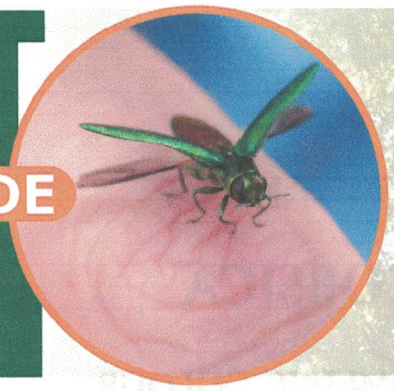
FOREST HEALTH
LANDOWNER'S GUIDE



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A Landowner's Guide for Woodlots Threatened by Emerald Ash Borer

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Background

Emerald ash borer is a serious pest in south western Ontario. Trees infested by emerald ash borer (EAB) are still valuable in the wood fibre and sawmill markets because the insect only infests the outermost layer of wood. There is no urgent need to remove ash trees, unless the removal is part of a government control program.

Not removing ash trees infested with EAB allows researchers to identify trees which may be resistant to the insect. Leaving ash trees in the generally infested area also allows populations of predators and parasites to build to help reduce the impact of the beetle.

Emerald Ash Borer in Ontario

Emerald ash borer is native to China and eastern Asia. Since its discovery in North America in July of 2002, EAB has left a path of destruction in southeastern Michigan, northern Ohio, and Indiana.

In Canada, ash trees have been infested and killed in the city of Windsor, the county of Essex, the Municipality of Chatham-Kent, and more recently in Lambton and Elgin counties as the infestation moves north and east through Ontario.

EAB is well suited to our climate and ash species. It is hoped that over time natural ecosystem controls, such as parasites or disease, will help regulate the beetle's population and reduce its impact.

Figure 1 *Woodlot damaged by emerald ash borer.*

EAB attack and kill healthy ash trees. Larvae kill trees by boring underneath the bark and feeding in the cambium. Eventually, these larval feeding tunnels girdle the tree and cut off the flow of water and nutrients. EAB attacks all species of ash – red, green, white, black, blue and pumpkin, and introduced species such as European black ash and Asian species. Ash trees of any size or age are attacked including branches less than 2 cm in diameter.

Signs and Symptoms

Signs of the beetle include the presence of larvae or serpentine (S-shaped) tunnels under the bark which may be filled with sawdust. Emerging adults create D-shaped exit holes in

the bark that are 3.5 to 4.1 mm wide. Feeding by adult beetles on foliage creates a jagged or notched edge to leaves.

Figure 2 *Emerald ash borer adult and larva.*

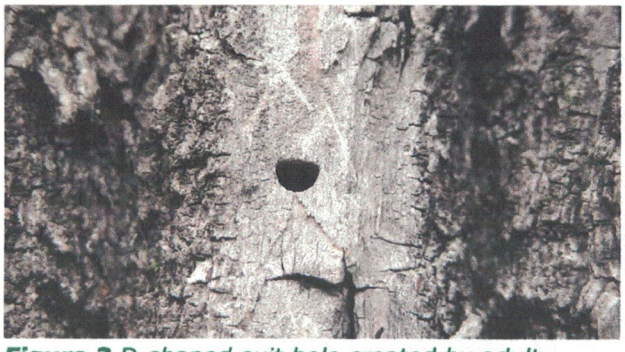

Figure 3 *D-shaped exit hole created by adult emerald ash borer.*

Figure 4 *S-shaped larval galleries.*

Symptoms of EAB attack include tree decline, crown thinning and the appearance of epicormic branches (new shoots growing from the trunk or main branches, often in clumps). Other symptoms include vertical cracks in the bark created from larval tunnelling.

Figure 5 *Crown thinning and epicormic branching from EAB attack.*

Symptoms of EAB attack are similar to those caused by other factors such as drought or disease. Presence of the beetle, larvae, larval tunnels, or adult exit holes are the best means of confirming EAB attack.

How to Identify Ash Trees

Landowners should be able to distinguish ash from other tree species. Species such as mountain ash, walnut, butternut, hickory, black locust and Manitoba maple appear similar but are not attacked by EAB.

LEAVES

Leaves and branches of ash grow in an opposite arrangement: where one leaf or branch grows, a second leaf or branch grows from the opposite side of the branch. Leaves are compound with 5 to 11 leaflets, often with the terminal leaflet larger (Figure 6). Leaflets are paired except at the end.

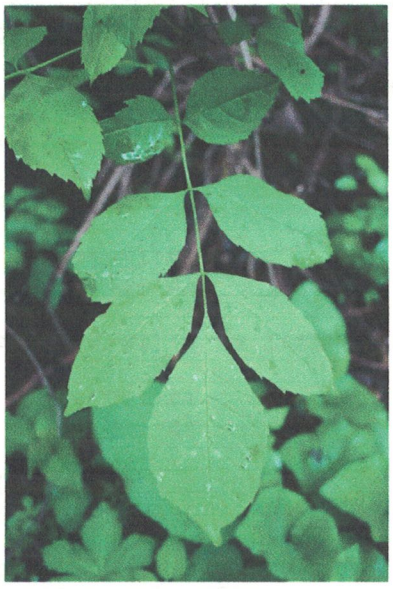

Figure 6 *Red ash leaf.*

BARK

Bark is furrowed or scaly, often with ridges in a diamond-shaped pattern on mature trees (Figure 7).

Figure 7 *Red ash bark.*

To distinguish between tree species, see for example, *Trees in Canada* by J.L. Farrar, published by Fitzhenry and Whiteside Ltd. 1995.

How does EAB Spread?

EAB is able to fly several kilometres. It can be spread by people through the movement of firewood, nursery stock, trees, logs, lumber or wood with bark attached, and wood or bark chips. The movement of firewood has directly contributed to the spread of EAB in Ontario.

Managing Woodlots Threatened by EAB

Silvicultural practices such as thinning and pruning can reduce stress and promote good form, vigour and growth. Targeted reduction of ash density that maintains some isolated but healthy individual trees may reduce the susceptibility of the stand to infestation. Cutting trees according to provincial tree marking guidelines provides space and opportunity for other tree species to regenerate and grow and will maintain adequate density or basal area to reduce the risk of blowdown. Removal of all ash in stands where it makes up 50 per cent or more of the dominant trees or basal area may result in damage from wind or allow the establishment of non-forest or invasive plant species.

PLANNING & FOREST MANAGEMENT ADVICE

A management plan will better prepare the landowner to make decisions about sustainable forest management. Landowners considering removal of timber from woodlands can contact a professional forestry consultant for advice on best management options.

TREE HEALTH MONITORING

The health of ash grown individually or in plantations, woodlots, or forested areas should be monitored regularly, particularly in advance of an EAB infestation. Suspicious signs and symptoms should be reported to the CFIA if the area is not known to be infested. This may limit an infestation and allow time for detection and a strategic response.

ECONOMIC CONSIDERATIONS

There is no urgent need to cut all healthy ash trees in a woodlot. Landowners should not feel pressured to sell their merchantable ash for timber. Landowners concerned about economic loss from an EAB infestation, may consider harvesting some ash trees in advance

of an infestation or at the time it occurs. Trees infested by the borer are still valuable in wood fibre and sawtimber markets since EAB only infests the outer layers of wood. Landowners are advised to have three prospective buyers' quotes on trees marked for removal.

REGENERATION AND PLANTING

In most cases, it will not be necessary to plant trees in a woodlot. There is usually enough natural seed or young trees to take advantage of the space, sunlight and nutrients provided where trees have died. In some cases where species diversity has been reduced through past woodlot use, landowners may consider re-introducing some species through planting.

Landowners can consider strategies such as inter-planting with seedlings of other native species or direct seeding of nuts such as oak, hickory, and walnut. It is important to use native species from locally-adapted seed sources and consider local site conditions for planting and seeding. There are many private tree nurseries in Ontario that may provide suitable stock.

Landowners will be best served by planting more than one species that are suited to the site conditions. Species diversity minimizes the risk of total plantation loss. Rarely will all species be susceptible at the same time to infestations by insects and diseases or to weather-related events such as ice storms or drought.

RESISTANCE

Some resistant or partially resistant ash may be present. Partially resistant trees may die more slowly and could provide seed for the next generation, habitat for wildlife, or host beneficial insects and decay fungi to break down forest material and provide nutrients for trees and other forest plants.

Movement and Use of Ash Wood

Infested wood can be used for lumber and firewood provided it does not leave an area regulated by the Canadian Food Inspection Agency (CFIA). Landowners within a regulated area wishing to use the lumber from their ash trees may hire the services of portable sawmillers and have logs sawn on their property.

Slabs and bark from infested trees must be chipped, burned or buried to ensure that EAB are destroyed. Sawlogs must be sawn and sold within the regulated area and cannot be transported beyond a regulated area in log form. Before any management actions are taken, the CFIA should be contacted, 1-866-463-6017, to confirm an EAB infestation and to ensure any wood processing or movement is consistent with quarantines and ministerial orders.

References

(For additional copies of this publication or for printed references contact the Natural Resources Information Centre 1-800-667-1940)

A Guide to Stewardship Planning for Natural Areas

A Guide to the Managed Forest Tax Incentive Program

A Landowner's Guide to Selling Standing Timber

2004 - 2005 Native Plant Resource Guide for Ontario

Canadian Food Inspection Agency, http://www.inspection.gc.ca/english/plaveg/protect/pestrava/ashfre/agrplae.shtml

Forest Gene Conservation Association (FGCA), website www.ontariosnaturalselections.org

Ontario Ministry of Natural Resources, http://ontariosforests.mnr.gov.on.ca/foresthealthoverview.cfm

Ontario Woodlot Association, www.ontariowoodlot.com

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