

## Ash Trees: *Fraxinus species*

Ash trees comprise roughly 15% of forests in Erie County, and 12% of inventoried trees in the Buffalo Olmsted Parks. Woodlands contained in the parks are often predominately ash. There are ash trees in our parks that have been around for over 100 years. Imagine your great grandparent may have climbed or sat under the same exact ash tree you or your children play under. Time passes, the city develops, and these majestic trees remain.

Ash trees have opposite leaf and branching patterns, meaning that branches come off parent stems directly across from each other, and leaves act the same. Leaves are pinnately compound and each leaf is comprised of an odd number of leaflets which varies depending on species. For example, the image to the right shows one leaf, comprised of 7 oppositely arranged leaflets. Leaf scars are U-shaped and the buds are typically a dark grey or blackish.



Ash bark is often described as having an x-shaped pattern in a relatively uniform pattern. Ecologically they serve as a food source for native wood boring insects, moths and butterflies. Ash wood is relatively hard while maintaining high flexibility. This makes it useful as tool handles, for bows, baseball bats and other high impact purposes.

Leaves serve as suitable fodder for small mammals and larger ungulates such as cows.



Possibly the most notable characteristic of ash is the metallic orange-purple-reddish fall color of white ash. Other native fall colors include yellow, yellow-green, brown and variations within.

## The Problem: Emerald Ash Borer

An invasive wood boring pest made its way to the United States in 2002. It was first discovered in southeastern Michigan and since then it has spread eastward and into New York State. Researchers and scientists believe that the pest came to the US via trade, as a stowaway in some form of wood shipping material. It is believed to be responsible for the death of more than 50 million Ash trees in the US since its discovery. By taking samples from the Buffalo Olmsted Parks System it is evident that the pest has been in our neighborhood for a number of years. This information is supported by evidence from neighboring municipalities, landowners, organizations and universities.

Emerald Ash Borer (*Agrilus planipennis*) is a buprestid beetle with metallic green wings, a copper/purple colored abdomen, a flat head and range from 3/8 to 5/8 inches long (Figure 1). When the adults emerge from a tree they leave a D-shaped exit hole behind, which is one indicator that a tree is infested. Other indicators include epicormic sprouting, chlorotic leaves, crown dieback and woodpecker damage. From late May to early September adult borers can be seen feeding on tree foliage, mating and laying eggs on other ash trees. Adults lay their eggs in crevasses among ash tree bark. These eggs then hatch, pierce the bark where it is thinnest, and begin their feast.



EAB larva feed on the vascular tissue of ash trees in an s-shaped pattern. When the number of larva in a tree is high these feeding galleries overlap each other and girdle the tree, cutting off all nutrient transport and killing the tree.

All of the ash trees in the Buffalo Olmsted Parks are currently threatened by EAB. Without proper management these trees will die.

## Buffalo Olmsted Parks Management Plan

The management of EAB in the Olmsted Parks is tailored to slow pest progression through our parks, and to preserve high value ash trees into the future. Constant monitoring, pest sequestration, tactical removals and trunk injected insecticides are the tools we utilize to manage this growing problem. Once an Ash tree is infested the only way to save it is to treat with an insecticide. As an organization we scrutinized numerous insecticides to find those products which balance efficacy, cost and environmental/user friendliness.

In order to monitor the spread of EAB we take branch samples from ash trees during the months when EAB adults are dormant. We select ash trees for sampling near where the infestation is known to be, along with strategically selecting others where the infestation is likely to travel. Branches are pruned from different sections of the canopy for each selected tree. Sometimes we may select to remove and sample an entire tree from one of our woodland areas. Samples then have the bark removed and any signs of EAB are recorded.



As areas become infested with EAB there are measures that can be taken to slow its progression. One method that we frequently employ is girdling clusters of ash trees. This is done by cutting and removing the bark in a section all the way around the tree. This stresses the tree, it sends out chemical signatures that attract EAB adults, who in turn lay their eggs on these stressed trees. In the winter months we fell and chip these trees, killing all the larva. This works well when infestation levels are

low, but once they reach a threshold level other measures must be taken to save trees.

There are a few insecticides that have been found to save ash trees from EAB infestation. As an organization and steward of the land we plan to protect a portion of our ash trees. These trees were important in the landscape when Frederick Law Olmsted designed these parks, and they remain important today. Our staff arborists have identified those ash trees which we will treat with trunk-injected insecticides into the future. Health, diameter, location in the landscape, neighboring trees, structure, and species were taken into account in the selection process.

This is where we need your help. Let's talk about a 10 inch diameter ash tree in good health:

Value: \$2,733

Removal cost: \$450

Bi-annual environmental benefits: \$20.32

- storm water catchment, air quality, carbon sequestration
- benefits significantly higher if including increases in property value, and reduction in cooling costs

Bi-annual treatment costs: \$16.62

This relatively small tree has a significant dollar value in terms of environmental benefits, and it is relatively cheap to treat!! If the trees are left alone to die, it is a significantly greater expense than treatment, and all environmental benefits are lost. We are asking you to sponsor an ash tree or donate to help save them.



For more information on our sponsorship program please call 716-838-1249.