

**Emerald Ash Borer Management Plan for the
Municipality of Mountain Lakes, NJ
'Removal and Replacement'**



Introduction

The Emerald ash borer (EAB), *Agrilus planipennis* Fairmaire, is an exotic beetle that was discovered in southeastern Michigan near Detroit in the summer of 2002. The adult beetles nibble on ash foliage but cause little damage. When the Emerald ash borer lays its eggs on the bark of an ash tree, it's the larvae tunnel through the bark and begin consuming the sapwood from the tree. This feeding disrupts water flow to the tree's canopy dehydrating and killing that portion of the tree. Eventually, the whole tree will die. When EAB populations are high, small trees die within 1-2 years of becoming infested and large trees are killed in 3-4 years.

According to the U.S. Department of Agriculture, the Emerald ash borer most likely arrived in the United States on solid wood packing material carried in cargo ships or airplanes originating in the insect's native Asia. Since its discovery, EAB has killed hundreds of millions of ash trees in North America and cost municipalities, and property owners hundreds of millions of dollars.

Impact on New Jersey, Morris County and Mountain Lakes

First evidence of the Emerald Ash Borer in New Jersey was discovered in Somerset County in the spring of 2014. In July, 2017, the US Department of Agriculture added Morris County, NJ on its maps of EAB detections in North America. The New Jersey Department of Agriculture estimates that nine percent of the State's tree canopy is ash, meaning 24.7 million ash trees are susceptible to emerald ash borer attacks. In Mountain Lakes, our certified arborist estimates that between nine and ten percent of Mountain Lakes' urban forest is ash. Of the trees located in Mountain Lakes' rights of ways (ROW), five percent (78 trees) are ash. However, we do not have an exact count of ash trees in Mountain Lakes parks, wooded areas, transition areas, or on resident's private property.

Administration of Plan

If the following elements of the Borough of Mountain Lakes EAB management plan are adopted, they will be subject to periodic revision as new information about the EAB is available. This plan is also subject to change should state or federal policies dictate. The Borough's Administration Department, Department of Public Works and Shade Tree Commission (STC) will be responsible for implementing and following up on the provisions of this plan. Feedback from the Woodlands Committee and other relevant groups will be considered. This EAB Management Plan will supplement the Borough of Mountain Lakes' current 2016-2020 NJ Community Forestry Management Plan concerning the management of tree hazards. In addition, the STC recommends sharing the recommendations of the EAB Task Force with the Board of Education for tree management planning on BOE properties.

Communications

The Mayor, Borough Manager, Borough Council, department heads, and the Shade Tree Commission will receive periodic updates through standard channels. All media relations will follow standard Borough approval and protocol.

The goals of this plan are to:

1. Consider the options recommended by State of NJ's Department of Agriculture for the treatment of EAB
2. Remove hazardous ash tree to protect public safety
3. Replant non-host tree to replace those removed

Management Options

The Department of Agriculture provides New Jersey communities four ash tree management options (See Appendix A). After consideration, the EAB Task Force, coordinated by the Shade Tree Commission has taken the following recommends the following:

- Any ash trees, located in Borough property, including Board of Education property, that pose a hazard, are in decline, or are planted in inappropriate locations will be prioritized for removal and replacement. Trees should be evaluated, using USDA approved tree hazard evaluation methods, to determine the timing of their removal.
- In an effort to mitigate the costs of removal and replacement, the Borough should consider harvesting viable ash trees in Borough owned woodlands, excluding roadside trees which have a low value for lumber companies. This harvesting effort would entail a Certified Arborist identifying and marking trees for harvest. Work order or bids would be submitted to lumber companies for the harvesting of viable ash trees and the felling of those with no value. Through tree harvesting, the Borough could potentially offset some of the costs associated with tree removal and replacement. There will be a resulting disruption to our woodlands from this effort as approximately one out of every eleven trees will be felled. Therefore, tree replacement is essential to assure regrowth of forests with native species and avoid influx of invasive species taking hold in newly opened forest spaces.
- In order to address the our tree loss, the Borough should work with the EAB Task Force and the Woodlands Committee to develop a strategy of managing the costs associated with tree replacement.
- The STC does not condone the use of hazardous chemicals into the environment not support the use of chemical pesticides in the treatment of tree related conditions in Mountain Lakes. Aligning with this, the EAB Task Force does not recommend the use of chemical pesticides for the management of EAB on Borough owned property. Pesticides used to control EAB must be applied bi-annually and does not guarantee resistance from future infestation. These chemical treatments are expensive and will not provide a lasting solution to the dangers imposed on Ash trees from EAB. The STC is also concerned about the unexpected consequences of releasing chemicals that can pollute our watershed and prove toxic to insects and other native creatures to our community. Homeowners will be advised that while pesticide treatments are available, the best cost benefit and health benefit is remove and replace.

Tree Hazard Identification

Trees in Borough's parks, rights of way, and along the boundaries of pocket parks with dead or dying ash trees will be identified by the STC during its annual tree survey. All field staff for the Departments of Borough Works can also make recommendation for the removal of ash trees, so an EAB identification training is recommended for DPW staff. Members of the Woodland and Recreation Committees should be included in any EAB training opportunities, as they are an important source of hazard tree referrals. Finally, residence with homes abutting Borough land will be sources of tree removal requests.

Wood Disposal

The Borough will not dispose of any wood outside the quarantine area except at approved sites. The entire state of NJ has been placed under EAB quarantine, under US Department of Agriculture Animal and Plant Health Inspection Service (USDA APHIS) and NJ Department of Agriculture regulations. Movement of ash products (including firewood, nursery stock, logs) outside of the state boundaries is restricted, unless a Compliance Agreement from USDA AHPIS is received. However, to

minimize the continual spread of EAB to non-infested portions of the state, ash trees that are removed will be kept within municipal limits unless it is chipped or the bark is removed.

Wood Utilization

The Borough will make every effort to utilize the ash trees to its greatest value. Ash lumber is a valuable resource and is used for various purposes including flooring, furniture, lumber, and baseball bats. Ash is also commonly used for firewood. The quality of ash wood does not degrade immediately after infestation by EAB, as the insect feeds on the wood tissue just under the bark. However, ash wood will begin to degrade soon after it is killed by EAB, so any wood utilization efforts will be made prior to, or soon after the onset of tree death.

Canopy Replacements

For years, Mountain Lakes has been proud to have upwards of 64% urban tree canopy, lending a bucolic character to the Borough. This tree canopy offsets carbon dioxide discharge, improves air quality and lowers air temperature averages 2° F when compared to neighboring towns with less tree cover. The Borough's tree canopy also increases residential home values. The anticipated nine percent die off from EAB will result in a substantial loss in our urban tree canopy. Openings will be created where invasive plants can flourish. Many of these, like the vines that invade our forest edges, can actually hinder growth or kill additional trees.

Getting the woodlands back to their shaded state is key. Woodland replacement trees are vital to more quickly return our woodlands, parks and rights of ways to their self-sustaining state. Ash trees removed should be replaced with non-host specific species that will enhance the planting sites, are appropriate for the planting sites, and add diversity. The EAB Task Force recommends trees be planted in accordance with the New Jersey Nursery and Landscape Association Planting Specifications and be no smaller than 1.5" – 2.0" caliper for ROW trees. All new plantings will conform to the "10-20-30" tree species diversity rule – no more than 10% any species of tree, 20% of any genera of tree, or 30% of any one family of tree. Ash trees are shade trees and perform vital roles as shade trees. The replacement trees will also be shade trees, native and appropriate for our planting zone. Finally, replanting should be a 1 to 1 ratio for every tree felled a tree is replanted.

Trees on Private Property

Property owners are urged to monitor for EAB on their property. The decision to treat, remove, or retain private property trees rests with the property owner. Residents should consider many variables when evaluating options, including tree size, location, and condition. Residents can contact the STC for more information and assistance. STC will offer information to residence through its website, flyers and hosted presentations by a Certified Arborist. The Borough Council should consider if a set aside fund should be established to help those residents who cannot afford to take down hazard trees on their property.

EAB Task Force Recommendations and Plan Purpose

By considering and implementing the provisions in this management plan, the municipality will take a proactive approach to mitigate the disruption of its urban forest caused by the anticipated infestation of the EAB. Taking a proactive approach will enable the municipality to address public and private needs in an efficient and effective manner.

The Borough of Mountain Lakes will enforce the relevant section of the Ordinance 182-10, concerning tree hazards, through its Code Compliance program, should it receive complaints about hazardous private trees. Private trees that are a threat to private property will be inspected only as complaints are received.

When hiring for tree removal it is encouraged to contact a Certified Tree Expert (CTE). Mountain Lakes also encourages residents to replace trees lost with species appropriate for the site, or to plant new trees in advance of EAB infestation and ash removal. Ash trees are shade trees, and therefore Task Force recommends felled ash are replaced with a native shade tree.

Outreach

Outreach efforts to increase awareness of EAB in the Borough of Mountain Lakes will be led by the Shade Tree Commission. Examples of outreach efforts to be made by the STC include: postings of EAB information on the STC website, printed brochures at the Borough's Headquarters, email blasts to residents and presentations by a Certified Arborist open to all residents. The STC will look for opportunities to encourage tree plantings and will work with the Woodlands Committee to support their efforts in this area (see the EAB Task Force's EAB Community Education Plan 2017-2018 for additional details).

Contacts and Information:

Borough of Mountain Lakes Administration (www.mtnlakes.org)

Shade Tree Commission (<https://mtnlakes.org/committees-and-commissions/shade-tree-commission/>)

New Jersey State Forestry Services (www.forestry.nj.gov)

New Jersey State Forestry Services EAB Webpage (www.emeraldashborer.nj.gov)

EAB Cost Calculator (<http://extension.entm.purdue.edu/treecomputer/index.php>)

National Tree Benefit Calculator (<http://extension.entm.purdue.edu/treecomputer/index.php>)

i-Tree - Tools for Assessing and Managing Community Forests (<http://www.itreetools.org/>)

Emerald Ash Borers (www.emeraldashborer.info)

USDA APHIS (http://www.aphis.usda.gov/planthealth/plant_pest_info/emerald_ash_b/regulatory.shtml)

USDA Forest Service (<http://na.fs.fed.us/fhp/eab/>)

EAB Pesticide Options

(http://www.emeraldashborer.info/files/multistate_EAB_Insecticide_Fact_Sheet.pdf)

Slow Ash Mortality (SLAM) (<http://www.slameab.info/>)

Appendix A

Ash Management Options Suggested by State of New Jersey

Option A. No Action

In this option, ash trees will be treated and maintained the same as other species in the community. No survey will be conducted to detect and monitor the spread of EAB, and no control actions will be undertaken even when EAB becomes established in the community. No tree replacement plan for affected areas is in place. It may cost nothing up front. However, the community is still responsible for the removal of hazard trees along roadways and woodland trails. Significant changes in neighborhoods and local landscapes can also be expected. The result will be that most ash trees will be killed by the end of the infestation.

Option B. Selective Management

In this option, high-value ash trees in selected areas (streets and parks) within the community will be managed actively, whereas those in other areas (e.g. woodlots) will be left alone. Ash trees will be monitored for their health and levels of EAB infestation. Chemical control and tree removal will be applied wherever appropriate in a cost-effective manner. Tree replacement (1:1 or 2:1) will be prioritized towards community needs. As a result, most ash trees in the natural areas will be killed by the end of the infestation, whereas a great portion of high-value ash trees are protected for future generations to enjoy. In addition, dead or dying ash trees in streets and parks will be replaced with non-host species to prevent major canopy gaps in neighborhoods.

Option C. Preemptive Management

In this option, ash trees on streets and in the parks will be removed preemptively and replaced with non-host species. No EAB survey activity will be conducted. As a result, treatment areas will contain no ash trees, with no concerns over EAB in the future either. The initial cost of this option could be very high because of expenses associated with tree removal and replacement. Streets and parks also need to deal with major canopy gaps temporarily at the beginning before replacement trees become well established. However, no annual cost will be incurred after the completion of the project.

Option D. Aggressive Management

In this option, all ash trees in the community will be managed actively with all available management tools. EAB survey activities will be carried out on both roadways, parks and in yards. Information from the surveys will be used to determine proper management actions across the Municipality. Chemical control will be actively pursued to protect the maximum portion of ash trees and their canopy. Only dead or dying ash trees will be replaced with non-host species. As a result, most high value ash trees will be saved from EAB damage, whereas a small portion will be replaced with non-host species. Community suffers the least socially and environmentally from the infestation, with less risk of losing urban canopy cover. However, annual cost to the community is the highest among all options.

Appendix B

The goal of SLAM (SLOW Ash Mortality) is to slow the spread and reduce the population of EAB so as to delay the onset of mass ash mortality. Here are some methods that can be used to achieve the goals under SLAM*.

Trap Tree

Select ash trees are girdled (a ring of bark is removed, restricting the movement of water and nutrients up and down the tree) in the spring (April/May) prior to EAB emergence. This tree is then cut down in the winter or early spring prior to EAB emergence. A girdled ash tree will attract more EAB than a non-girdled tree because the EAB are attracted to the chemicals emitted from the stressed ash tree. After cutting down the tree, either peel the bark or buck (cut) into 3-4' sections (or smaller). Peeling or bucking the tree will increase EAB mortality by exposing the larvae and promote drying out the wood. **Girdled trap trees must be removed the following winter/early spring, otherwise they will serve as breeding grounds if left standing after EAB emergence.** This method can be applied to a single tree or a cluster of trees.

Lethal Trap Tree

Similar to the Trap Tree method, except the selected ash tree is chemically treated 3-4 weeks prior to girdling. The girdled ash tree will attract the EAB and the chemical will kill any adult or larvae that feed on the tree. The lethal trap tree does not need to be cut down because it will not harbor live EAB. This can be applied in areas where tree removal is difficult or not an option. This method can also be used without girdling the tree.

Phloem Reduction

Tree phloem is the thin layer of living tissue found just under the bark of a tree. The amount of phloem in a tree is directly related to the tree's size; larger trees have larger amounts of phloem than smaller trees. The EAB larvae feed on the phloem, and the more food (phloem), the more EAB. If chemical treatments are not an option, and tree removal is the main method used for EAB management, then the removal of larger diameter trees should be prioritized in order to reduce the most phloem at a time. Also, the Trap Tree method can be used on these larger trees prior to tree removal to attract more EAB before the tree is cut down.

Delayed Tree Removal

In order to spread the cost of tree removal over time, a portion of ash trees can be chemically treated with the intent of removal at a later time. Treatment will protect this portion of ash trees from EAB attack and allow the municipality to delay the need to remove these otherwise infested or hazardous trees. For example, if 100 ash trees are slated for removal, instead of scheduling the removal of all 100 trees at one time, remove 50 in year one and treat the other 50 and plan for removal the following 1-2 years.

Diameter Consideration Tree Removal

When deciding which ash trees should be removed, consider the diameter and value of the ash tree. For instance, ash trees that are <10" in diameter could be slated for removal, regardless of health and location, and then replaced with a non-host tree. The purpose of this is that a large ash tree (>10") will provide greater ecological value that may take many years for a newly planted tree to provide. So

preserving this ecological value in larger ash trees may be more economical in the long run (via shade, energy costs, carbon sequestration, watershed protection, etc).

** Ash tree removal alone does not support SLAM, but rather may increase the spread of EAB, as EAB will fly far distances until they find a suitable host. Integrating multiple SLAM methods concurrently is the best option to slowing the spread of EAB.*

Ash trees removed should be replaced with non-host specific species that will enhance the planting sites, are appropriate for the planting sites, and add diversity. Trees will be planted in accordance with the New Jersey Nursery and Landscape Association Planting Specifications and be no smaller than 1.5” – 2.0” caliper. All new plantings will conform to the “10-20-30” tree species diversity rule – no more than 10% any species of tree, 20% of any genera of tree, or 30% of any one family of tree.

Canopy Replacements