



INVASIVE SPECIES OF PEI

Emerald Ash Borer

Agrilus planipennis



What are invasive species?

Invasive species are species that may be invasive when introduced to an area outside of their native range. They can be introduced intentionally or unintentionally.

Why are invasive species a problem?

Invasive species can have a dramatic, negative impact on the environment, the social aspects of our lives and the economy.

When non-native species are introduced into an ecosystem their populations can increase rapidly. In a natural or native community, species evolve together in an ecosystem which has checks and balances such as: predators, herbivores, diseases, parasites, competition for resources and limiting environmental factors. An organism that is introduced into an ecosystem where it did not evolve naturally does not have those checks and balances, allowing it's population to become unnaturally large. This can cause loss of biodiversity, may alter habitats, impact industry and our living spaces, and affect human health among other important changes to our environment.

INTRODUCTION

The emerald ash borer (EAB) is an invasive beetle that attacks and kills all species of ash trees, except mountain ash which is not a true ash. EAB was brought to North America from Asia. It was first detected near Detroit, MI and in Windsor, ON in 2002. It likely arrived in wood packaging material in the early '90's. Since then it has spread to 15 U.S. states, across Southern Ontario and into Quebec. EAB has not yet been detected on PEI.

“Typically, within six years of an infestation arriving in a woodlot, more than 99% of the ash trees have been killed. This extensive mortality increases the likelihood of invasion of forests by invasive plants, and poses a significant challenge to affected urban centres.”

<http://www.nrcan.gc.ca/forests/insects-diseases/13377>

IDENTIFICATION

The emerald ash borer life cycle can occur over one or two years, depending on the time of year the eggs are laid, the health of the tree and the temperature. Adult beetles are typically bright metallic green and about 8.5 mm (0.33 in) long and 1.6 mm (0.063 in) wide. Underneath the elytra (hardened forewing), the upper side of the abdomen is a coppery-red color. In the spring, adults begin to emerge from the trees and feed on the ash leaves for one week before mating.



Adult feeding



Wood boring larva

A typical female can live around six weeks and lay approximately 40–70 eggs, however, females that live longer can lay up to 200 eggs. The eggs are difficult to see as they are deposited between bark crevices or under bark scales on the trunks and

branches of host trees. After two weeks the eggs hatch and the larvae chew through the bark to the phloem and cambium where they feed and develop. As they feed, the larvae create long serpentine galleries under the bark, cutting off the flow of nutrients in the tree and eventually killing it. Mature larvae excavate chambers in the sapwood or outer bark where they fold into a J-shape and pupate over winter, emerging as adults in late May/early June.



Serpentine galleries

To exit the tree, adults chew holes from their chamber through the bark, which leaves a characteristic D-shaped exit hole. Immature larvae can overwinter in their larval gallery, but can require an additional summer of feeding before emerging as adults the following spring.



D-shaped exit hole



SYMPTOMS

New infestations of EAB are difficult to detect. Generally, by the time the tree is showing symptoms and signs of stress, it is heavily infested. Symptoms the tree can exhibit are: premature yellowing and wilting of the leaves, loss of leaves, notched leaves from adult feeding, dead branches, thinning of the tree canopy, cracks in the bark over larval galleries, pinkish-brown dry bark over larval galleries, epicormic shoots (suckers/water sprouts) and heavy seed production. Woodpecker activity may indicate that a tree has an insect infestation when other symptoms are also observed.

NOTE: Symptoms can look very similar to those caused by other pests or environmental conditions.

If an infestation is suspected based on the above symptoms, peel away a section of bark to expose the serpentine larval galleries and look for D-shaped exit holes.

REPORTING AND MANAGEMENT

EAB is a devastating insect pest in areas where ash trees are present. It is important to report your sighting immediately and have an expert verify the presence of EAB. If you are not in one of the areas regulated for the emerald ash borer and you suspect signs of infestation on your ash trees, **contact a local Canadian Food Inspection Agency (CFIA) office.**

Remove and dispose of dead and dying ash trees.

Keep your trees healthy as they are less susceptible to insect pests and diseases.

REGULATION AND PREVENTION

People artificially spread EAB, knowingly or unknowingly, by moving infested ash wood. Help prevent the spread of EAB by not moving ash materials.

“Federal regulatory measures **prohibit the movement** of specific materials including any ash material and firewood of all species from **specific areas of Ontario and Quebec.** Anyone violating these restrictions is subject to a fine and/or prosecution.”

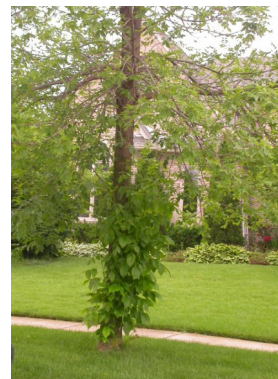
<http://www.inspection.gc.ca/plants/plant-protection/insects/emerald-ash-borer/eng/1337273882117/1337273975030>

The most effective and cost efficient way to avoid infestations of invasive species is to learn about potential invaders and be on the look out for them before they get a chance to become established.

To learn about how you can get involved in preventing invasives on PEI, contact the PEI Invasive Species Spotter’s Network at: peiinvasives@gmail.com.



Bark cracks



Epicormic shoots



Thinning tree canopy

How can you help?

Here are a few things you can do to help stop the introduction and spread of alien invasive species:

- Learn more about invasive species on PEI, including how to identify species of concern
- Plant resistant species
- Increase biodiversity
- Monitor your trees, shrubs and herbaceous plants for signs of insect activity
- Don’t move firewood. Buy locally and burn on site. Pests in firewood can destroy our forests.
- When disposing of materials infested with invasive species, research proper disposal methods to prevent further spread
- Report a sighting

How to report:

If you think you have seen an invasive species on PEI, please report your sighting to the PEI Invasive Species Council at:

peiinvasives.ca/report

or email

peiinvasives@gmail.com

Photos credits: Jeff Hahn, University of Minnesota; David Cappaert, Michigan State University; Ches Caister, CFIA; Art Wagner, USDA; Purdue University; Pennsylvania Department of Conservation and Natural Resources

Prince Edward Island
Wildlife Conservation Fund



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