **Do not** dump garden waste in natural areas or compost invasive species
- ✓ **Learn** about the plants already growing in your garden through resources such as iNaturalist and [species profiles](http://species.profiles) - www.invasivespeciescentre.ca

If you think you've seen an invasive species, please report a sighting to the **Invading Species Hotline** at 1-800-563-7711 or EDDMapS.org!

Reporting sightings of invasive species is vital because early detection and response are especially important to successfully managing an invasive species. When reporting, record where you saw the species and, if possible, take photos of the species and its location. This will help to identify the species and evaluate the risk.

Some species found in aquariums, ponds, and water gardens have the potential to survive in natural waters and outcompete our native species for resources. Exotic pets also have the possibility of **accidentally escaping** captivity into natural spaces.

E-commerce and the ability to easily buy and sell live organisms online is a high-risk pathway that is exacerbated by inaccurate or unclear taxonomic information by sellers, limited consumer knowledge of items and associated risk, challenges regarding the regulation of this pathway, and the subsequent release or escape of these organisms into the environment.

- ✓ Don't let your pets loose and never dispose of aquatic/exotic plants into natural waterways
- ✓ Purchase native plants for ponds
- ✓ Purchase aquarium species from a reputable retailer
- ✓ Learn to identify and report invasive aquatic plants, fish, and invertebrates
- ✓ Place ponds and water gardens away from natural waterways or areas that might experience flooding

E-Commerce



Shipping, Ballast Water, & Canals

Pet Release & Accidental Escapes



Did you know that **goldfish** are an invasive species in North America? They prey on and outcompete native species for food, and lower water clarity. Without the constraints of an aquarium, they can grow and reproduce more rapidly. Don't flush or release goldfish - alive or not - as they may also pass diseases to other species.

Canals and water diversions make navigation and **shipping** from one body of water to the next easier for larger vessels. However, this has made it easier for invasive species to travel as well, as demonstrated with invasive sea lamprey.

The Great Lakes are a major pathway for ocean freighters to ship cargo to and from Canada to overseas, resulting in the establishment of over 180 non-indigenous aquatic species within the Great Lakes Basin. A major part of this pathway is **Ballast water**, which is drawn in at the ship's origin. Any organisms, such as invasive zebra mussels, can survive within this water as the ship crosses into new areas. As of 2006, the federal governments of Canada and the U.S. created joint legislation requiring oceanic freighters to treat their ballast water prior to entering the Great Lakes.