INVASIVE PLANTS: NOXIOUS ALIEN INVADERS — Q & A

(Compiled by Roslyn Moorhead and Anita Caveney)

The purpose of this article is to inform people, especially Londoners, about invasive plant species, and encourage them to report invasive plants to the City by using the reporting links provided at the end of the article.

WHAT ARE INVASIVE PLANTS?

Invasive plants are non-native plant species introduced from another part of the world **and** which spread through the local ecosystems at an alarming rate. They have in common one or more of the following characteristics: High annual seed production; tolerance to a wide range of growing conditions; the ability to spread by underground roots and re-grow quickly when disturbed by pulling, cutting, or fires; and a lack of natural predators to keep their population under control in their new environment. Native plants, by contrast, are those occurring naturally in the area before European settlement. They have evolved over time to form a self-sustaining ecological system with many other native plants and animals.

WHY ARE INVASIVE PLANTS A PROBLEM?

Native plants find it difficult to compete with invasive species, and so the invasive species replace the native ones. This is turn leads to habitat change and negatively impacts the ecosystem. Wildlife which depends on the native species may not be able to survive in the changed environment. Over time there is a decline in biodiversity.

In some cases, there is a danger to human health and safety: The noxious weed Giant Hogweed (*Heracleum mantegazzianum;* Family Apiaceae) is one such example. It can cause phytophotodermatitis, a condition that makes skin extremely sensitive to sunlight, and can result in severe burns and blisters. It also outcompetes native plants. The photos below show the large size of this plant. Some other members of this plant family also cause phytophoto-dermatitis, but generally not as severe as that caused by Giant Hogweed.

Giant Hogweed

Heracleum mantegazzianum

ARE INVASIVE PLANTS A PROBLEM IN LONDON?

Yes, and the City has developed an *Invasive Plant Management Strategy* (LIPMS*)* for both preventing and eradicating invasive plants in our natural areas. London has listed six priority species of concern on its watch-list: Phragmites, Japanese Knotweed, Dog-strangling Vine, Common Buckthorn, Glossy Buckthorn, and Giant Hogweed. But there are other invasive species, such as Garlic Mustard, Goutweed, Periwinkle, Purple Loosestrife, Tatarian Honeysuckle, Himalayan Balsam, Wild Chervil, and Black Locust that are also a problem. These may be found in various locations in ESAs, parks, and along water courses. The City-funded UTRCA ESA Management Team was dealing with at least 28 non-native invasive species as of November 2018, according to the City's Ecologist Planner.

WHY SHOULD WE CONTROL THEM?

Invasive plants pose a significant and increasing threat to Ontario's economy and natural environment [1]. These plants have become one of the most pressing biodiversity issues of our time. Many agencies regard them as second only to habitat loss as one of the greatest threats to biodiversity. Their economic impact is huge. In 2004, the Invasive Species Strategy for Canada estimated the cost of invasive plants to Canada's agricultural and forestry sectors was as high as $7.5 billion annually, and is likely closer to $36 billion when invasive plant management on private properties, parks, and golf courses is taken into account. There are at least 441 known invasive plant species in Ontario, which is the highest out of all the provinces. [1]

WHAT DO THESE SPECIES LOOK LIKE AND WHERE WOULD THEY LIKELY BE SEEN?

Of the 441 known invasive species and the fourteen listed on London's watch-list, six species likely to be seen in an Environmentally Significant Area (ESA) are highlighted here: Phragmites, Common Buckthorn, Glossy Buckthorn, Garlic Mustard, Dog-strangling Vine, and Japanese Knotweed.

1.Phragmites or Common Reed (Family: Poaceae/Gramineae)

Phragmites (*Phragmites australis*) is the City of London's **highest priority species**, because it is found in multiple sites in ESAs, parks and along pathways, and because of the difficulties in eradicating it. It is unknown how it arrived in North America from its Eurasian home, but it is now invasive throughout southern Ontario. It is a perennial grass which spreads quickly, both through its seeds and roots, forming dense clumps and crowding out and replacing native vegetation. It is also devastating to wildlife, providing neither food nor suitable habitat.

Phragmites grows in thick stands that have as many as 200 stems per square metre. The stems are tan or beige with blue-green leaves. Seed heads form in late summer and are large and dense. It prefers to grow in standing water and so is usually found fringing ponds and

waterways and along wet ditches. But its roots grow to extreme lengths, which allow it to survive in relatively dry areas and along roadsides.

Common Reed *Phragmites australis*

2. <u>Common Buckthorn</u> (Family: Rhamnaceae)

Common Buckthorn (*Rhamnus cathartica*) is a shrub or small tree introduced to North America as an ornamental shrub. It has spread aggressively throughout Southern Ontario and is widespread in the ESAs and parks in London. It can be found in both woodlands and open fields, forming dense stands which eventually replace the native species. It changes the nitrogen composition of the soil, making it harder for native species to survive. Reproduction is through seed, which is spread by birds and animals that eat the fruit and then deposit the seeds in their droppings.

It is one of the first plants to leaf out in the spring and the last to drop its leaves in the fall. It is usually two to three metres tall, but may grow much taller. The leaves are smooth and finely toothed, and most branches end in a short, sharp thorn. It fruits in late summer and fall, with clusters of small black berries.

Common Buckthorn

Rhamnus cathartica

3. <u>Glossy Buckthorn</u> (Family: Rhamnaceae)

Glossy Buckthorn (*Frangula alnus*) is similar to Common Buckthorn. It was brought to North America in the late 1800s for landscape planting as a shrub or small tree. By 1975 it had spread across of much of Southern Ontario. It grows in dense stands and leafs out early in the spring. The resulting deep shade greatly reduces the survival of tree seedlings and saplings of native plants.

Glossy Buckthorn prefers wetlands, but can grow in upland areas, such as forest, and is found in multiple sites in London. The trees grow up to six metres tall and produce great numbers of dark berry-like fruits, singly or in small groups at the base of leaves. The fruits are poisonous to most animals, but some birds eat them and spread the seeds through their droppings.

Glossy Buckthorn

Frangula alnus

4. <u>Garlic Mustard</u> (Family: Brassicaceae)

Garlic Mustard (*Alliaria petiolata*) is a biennial herb in the mustard family. It was introduced by settlers from Europe, probably for use in cooking and medicine. Here in London its infestations can be quite dense and advance quickly. It monopolizes light, moisture and soil nutrients, and so is a severe threat to native wildflowers in the city's natural areas. It is common in ESAs and woodlands. Harmful allelopathic toxins, produced by the plant inhibit the growth of some native plants. The toxins include fungicidal compounds that harm beneficial mycorrhizal fungi in the soil.

Garlic Mustard prefers shaded areas, but can tolerate full sun. First year plants have dark green leaves in a rosette. Second year plants grow 0.3 – 1.2 metres high and have small white flowers developing in May. Reproduction is from the multitudinous seeds of second year plants. Seeds are scattered by wildlife and human activity. Garlic Mustard is usually found in disturbed areas, such as alongside pathways, where people, pets and wildlife deposit the seeds they have inadver*t*ently picked up on clothing or feet.

Garlic Mustard

Alliaria petiolata

1st year

Garlic Mustard

Alliaria petiolata

2nd year

Garlic Mustard

Alliaria petiolata

2nd year

5. Dog-strangling Vine (Milkweed Family: Asclepiadaceae)

Dog-strangling Vine (*Cynanchum rossicum*), a member of the milkweed family, was introduced in the mid-1800s for use in gardens and is now spreading rapidly throughout southern Ontario. It prefers open, sunny areas or light shade and can be found in places such as ravines, hillsides, fence lines and stream banks. In London, it is the subject of special management concern in Killaly Meadows ESA. Fortunately, it has been brought under control in Kains Woods ESA. The leaves and roots may be toxic to wildlife, so deer and other wildlife avoid it and graze on native plants instead. That puts more pressure on the sustainability of other plants.

Dog-strangling Vine grows up to two metres long, twining itself around any nearby tree or other structure, or trailing along the ground. Dense patches can 'strangle' plants and small trees, preventing forest regeneration. The leaves are oval, seven to 12 centimetres long, and have a pointed tip. Each plant can produce up to 28,000 seeds per square metre. The seeds are spread by wind, but new plants can also grow from root fragments, making it hard to eradicate.

Dog-strangling Vine

Cynanchum rossicum

Dog-strangling Vine

Cynanchum rossicum

6. <u>Japanese Knotweed</u> (Family: Polygonaceae)

Japanese Knotweed (*Fallopia japonica*) is native to eastern Asia and was introduced to North America in the 1800s as an ornamental species. It has since spread throughout the United States and Canada. It grows mostly in gardens, along roadsides and on old building sites, and can establish itself along riverbanks. It forms dense thickets that provide poor habitat for wildlife. The root system is vigorous and can spread up to ten metres from the parent stem. Native plants are crowded out by the thick layers of decomposing stems and leaves on the ground which doesn't permit seedlings to be established.

In London, Japanese Knotweed is found in several sites in ESAs, parks and woodlands. It is a semi-woody plant reaching one to three metres in height and has a bamboo-like appearance.

Japanese Knotweed

Fallopia japonica

However, its leaves are broader than bamboo. The stems are round, smooth and reddish purple. The leaves are ovate, six to ten centimetres long with a pointed tip and flat base. The flowers are greenish white.

Jan Samanec, State Phytosanitary Administration, Bugwood Image Database System

WHERE DOES ONE REPORT SIGHTINGS?

- Invasive species within a City of London ESA may be reported using the “ESA observation form” available on the City of London website at (https://www.london.ca/residents/Environment/Natural-Environments/Documents/ESA-Observation-Form.pdf)

- To report invasive species on other City properties, including parks, there is a drop down box under “Report an Issue in a Park or Playground” at (https://service.london.ca/service-requests/report-park-issue/)

- To report Phragmites, the Service London portal provides a “Report Phragmites” tool at the bottom of the portal, at (https://service.london.ca/service-requests/report-phragmites/)

WHERE CAN I GET MORE INFORMATION?

1. Ontario Invasive Plant Council; (705) 748-6324; info@ontarioinvasiveplants.ca; www.ontarioinvasiveplants.ca

2. Invading Species Hotline, 1-800-563-7711 http://www.invadingspecies.com/invading-species-reporting/

3. ontario.ca/invasivespecies

4. City of London's Invasive Plant Management Strategy; available at http://www.london.ca/residents/Environment/Natural-Environments/Documents/Invasive_Plant_Management_Strategy.pdf

5. Hard copies of the *Grow Me Instead* series of guides, produced by the Horticulture Outreach Collaborative and the horticulture and landscape industry, are available for pick-up at the City's Planning Department. These identify invasive garden plants and provide suitable native or non-native, non-invasive alternatives.

Reference

1. Ontario Ministry of Natural Resources (MNR), MNR Invading Species Awareness Program, Ontario Invasive Plant Council (OIPC) and Credit Valley Conservation (CVC). 2016. *A Landowner's Guide to Managing and Controlling Invasive Plants in Ontario*. Available at:

   https://www.ontarioinvasiveplants.ca/wp-content/uploads/2016/07/35266_LandOwnerGuide_June262013_FINAL_WEB.pdf