

# EMERALD ASH BORER COMMUNITY PREPAREDNESS PLAN



Michigan Department of Natural Resources



Michigan Department of Agriculture

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## INTRODUCTION

Since its discovery in 2002, the Emerald Ash Borer (EAB) has had a dramatic impact on Michigan's urban and community forests. Whether your community is currently dealing with EAB or will be in the future, developing, communicating and implementing an EAB Preparedness Plan will enable you to address public and private needs in an efficient and effective manner. While each community will address its EAB infestation based on local circumstances, all communities should be prepared to manage any disease or invasive insect that threatens their urban forest resource.

The purpose of this document is to assist Michigan communities in preparing for and managing their local emerald ash borer (EAB) impact. It is designed to serve as a tool to help establish a framework for local EAB preparedness and community action by outlining major issues and providing guidance on how to address them.

A well-designed plan will establish a timeline and budget, identify essential personnel, resources, and procedures, and be flexible enough to adjust to changing information. The reality is that once EAB is established, communities may be forced to deal with tough economic, environmental, legal and social issues. Planning in advance allows your community to be better prepared to minimize the severity of these impacts and establish a solid foundation for recovery. **Appendix A** provides a case study of the City of Westland and their EAB response plan.

Federal and State roles and responsibilities vary regarding the type of assistance each can provide communities in preparing for EAB. For this reason, this document has been developed as a cooperative effort between the Michigan Department of Natural Resources (DNR) and Michigan Department of Agriculture (MDA) with assistance from the Southeast Michigan Resource & Development Council (RC&D Council), Michigan State University & Extension (MSU & MSUE), USDA Animal and Plant Health Inspection Service (APHIS) and the USDA Forest Service, State & Private Forestry (USFS). Major roles and responsibilities for each are listed below:

- **DNR** - Tree inventories, management plans, ordinances, tree planting, state and private lands assistance, wood utilization
- **MDA** - State regulatory agency, state quarantine, survey, compliance agreements
- **RC&D Council** - Wood utilization
- **MSU** - Research, treatment options
- **MSU Extension** - Plant diagnostics, outreach and education
- **APHIS** - Federal regulatory agency, federal quarantine and compliance agreements, EAB confirmation
- **USFS** - Technical and financial forestry assistance

A detailed listing of agency contact information is provided in **Appendix B**.

## EAB PREPAREDNESS PLAN ELEMENTS

The elements of an EAB Preparedness Plan described below will help you develop the framework for your community's plan. These elements are offered as suggestions. The plan you develop should be specific to your community's needs and circumstances, while being flexible and including realistic tasks, goals, timelines and budgets.

As you read through this document, you will notice several references to timelines. Developing a timeline for task completion is just as important as identifying the tasks themselves. The timeline will not only assist in tracking plan progress, but will also be critical in budget creation and identifying needed financial resources.

In developing your plan, we recommend that you start with an outline to help organize your thoughts and identify tasks. A sample outline has been provided in **Appendix C**.

### ELEMENT 1: THE TREE INVENTORY

The first and most important step in preparing for EAB is to determine the potential risk to your community's urban forest resource. This can be quickly identified using information contained in a street tree inventory. If your community has an existing inventory, this should be used or updated. If you do not, this should be one of your first priorities.

A tree inventory<sup>1</sup> is the process of counting, characterizing and recording information about the public trees that make up the urban forest in your community. It is a useful tool that documents important information related to the total number of trees, their condition, location and species composition. It will be invaluable in determining the extent of ash trees in your community.

At a minimum, the following information should be collected for each tree as part of the inventory:

- species
- size
- condition
- location and accessibility for removal

Inventories can be completed relatively quickly and simply or be very detailed and sophisticated depending on the needs and capacity of your community. For example, if you decide to use removed trees for lumber and mulch in your community, your inventory should also collect information on available logs. Following is a description of three basic types of inventory/survey.

1. A "**windshield survey**" is an inexpensive, quick and effective procedure whereby a cursory visual inspection and count are made by trained personnel from a vehicle. A follow-up ground survey should be conducted to detect more subtle problems such as decay. Inspection may include all public trees or a representative sample.
2. A "**complete**" **inventory** is a systematic approach that examines and records detailed information about all trees on public property including parks. This type of inventory is

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#### **Tree Inventory Resources:**

Fazio, J.R. "How to Conduct a Street Tree Inventory" (Tree City Bulletin #23, National Arbor Day Foundation)- [www.arborday.org](http://www.arborday.org)  
Bassuk, N.L. "Conducting a Street Tree Inventory" (Cornell University)- [www.hort.cornell.edu/commfor/inventory/utilizing.html](http://www.hort.cornell.edu/commfor/inventory/utilizing.html)  
i-Tree - Tools for Assessing and Managing Urban Forests" (USDA Forest Service)- [www.itreetools.org](http://www.itreetools.org)

labor and time intensive and requires trained professionals. Consequently, the expense can be significant.

3. An **“ash only” inventory** examines only ash trees on public property. It can be completed relatively quickly and efficiently by in-house staff, by volunteers with minimal training, or by professionals. Inspection may include all public trees or a representative sample.

Ideally, the goal should be a complete community forest inventory. When a complete inventory is not practical or feasible, a rough estimate of the total number of ash trees along public rights-of-way (ROW) can be determined quickly by sampling parts of the community as follows:

1. Determine the total number of community street miles.
2. Survey\* all ash along a representative sample of street miles.
3. Extrapolate results to estimate total number of ROW ash in community.

**Example:** Total street miles = 12  
Number of street miles sampled = 3  
Number of ash trees in sample = 150  
Average number of ash per street mile = 50 ( $150/3 = 50$ )  
**Estimated total ROW ash = 600 ( $12 \times 50 = 600$ )**

\*size class & condition should also be noted during this survey.

*For a community that determines they only have a minor component of ash and EAB may not be a threat, a more generalized urban forest management plan that incorporates a section on invasive/exotic pests may be more appropriate. Refer to contacts in **Appendix B** for assistance in developing an urban forest management plan.*

The DNR's Urban and Community Forestry (UCF) program (see **Appendix B** for contact information) offers cost-share financial assistance to communities on a competitive basis for conducting tree inventories via professional contracted labor. For a list of tree inventory software programs refer to **Appendix D**.

## ELEMENT 2: SURVEYING YOUR COMMUNITY FOR EAB

After determining your tree inventory needs, the next step in creating your plan is to develop and implement an EAB survey and detection strategy. Below is a brief description of EAB signs and symptoms, followed by a discussion on EAB survey techniques. The survey techniques are based on methodologies developed and utilized by MSU and MDA.

- **EAB Signs and Symptoms<sup>2</sup>**

Your ash tree may have EAB for a few years before you begin to see outward symptoms of tree decline. Signs and symptoms of an EAB infested tree include:

- Delayed leaf-out in spring (symptom)
- Thinning canopy or crown (symptom)
- Branch dieback from top of tree (symptom)
- S-shaped galleries (tunneling) under the bark (sign)
- Woodpecker damage (symptom)
- Epicormic shoots/water sprouts (symptom)
- Bark splits (symptom)
- D-shaped exit holes - first spotted in upper branches of tree (sign)

For assistance on identifying ash trees and EAB, see contacts in **Appendix B**.

- **EAB Surveys and Inspections**

The EAB adults typically begin to emerge from ash trees in late May and will continue to emerge, mate and lay eggs through late summer (August-September). Identifying infestations early will give a community more time to implement a management plan before their ash trees are in a late state of decline and become hazardous. There are several different methods of surveying for EAB, each of which has their own advantages and disadvantages. Your community may choose to use a variety of these techniques, finding some more suitable for widespread surveys and others best for high-risk locations. A brief description of these methods is discussed below, and further details and methodology can be found in **Appendix E**.

- **Visual Survey** techniques include looking for the outwardly visible signs/symptoms of EAB on ash trees. Surveys can be conducted systematically over a given area or by individually selecting trees through an inventory. This survey method requires the least amount of resources, and a large area can be covered in a short amount of time. The main disadvantage is that by the time visual symptoms of EAB are present, it usually means the infestation has been in the area for several years, and protection measures may not be warranted.
- **Tree Climbing** methods are employed when a closer look of the tree's canopy is warranted. Professional tree climbers should be utilized in this situation. In the tree canopy, small windows on the trunk and branches are peeled back using a drawknife, to look for EAB larvae. An advantage of this method is that inspection occurs in the tree's canopy where EAB signs/symptoms appear first. Time and cost are the main disadvantages to this method.

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<sup>2</sup> For photographs of EAB signs and symptoms and an electronic version of the Michigan State University Extension Bulletin *E-2938 "Signs and Symptoms of Emerald Ash Borer."* [www.emeraldashborer.info](http://www.emeraldashborer.info).

- **Destructive Sampling** includes the removal and/or peeling of an ash tree to look for EAB larvae and larval galleries. Ash trees that are destructively sampled can be of any size, but are most efficient to peel when they are between 4"-12" diameter at breast height (DBH= 4.5 feet above the ground). The advantage of this method is the discovery of early EAB infestations. A disadvantage is the destructively sampled ash tree is destroyed.
- **Detection Trees** are created by artificially wounding an ash tree to purposely stress it, which research has shown will attract EAB. The most effective way to wound a tree to attract EAB is to remove a band of bark around the trunk of an ash tree (girdling). This will disrupt the conductive tissues within the tree, and it will no longer be able to transfer water and nutrients. Detection trees are currently the most effective tool available for proactively surveying for EAB. Unfortunately, this method also destroys the ash tree that is used for surveying.

- **Areas to Survey**

The artificial movement of EAB through human activity remains the most important risk-factor for the establishment of EAB populations. Ash nursery stock, sawlogs, and firewood are the primary means of artificial movement of EAB. Focusing survey activities in areas where these articles may be transported is essential for the efficient use of resources and the effectiveness of the survey. The following list summarizes the highest risk sites:

- Nursery Stock: nurseries, newly landscaped public, commercial, residential areas
- Firewood: campgrounds, recreational lakes, cottage communities
- Sawlogs: sawmills, pallet operations, other wood utilization firms

**If EAB is discovered outside of a known quarantine or infested area**, contact the MDA hotline for current reporting procedures toll-free at 1-866-325-0023 or visit [www.michigan.gov/eab](http://www.michigan.gov/eab).































































