Clause 9 in Report No. 12 of Committee of the Whole was adopted, without amendment, by the Council of The Regional Municipality of York at its meeting held on September 20, 2018.

9

Annual Update on Invasive Species

Committee of the Whole recommends:

1. Receipt of the presentation by Ian Buchanan, Manager, Natural Heritage and Forestry Services, Environmental Services.

2. Adoption of the following recommendation contained in the report dated August 9, 2018 from the Commissioner of Environmental Services:

    1. Council receive this report for information

Report dated August 9, 2018 from the Commissioner of Environmental Services now follows:

1. Recommendation

It is recommended that Council receive this report for information.

2. Purpose

The report provides an update on priority invasive species and the status of management of the Emerald Ash Borer in York Region.

3. Background

Invasive species in Ontario have a $3.6 billion annual impact and are a growing environmental and economic concern

Ontario has more invasive species than any other province or territory in Canada (over 660 species) and municipalities continue to face significant pressures and costs. Economic impacts on agriculture, fisheries, forests, healthcare, tourism

and the recreation industry are estimated to be $3.6 billion a year in Ontario. The Invasive Species Centres' preliminary 2018 analysis estimated that invasive species cost Ontario municipalities $38.8 million per year (Attachment 1).

In 2017 the Region contacted both the federal and provincial government to express concern about invasive species and to request funding. The responses from both levels of government confirmed that while some project funding is available to partner agencies like the Invasive Species Centre and Ontario Invasive Plant Council, there is currently no direct funding for municipalities. Staff continue to review opportunities for funding including most recently Infrastructure Canada's Disaster Mitigation and Adaptation Fund.

The *Invasive Species Act, 2015* includes provisions to restrict possession, propagation and movement of regulated invasive species, and requires management plans be enacted when a regulated species is discovered. Risk assessments for individual invasive species such as European water chestnut and Hydrilla have been completed by the province. Staff will continue to participate in reviewing regulatory proposals and track new species listings.

York Region collaborates with local municipalities, provincial and federal governments, non-governmental organizations and academia to manage invasive species

York Region continues to work with its partners to raise awareness of invasive species, and to prevent and mitigate adverse effects on tree canopy, woodland cover, and other Regional assets (e.g. zebra and quagga mussels at water intakes, dog-strangling vine in the York Regional Forest).

Staff participate on boards for the Invasive Species Centre, Forests Ontario and the Ontario Woodlot Association. Region staff also chair both the Regional Public Works Commissioners of Ontario Urban Forestry Sub-Committee, which provides a forum for staff to share knowledge and best practices with other municipalities across Ontario, and the Invasive Species Technical Working Group which includes representatives from local municipalities, conservation authorities, surrounding jurisdictions, the federal and provincial governments and the Chippewas of Georgina Island First Nation.

4. Analysis and Implications

Region remains proactive in its approach to assess, prevent and mitigate impacts of emerald ash borer and other invasive species

Guided by the Council-endorsed Emerald Ash Borer Management Plan, staff continue with proactive management to mitigate the impacts on residents, communities, and the environment. Figure 1 identifies some of the key accomplishments.

Figure 1

Emerald ash borer management activities

Many other invasive insects and plants continue to impact or pose a threat to the Region's urban landscapes and natural areas (Attachment 2). Priority invasive species in York Region are identified where they pose a significant risk based on potential impacts to residents, Regional assets, natural heritage or public health.

York Regional Forest is a federal government research site for biological control of Emerald Ash Borer

Natural Resources Canada's biological control program for emerald ash borer has included release sites in the York Regional Forest since 2015. Two species of tiny (2-4 mm), stingless wasps were released, which pose no threat to residents. Larval wasps destroy emerald ash borer eggs and larvae. Biological control is an effective part of the solution to control introduced invasive species, and has been successful in the past (e.g. purple loosestrife, gypsy moth). Biological control programs are long term solutions. Monitoring is scheduled to take place in 2019 to assess progress.

York Region at risk for a number of tree-related invasive pests

Staff and regulatory agencies remain vigilant in monitoring for invasive tree pests and diseases. Current concerns include:

- Asian long-horned beetle was detected in City of Mississauga near Pearson International Airport (2013) and the Federal government continues to monitor the Regulated Area. The quarantine may be lifted in early 2020 if no new finds are detected.

- The hemlock woolly adelgid, an insect that kills hemlock trees, continues to spread in the United States. In 2017 the insect was found in Nova Scotia. It is expected that the hemlock woolly adelgid will eventually spread throughout Ontario. Hemlock is a coniferous tree found in forests across the Region, and represents 13 per cent of the York Regional Forest communities.

- Gypsy moth is a threat to oak trees, and was first discovered in Ontario in 1969. In 2018, the City of Mississauga conducted an aerial spray with the biological insecticide *Bacillus thuringiensis*. York Region staff continue to monitor gypsy moth populations and treatments are not warranted at this time.

- Oak Wilt, caused by a deadly fungus with unknown origins has been killing oak trees in north-eastern United States since the 1940's. Infested trees have been found in the U.S. close to the City of Windsor, Ontario. The Federal government has listed it as a regulated species and has formed a Technical Advisory Committee to develop a response plan.

Invasive plants continue to impact our natural landscapes

Invasive plants, including giant hogweed, dog-strangling vine, European buckthorn and garlic mustard, impact natural and agricultural areas throughout York Region. Updates include:

- Staff are working in partnership with Roads Maintenance on implementing best practices (e.g. manual removal and herbicide treatments) to reduce the impact of hazardous plants such as wild parsnip and giant hogweed along Regional roads.

- The extremely destructive Japanese knotweed continues to make headlines, particularly in the United Kingdom and western Canada. Staff are working with local municipalities to raise awareness and monitor the distribution of this plant. Initial monitoring indicates a sparse distribution across the Region. This aggressive species poses a threat to infrastructure such as roads, sidewalks, bus stops, foundations, etc.

- Invasive plant control in the York Regional Forest has been on-going since 2014 with some success, particularly for dog-strangling vine. In 2018, control, including biological controls, herbicide use and manual removal took place in a total of seven York Regional Forest tracts.

- Advancement of biological control of dog-strangling vine continues in the York Regional Forest as part of a research partnership with Agriculture and Agri-Food Canada, the University of Toronto, and a private company. The Hypena moth caterpillar which feeds only on this invasive plant, was released on site and is now being monitored. Both feeding damage and evidence of over wintering are positive findings to date.

Invasive plants controlled by fire in the prairie habitats of the York Regional Forest

Tallgrass prairie and oak savanna are both forms of endangered grasslands that historically covered a significant portion of Southern Ontario providing habitat to many rare butterflies and bird species. Controlled burns are a key management tool that mimic the natural wildfires that occurred in these ecosystems. Tallgrass prairies and oak savannas contain plant species that respond positively to fire, making them grow more vigorously and giving them an advantage over less desirable and highly invasive plant species.

Bendor and Graves Tract (Town of East Gwillimbury) of the York Regional Forest contains a 6.7 hectare tallgrass prairie. The prairie was successfully burned on March 26, 2018. If weather conditions permit, a controlled burn is also planned in a 16.2 ha tallgrass prairie creation site in the Nobleton Tract (Township of King) in late fall 2018.

Aquatic invasive species continue to threaten the Great Lakes, Lake Simcoe and our watersheds

There are currently 48 known invasive aquatic species including fish, mussels, plants and diseases, threatening the health and function of our watersheds including Lake Simcoe.

Lake Simcoe Region Conservation Authority has reported a decline in zebra mussel populations but a corresponding increase in quagga mussels. These mussels continue to impact nutrient cycling and algal blooms in our lakes. In recent years, the Region has made operational changes ($100,000 annually) to our water intake systems to adapt to increasing levels of quagga mussels which clog the water intakes to our drinking water plant systems. Water soldier was first discovered in late 2015 in the Black River near Lake Simcoe in the Town of Georgina. The introduction of this plant to the lake could impact recreational activities and its overall health. The Ministry of Natural Resources and Forestry eradicated the plant from the river in 2016 and 2017. As of 2018, no new plants have been detected and monitoring is on-going.

Extensive public outreach provides tools and options to residents to help manage Emerald Ash Borer and other invasive species

Invasive species awareness and education are part of Environmental Services public outreach programs. Some outreach highlights from 2018 include:

- Woodlot Owner Advisory Program delivered in partnership with Forests Ontario to provide information to manage impacts of emerald ash borer (www.forestsontario.ca/eabyork).

- Oak Wilt Ambassador Workshop held in partnership with Invasive Species Centre. Over 80 participants from municipalities and industry learned about symptoms, early detection sampling and reporting protocols.

- Staff presentation on invasive species to the York-Durham Chapter of the Ontario Woodlot Association.

- York Region increased the subsidy for residents to plant trees, replacing lost ash trees through a partnership with Local Enhancement and Appreciation of Forests (LEAF).

Public outreach focusses on awareness and identification of priority species, and options and information resources for control and mitigation. Residents can report sightings using the Early Detection and Distribution Mapping System (www.eddmaps.org/ontario), by phoning the Ontario Invading Species Awareness Program's hotline (www.invadingspecies.com) at 1-800-563-7711, or by contacting the Canadian Food Inspection Agency for federally regulated

pests such as the Asian longhorned beetle (www.inspection.gc.ca). Emerald ash borer information is available at www.york.ca/eab.

5. Financial Considerations

Budget supports overall program including emerald ash borer priority tree removals and replacement of ash street trees

Currently, the majority of costs associated with emerald ash borer include some ash tree protection, and ash street tree removal and replacement activities along Regional roads. The original Emerald Ash Borer Management Plan budget and expenditures (2012–2021, $10 million) remain on track. Removing and replacing ash trees on Regional roads is advancing on schedule. From 2012 to the end of 2018, approximately $6.9 million will have been spent as the Region manages impacts through the peak of the infestation.

Invasive species will continue to have impacts on York Region and its residents

Staff remain vigilant and continue to work with local municipalities, other levels of government and non-profit organizations to review emerging threats and work proactively to prevent and respond to the impacts of invasive species. Climate change is increasingly affecting natural areas and causing stress to native species, which creates greater opportunities for invasive species to establish and thrive.

As summarized by the Invasive Species Centre (Attachment 1), invasive species continue to be a significant financial burden to municipalities and conservation authorities in Ontario. Staff will work with other municipalities to continue to refine cost estimates associated with invasive species across all business areas (e.g. forestry, roads, water, waste water, etc).

It is proposed that the Region work with other municipalities through the Regional Public Works Commissioners of Ontario to request financial assistance from both the federal and provincial government, and seek support for assistance in terms of providing an emergency fund for a rapid response to eradicate or manage new invasive species threats. Additional commitment and support for early detection and a focussed rapid response for eradication are wise investments to help municipalities manage pressing threats and financial impacts.

Any additional budget pressures associated with emerging invasive species impacts will be brought forward for Council's consideration as a part of future budget processes. Staff will continue to monitor latest research and updates on invasive species from the Federal and Provincial governments.

6. Local Municipal Impact

The Invasive Species Technical Working Group provides a forum for sharing knowledge about emerald ash borer as well as other invasive species. York Region staff will continue to collaborate with local municipalities in monitoring, prevention, education and outreach activities.

All nine local municipalities have or are working on Emerald Ash Borer Management Plans or implementation strategies, which align with Regional interests. The Region focuses on managing impacts to Regional assets (e.g. street trees along Regional roads, York Regional Forest properties) and local municipalities focus on their street trees on local roads, parklands, etc. Jurisdictions work collaboratively on communications and outreach initiatives. Most local municipal plans include removing and replacing trees, with some protection of selected trees with insecticide.

7. Conclusion

Invasive species such as Asian long-horned beetle, hemlock woolly adelgid, dog-strangling vine, and Japanese knotweed continue to emerge as threats to the Region's urban and natural areas, or as with giant hogweed and wild parsnip, can pose threats to health of residents.

Emerald ash borer is fully established throughout York Region and is killing millions of ash trees in urban and natural landscapes. Efforts to manage and mitigate the emerald ash borer's impacts will continue guided by our Emerald Ash Borer Management Plan, including removing and replacing street trees and mitigating the impact on the York Regional Forest, as well as public education and outreach.

The Region will continue to collaborate with municipalities and partners to raise awareness of invasive species, and hold all levels of government accountable to this issue.

For more information on this report, please contact Ian Buchanan, Manager, Natural Heritage and Forestry at 1-877-464-9675 ext. 75204 or Laura McDowell, Director, Environmental Promotion and Protection at ext. 75077.

The Senior Management Group has reviewed this report.

Recommended by:	Approved for Submission:
Erin Mahoney, M. Eng. Commissioner of Environmental Services	Bruce Macgregor Chief Administrative Officer

August 9, 2018

Attachments (2)

#8799235

Accessible formats or communication supports are available upon request.

Economic Impacts of Invasive Species

to Ontario Municipalities & Conservation Authorities

Invasive Species Centre

In 2017 and 2018, the Invasive Species Centre (ISC) conducted a review of current known and reported expenditures on invasive species incurred by municipalities and conservation authorities in Ontario. To gather this information, we conducted online and telephone surveys, receiving responses from 95 municipalities and 13 conservation authorities. Data collected was specific to the most recent fiscal year or annual expenditures, and estimates are based on averages and extrapolations of this data. The information in this factsheet may be used to inform invasive species policy, education, and risk assessments within Ontario.

Estimated expenditures on Invasive Species in Ontario:**

TOTAL ESTIMATED EXPENDITURES:

$38.8 MILLION/YEAR

ESTIMATED AVERAGE EXPENDITURE PER MUNICIPALITY:

$381,403 /YEAR

ESTIMATED MUNICIPAL PER CAPITA EXPENDITURE:

$3.06 /PERSON PER YEAR

How was the money spent?*

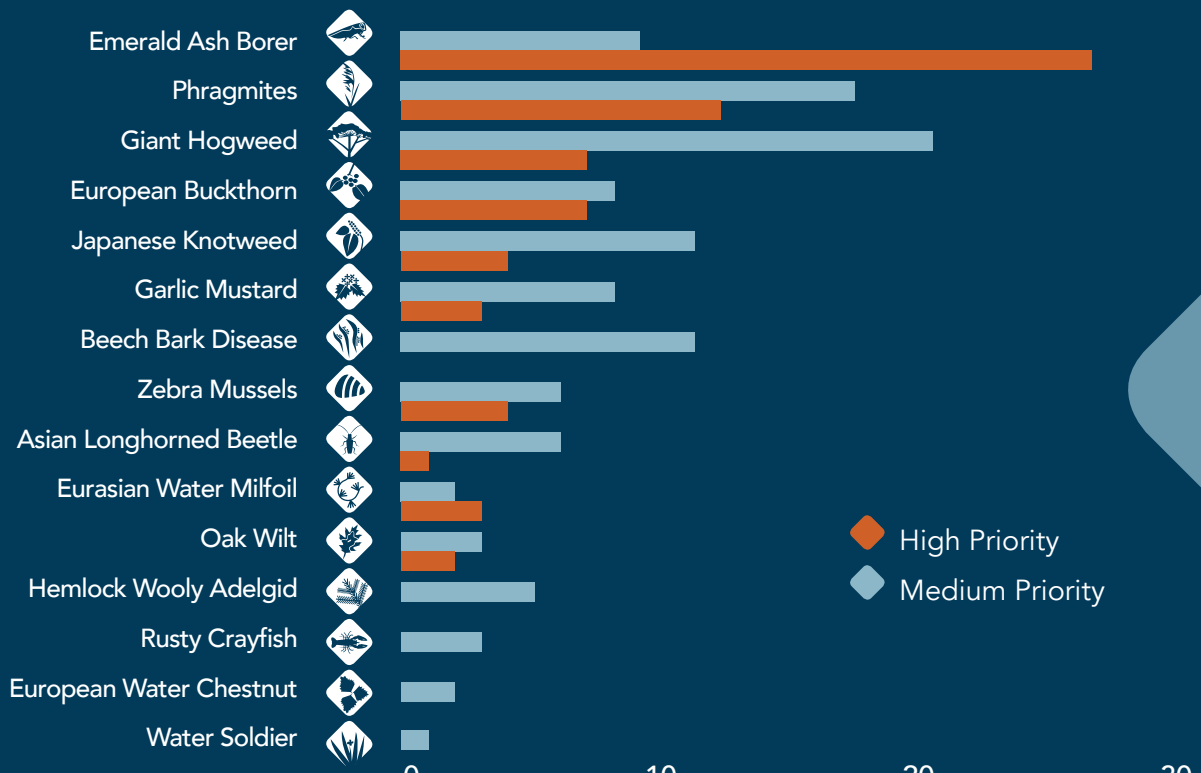
Municipalities

Conservation Authorities

- Prevention
- Detection
- Control & Management

The potential economic impacts on agriculture, fisheries, forests, healthcare, tourism and the recreation industry are estimated to be approximately **$3.6 billion/year in Ontario**.

Invasive species of greatest concern to Ontario municipalities and conservation authorities*

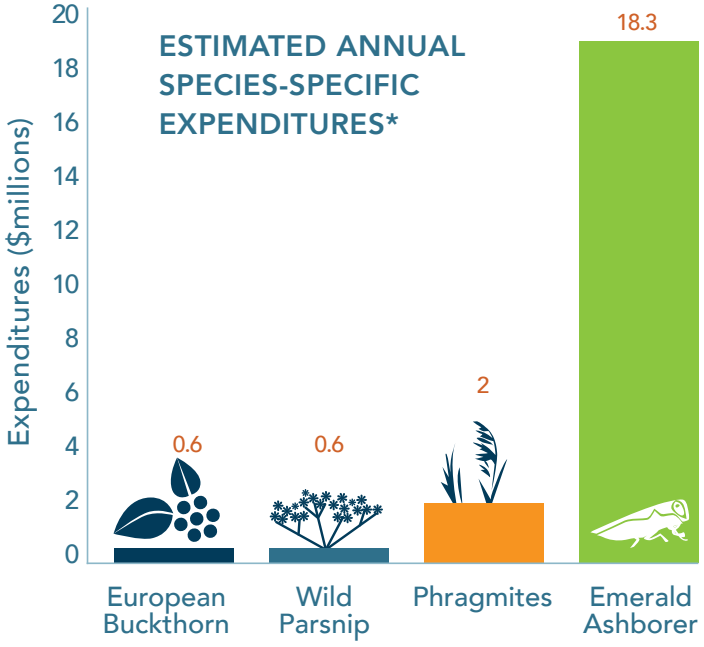


68% OF MUNICIPALITIES AND 100% OF CONSERVATION AUTHORITIES REPORTED INSUFFICIENT FUNDS FOR INVASIVE SPECIES MANAGEMENT

69% OF MUNICIPALITIES REPORTED THEY WERE IMPACTED BY INVASIVE SPECIES

74% OF MUNICIPALITIES & 85% OF CONSERVATION AUTHORITIES REPORTED INVASIVE SPECIES ARE A PRIORITY

ESTIMATED ANNUAL SPECIES-SPECIFIC EXPENDITURES*



*Based on a 2018 survey of 68 municipalities and 13 conservation authorities across Ontario.

**Based on data combined from 2017 and 2018 survey results of 95 municipalities and 13 conservation authorities across Ontario. Calculations are based on reported expenditures only.

If you would like a copy of the report, contact: **info@invasivespeciescentre.ca**.

References:

Vyn, Richard. 2017. "An Assessment of Costs and Economic Impacts of Invasive Species In Ontario".

Vyn, Richard. 2018. "Updated Expenditure Estimates on Invasive Species in Ontario: 2018 Survey Results".

Reports prepared for: Invasive Species Centre.

PRIORITY INVASIVE SPECIES
in York Region

Attachment 2

Asian long-horned beetle life stages egg - adult beetle.
Photo Credit: K.R. Law, USDA APHIS PPQ, Bugwood.org

ASIAN LONG-HORNED BEETLE *(Anoplophora glabripennis)*

ORIGIN: Native to Asia, can be introduced into Canada with infested wood packaging material (e.g. wooden pallets, crates, boxes, etc.).

IMPACTS: Adults lay their eggs in hardwood trees, and larvae then tunnel through the living tissue of the tree stopping the flow of water and nutrients, killing it.

Host tree species preferred by Asian long-horned beetle include birch, maple, elm, poplar, willow and mountain ash.

WHERE: Regulated area in Toronto and Mississauga.
map: inspection.gc.ca

Photo Credit: M. Prue, Ohio Department of Natural Resource

EMERALD ASH BORER *(Agrilus planipennis)*

ORIGIN: Native to Asia, proven to be highly destructive in its introduced range.

IMPACTS: Adults lay their eggs in ash trees, and larvae then tunnel through the living tissue of the tree stopping the flow of water and nutrients, ultimately killing it, usually within three years.

Host tree species preferred by emerald ash borer are green, black, white, blue and European ash (Fraxinus spp.).

WHERE: Spreading north throughout Ontario (regulated area includes Sudbury, ON).

Adelgid nymphs with white woolly covering feeding on underside of hemlock needles
Photo Credit: Connecticut Agricultural Experiment Station, Bugwood.org

HEMLOCK WOOLLY ADELGID *(Adelges tsugae)*

ORIGIN: Native to Asia.

IMPACTS: The hemlock woolly adelgid nymph feeds on the tree's stored starches, depleting its energy stores and thus damaging to the tree.

The insect is inactive through much of the summer, resuming feeding and development in the fall. During this time, the nymph produces its distinctive woolly white covering. Hemlock woolly adelgid are small in size and only their woolly coverings are easily visible to the naked eye.

WHERE: Previously found in isolated locations in Ontario (Etobicoke, 2012 and Niagara Gorge, 2013) where infested trees were removed and destroyed. In 2017, a well-established population was discovered in southwestern Nova Scotia.

PRIORITY INVASIVE SPECIES
in York Region

Male and female adult gypsy moth
Photo Credit: USDA, APHIS, Bugwood.org

GYPSY MOTH *(Lymantria dispar dispar)*

ORIGIN: Native to Europe and Asia, gypsy moth was first introduced to North America in the late 1860's in Boston and it has been spreading ever since. Gypsy moth was first discovered in Ontario in 1969 however widespread defoliation did not occur until 1981.

IMPACTS: This European defoliator feeds on a wide variety of tree species but appears to prefer oak (Quercus). The moth's larvae form (caterpillar) feeds aggressively on the tree's leaves, reducing growth and, in severe cases, killing the tree. Gypsy moth outbreaks occur every 7 to 10 years with peak feeding observed in July.

WHERE: The distribution of gypsy moth coincides with the range of the insect's preferred host species of oak however, no known populations of the insect have been found in the northern-most part of the oak species' range (e.g. New Liskeard and west of Thunder Bay). The gypsy moth is considered to be present throughout much of southern Ontario.

Dense patch of dog-strangling vine
Photo Credit: toronto-wildlife.com

DOG STRANGLING VINE *(Vincetoxicum rossicum)*

ORIGIN: Native to Eurasia, introduced to the northeastern United States in the mid 1800s for use in gardens.

IMPACTS: Forms dense stands that overwhelm and crowd out native plants and young trees, preventing forest regeneration. This is a serious concern for the conifer plantations in the York Regional Forest.

Leaves and roots may be toxic to livestock. Deer and other browsing animals also avoid dog strangling vine, which can increase grazing pressure on more palatable native plants.

This vine also poses a threat to monarch butterfly populations; butterflies lay their eggs on the plant but, the larvae are unable to successfully complete their life cycle.

WHERE: Currently it is finding its way into our backyards and natural areas across York Region at an alarming rate, as it produces seeds that are easily carried by the wind over great distances.

PRIORITY INVASIVE SPECIES
in York Region

Photo Credit: Miriam King, Bradford Times/Sun Media

EUROPEAN COMMON REED *(Phragmites australis)*

ORIGIN: Native to Eurasia and introduced to the eastern seaboard of North America in the early 19th century.

IMPACTS: An aggressive perennial grass that has been damaging ecosystems in Ontario for decades. The plant grows very quickly to heights of almost 5 metres (15ft) tall which crowds out native vegetation resulting in decreased plant biodiversity in turn impacting native wildlife populations. Dense stands of the plant can even lower water levels in ponds and wetlands.

WHERE: Increased sightings throughout York Region most prominently along road sides and in ditches.

Photo Credit: D. Cappaert, Michigan State University, Bugwood.org

GARLIC MUSTARD *(Alliaria petiolata)*

ORIGIN: Herb native to Europe.

IMPACTS: Can invade relatively undisturbed forests. Once established it can displace native wildflowers like trilliums and trout lily (*Erythronium americanum*). It hinders other plants by interfering with the growth of fungi that bring nutrients to the roots of the plants.

Threatens several of Ontario's species at risk, including American ginseng (*Panax quinquefolius*).

WHERE: Established in southern and eastern Ontario (throughout York Region) as far north as Sault Ste. Marie, in parts of Quebec, and south to North Carolina and Kentucky in the United States.

Photo Credit: J. Ferreira, City of Brampton

GIANT HOGWEED *(Heracleum mantegazzianum)*

ORIGIN: Southwest Asia (Caucasus Mountains).

IMPACTS: Poses a significant threat to human health. Giant hogweed sap can cause a condition called phytophotodermatitis, which makes skin extremely sensitive to sunlight, and can result in severe burns and blisters. It also outcompetes native plants, reduces biodiversity and degrades the quality of riparian habitats (the zone of land along or around a body of water). Giant hogweed can negatively impact agriculture and is listed as a noxious weed under the Weed Control Act.

WHERE: Sparsely scattered throughout York Region (and all of Southern Ontario). Confirmed reports as far north as Sudbury and Elliot Lake.

PRIORITY INVASIVE SPECIES
in York Region

Photo Credit: K. Reese, York Region

JAPANESE KNOTWEED *(Fallopia japonica)*

ORIGIN: Plant is native to eastern Asia and was first introduced into North America in the late 1800s.

IMPACTS: Commonly invades disturbed areas with high light, such as roadsides and stream banks. Reproduction occurs both vegetatively (rhizomes) and seeds, making this plant extremely hard to eradicate. The dense patches shade and displace other plant life and reduce wildlife habitat.

WHERE: Increased sightings throughout York Region, road sides and fields.

Photo Credit: J. Mehrhoff, University of Connecticut, Bugwood.org

WILD PARSNIP *(Pastinaca sativa)*

ORIGIN: Native to Eurasia. Likely brought to North America by European settlers, who grew it for its edible root.

IMPACTS: Can form dense stands and spreads quickly in disturbed areas such as abandoned yards, waste dumps, meadows, open fields, roadsides and railway embankments. Its seeds are easily dispersed by wind and water and by mowing or other equipment.

Like giant hogweed and other members of the carrot family, it produces sap containing chemicals that can cause human skin to react to sunlight, resulting in intense burns, rashes or blisters.

WHERE: Spreading rapidly in southern Ontario, with an increase in sightings along roadsides in York Region

Photo Credit: D.W. French, University of Minnesota, Bugwood.org

OAK WILT *(Fungus: Bretziella fagacearum)*

ORIGIN: First reported in Wisconsin in 1942 however, its origin is technically unknown.

IMPACTS: All oak species are at risk. The red oak is the most susceptible with mortality occurring the most rapidly (as soon as 30 days). White and bur oak appear to be slightly more resistant. Oak trees are a highly valuable resource and play a significant ecological role which includes providing food for many forms of wildlife.

WHERE: Oak Wilt has spread throughout the Eastern United States. In 2016, Oak Wilt was confirmed on Bell Isle in the Detroit River less than 1 kilometer from the shores of Windsor. Oak Wilt is not currently known to be present in Ontario.

Annual Invasive Species Update

Committee of the Whole
September 6, 2018

Ian Buchanan
Manager Natural Heritage & Forestry
Environmental Promotion and Protection

York Region

OUTLINE

- Economic Impact Analysis of Invasive Species
- Mitigating Invasive Species Impacts
- Invasive Species Showcase
  - what
  - where
  - status
- York Regional Forest - Controlled Burn Overview

ECONOMIC IMPACT ANALYSIS OF INVASIVE SPECIES IN ONTARIO

- Surveys by Invasive Species Centre (2017 and 2018)
- 95/444 Ontario municipalities, 13/36 Conservation Authorities responded

Total cost of invasive species incurred by Ontario municipalities estimated at:

$38.8 million/year

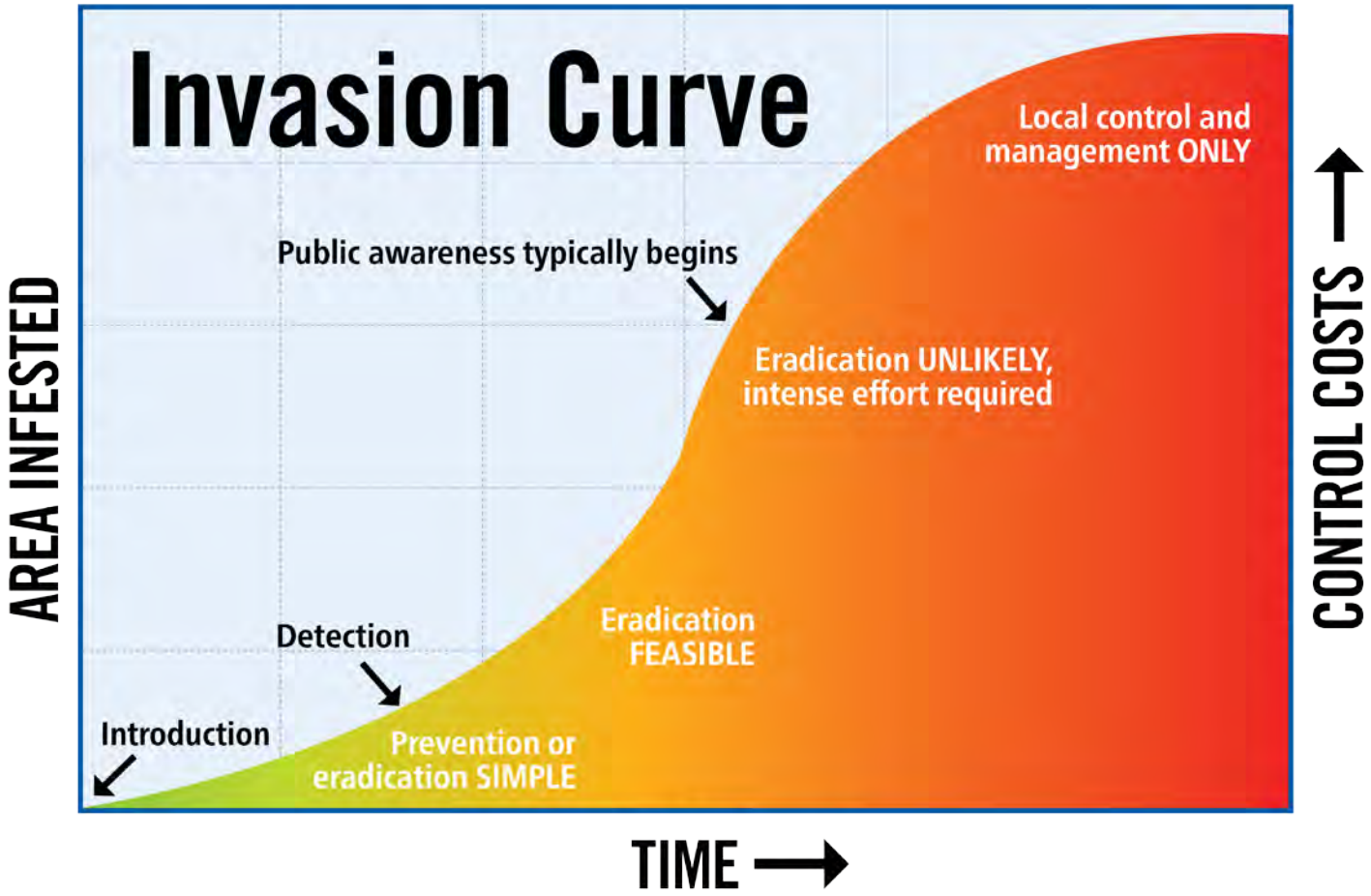
Total Ontario economic impacts estimated at:

$3.6 billion/year

Invasive Species Centre

EARLY ACTION KEY TO MITIGATING INVASIVE SPECIES IMPACTS

Invest in prevention and early detection to minimize the need for long term (more expensive!) management.

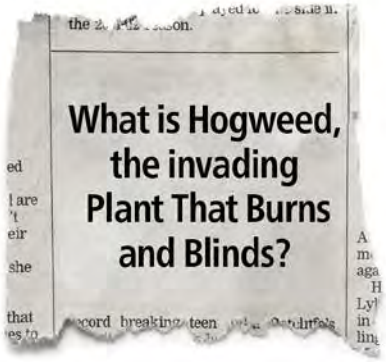


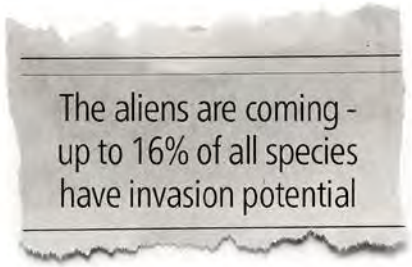
INVASIVE SPECIES SHOWCASE: PAST, PRESENT & FUTURE

THREATS

- **Past**
  - Asian Long-horned Beetle
  - Hemlock Woolly Adelgid
- **Present**
  - Gypsy Moth
  - Emerald Ash Borer
  - Japanese Knotweed
  - Giant Hogweed
  - Wild Parsnip
- **Future**
  - Oak Wilt

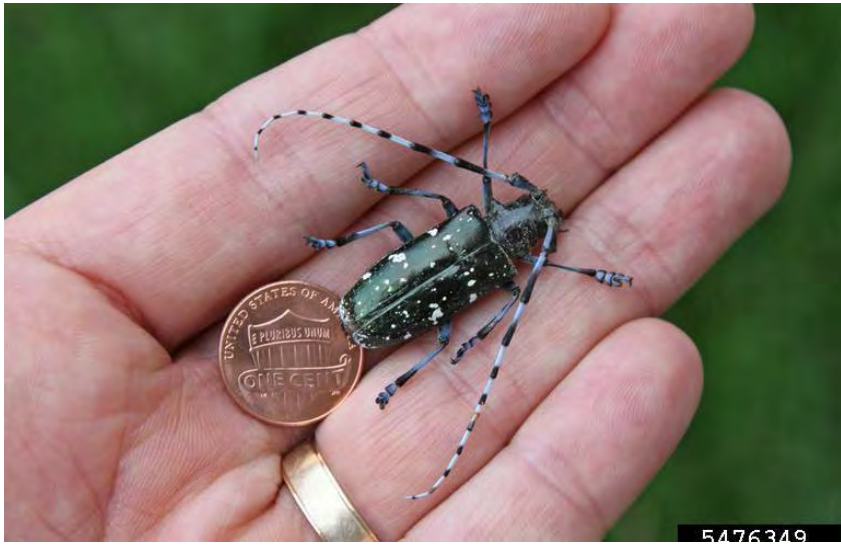
News Headlines





ASIAN LONGHORNED BEETLE (PAST infestation – future threat)

- Large beetle attacks and kills trees in 2 – 5 years
- Found in Vaughan (2003) and later in Mississauga (2013)
- Status: Not present - Mississauga considered eradicated if no new detections by 2020
- Many counties in north-eastern U.S. are trying to eradicate
- Must remain vigilant in monitoring



HEMLOCK WOOLLY ADELGID (PAST infestation – future threat)

- Tiny (1 mm) sucking aphid attacks and kills eastern hemlock trees
- Found previously in Ontario in two isolated areas:
  - Etobicoke 2012
  - Niagara Gorge 2013, 2014, 2015
- Status: No detections in Ontario since 2015
- New detection in Nova Scotia across 5 counties (10+ years old)
- Ontario Hemlock Woolly Adelgid Task Force

GYPSY MOTH (PRESENT)

- Caterpillars are severe defoliator of hardwood trees
- Introduced to Ontario in 1969
- Status: spread throughout Ontario - populations peak every 7- 8 years
- Recent actions:
  - aerial spray in Toronto and Mississauga, ground spray in Oakville
- York Region - monitoring is on-going no current concern

GIANT HOGWEED & WILD PARSNIP (PRESENT)

- Plant species from the carrot family – native to Asia
- **Giant Hogweed** - found in ditches and along stream banks
- **Wild Parsnip** - found in dry soils along roadsides
- Status: sparse distribution throughout York Region
- Both species - poisonous sap causes severe skin blistering
- Working with Roads and local municipalities to control plants along roads, greenspaces and (some) private property

EUROPEAN COMMON REED – PHRAGMITES (PRESENT)

- Aggressive wetland plant introduced in Ontario 1948 - impacts habitat and reduces biodiversity
- Status: spread across Ontario and throughout York Region
- Currently no herbicide approved for use in and around water
- Local community removal initiatives demonstrating some success
- MTO investigating roadside mapping and control (mainly south-western Ontario)

JAPANESE KNOTWEED (PRESENT)

- Terrestrial plant – introduced to Ontario 1901
- Can grow up to 4 inches per day in the summer
- Status: Sparse distribution throughout York Region
- Aggressive growth poses a risk to infrastructure such as roads, sidewalks, foundations, etc.
- May affect property values

Rooting out latest invasive plant to strike Ottawa a race against time.

GODZILLA WEED!

Knotweed 360⁰: Bad Actor in the Urban Forest

The plant that's eating B.C.

JAPANESE KNOTWEED: the global menace.

JAPENESE KNOTWEED: Risks to infrastructure and engineering projects

OAK WILT (FUTURE - threat)

- Disease caused by a fungus of unknown origin – kills all oak trees
- Red oak is very susceptible, and declines faster than other oaks
- Status: Spreading across US - currently less than 1km from Windsor, ON
- Canadian Food Inspection Agency proactively formed Interagency Working Group and developed a Response Plan

YORK REGIONAL FOREST – INVASIVE SPECIES

- Many species affect health and function of the forest – dog strangling vine, garlic mustard, emerald ash borer, etc.

- Partnerships: Canadian Forest Service, Natural Resources Canada on Biocontrol research:
  - emerald ash borer - parasitic wasps
  - dog-strangling vine - Hypena caterpillars

- Invasive plant control - Integrated Pest Management – including fire…

YORK REGIONAL FOREST - PRAIRIE CONTROLLED BURN

- Adaptive management approach to maintaining rare grassland habitat
- Two sites (King, East Gwillimbury) prairies established in 2013
- Successful establishment of over 55 native plant species, six provincially significant
- Grasslands historically maintained by wildfires - controlled burn used as key management tool

YORK REGIONAL FOREST
BENDOR AND GRAVES TRACT — controlled prairie burn

Annual Invasive Species Update

For more information
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ian.buchanan@york.ca, 75204

York Region