

# **Emerald Ash Borer Preparedness Forum Report**

## **Massachusetts Forest Pest Task Force**

This document provides an overview of the Emerald Ash Borer Preparedness Forum, including key points, action items identified, and brief summaries of the sessions held throughout the day.

### **Background**

This forum was presented by the Massachusetts Forest Pest Task Force and held at Tower Hill Botanic Garden in Boylston, MA on January 6th, 2016 from 8:30 am - 4:30 pm. The forum brought representatives from impacted or soon-to-be impacted communities together with EAB experts from the MA Dept. of Agricultural Resources, MA Dept. of Conservation and Recreation, USDA Forest Service, Cornell University, UMass Amherst, and National Grid, among others.

### **Forum Goals**

The goal of the forum was to provide an update on the current status of EAB in our state, to present information and resources about what should be done to prepare for this pest, and to discuss ideas about how communities can best prepare for and respond to EAB. Participant feedback from discussion sessions in addition to overall themes that emerge from the forum would then be used to fuel development of outreach tools and used to target outreach where it is most needed.

### **Participant Overview**

A total of 67 people attended the forum representing over 30 communities throughout the state of Massachusetts from 8 counties, including Barnstable, Berkshire, Essex, Hampden, Hampshire, Middlesex, Suffolk, and Worcester. Non-profit representatives made up the majority of the audience (45%). Municipality representatives made up approximately 19% of the audience, while the rest of the participants were a combination of state representatives (15%), federal representatives (8%), utilities (7%), and additional out of state contributors (6%).

### **Key Points Identified**

- A need to increase the overall amount of resources available for and communication about Emerald Ash Borer Preparedness
- A request to increase the presence of the Forest Pest Task Force to make communities aware of the support and resources that they can provide.
- Be conscious of the messaging tone and the perception of the threat of EAB
- A lack of means (e.g. time, money, volunteers, training, etc.) is the largest barrier to preparing for EAB and creating resources to begin to address this gap is essential

### **Priority Action Items Identified**

#### **1) Make the following resources available to the public:**

- Tree girdling protocol
- "Safety of working with infested trees" presentation

**2) Create EAB preparedness materials including:**

- A Massachusetts-specific guide to ash identification
- A quick-reference list of pesticides that are approved for use in Massachusetts to manage emerald ash borer
- A document outlining funding resources
- A guide summarizing methodology that can be used for inventorying rural forests
- Resources that aid in sharing knowledge and means across communities (e.g. arrange community liaisons, create online forums, etc.)

**3) Send EAB preparedness kit to municipalities in or near EAB infested communities including:**

- Introductory letter and call to action from the Massachusetts Forest Pest Task Force
- EAB Pamphlet
- List of online resources for further research opportunities
- EAB Preparedness Plan Template
- Additional materials as deemed relevant by the Forest Pest Task Force

**4) Pursue additional outreach opportunities including:**

- Create a woodpecker-damage specific project where people can report woodpecker activity to detect EAB
- Increase communication with the green industry, utilities, golf courses, hunting/gun clubs, etc.

**Session Summaries**

**Emerald Ash Borer: Background and Overview of the Green Menace**

*Speaker: Nathan Siegert, USDA Forest Service*

EAB was first detected in the United States in Detroit, MI in 2002, and has since been detected in 25 states making it recognized as the most destructive forest insect in North America. The emerald ash borer is a small, metallic green beetle, native to Asia, which feeds on ash trees (*Fraxinus* spp.) and white fringe tree. EAB larva bores directly under the bark and disrupts the flow of nutrients and water in the tree's conductive system which kills ash trees quickly, often within 3- 5 years.

In Massachusetts, ash makes up an average of 4-8% of our hardwood forests and can be clumped in distribution, particularly in riparian areas where composition can be 20-30%. EAB threatens more than just timber loss as it will have widespread ecological, cultural and economic impacts across the region.

Recent studies have found it is economically advantageous to spend money to prevent the spread of EAB. Management in areas with EAB should focus on mitigating impacts by reducing population growth, rather than eradication or control of the pest itself. Integrating multiple site-specific management tools as possible (i.e. insecticides, biological control, girdled trees, targeted ash removal, etc.) with the goal of Slowing Ash Mortality (SLAM) can buy time for planning and prevent catastrophic ash mortality.

Communities should start to conduct an ash inventory and assess the need for an EAB management plan. A solid management plan helps ensure that the community transitions through the invasion on their terms and their budget and increases the likelihood of state or federal funding opportunities in the future.

## **Massachusetts EAB update**

*Speaker: Ken Gooch, DCR Forest Health*

Emerald ash borer (EAB) was first detected in Massachusetts on August 31, 2012, in Dalton, MA on a purple trap. Since this original find in Berkshire County, EAB has spread to a number of neighboring towns and has been detected in three additional counties: Essex County (North Andover, 2013), Suffolk County (Boston, 2014), and most recently Worcester County (Worcester, 2015).

The state Department of Conservation and Recreation (DCR) focuses its efforts on monitoring and detection through the use of purple panel traps, green funnel traps, and girdled trees. In addition to detection, the DCR has been using biocontrol as a population management effort. Currently, only two species of biocontrol have been released (*Tetrastichus planipennisi* and *Oobius agrili*) at two locations within the state, North Andover and Dalton. Populations of these biocontrol species have established in both locations. The DCR plans on releasing in more locations throughout the state and there is potential for the future release of a new species of biocontrol, *Spathius galinae*.

A statewide quarantine continues to be in effect for all regulated materials which includes but is not limited to: live or dead EAB in all life stages, all ash host materials, and nursery stock. Materials may be moved October 1<sup>st</sup> until May 1<sup>st</sup> with a compliance agreement from the USDA. While it is legal to move to other areas within the quarantine, the DCR recommends limiting ash material movement in order to slow the spread of EAB.

## **The Importance of Doing Inventories**

*Speaker: Mollie Freilicher, DCR Urban Forestry*

A tree inventory is generally a record of publically-managed trees in a community which can aid in achieving goals such as preparing for the arrival of EAB, slowing the spread of EAB in a community, maintaining a safe urban forest and preserving tree canopy and benefits. It is not possible to begin planning for EAB unless a community knows how much ash they have, where they are located and what condition they are in. Completing a tree inventory can result in the knowledge of which trees should be removed, which trees are treatable and in what order trees should be removed as resources allow.

There are multiple ways in which a tree inventory can be carried out, including a complete inventory (all public trees and planting spaces), partial inventory (random sample of 3-6% or street segments), specific geographic area inventory, or an ash-only inventory. Data collectors can come from municipal or in-house staff (DCR Urban and Community Forestry program can assist in training), hired consultant arborists, volunteers or any combination of these. To fund an inventory, consider conducting an inventory in stages, utilizing volunteers, or applying to the DCR Urban and Community Forestry Challenge Grant.

When collecting data, it is important to remember to only collect the information that is essential to obtaining the tree inventory goals. This information might include the species, diameter, condition, location and management recommendations for each given tree. Remember that condition should be evaluated by professionals or well-trained individuals.

Once a community or organization knows what it has, they can begin to inform management practices by calculating costs of removal and treatment scenarios, analyzing benefits provided by their trees and creating a written response plan for their community.

## **Emerald Ash Borer: Forest Management Considerations**

*Speaker: Nathan Siegert, USDA Forest Service*

Managing EAB in forested areas should focus on targeted removal of ash trees. The relationship between tree size, phloem, and EAB equates to approximately 100 adult EAB per 1m<sup>2</sup> of phloem. As a result, a high proportion of an inventory may be in the small size classes but only support a small portion of the EAB population, while a low proportion of trees may be in the large size classes but support the majority of the EAB population (McCullough & Siegert, 2007). By only taking large, merchantable trees it equates to a small amount of work but potentially removing 50% of EAB.

Assessing risk and economic impact of EAB are an essential part of managing forests for infestation. Risk is generally assessed using proximity to an infestation; the closer to an infestation, the higher the risk of trees becoming infested. However, human-assisted movement of wood can accelerate the timeframe. Economic impact is generally determined using the percentage of ash in each size class (<12' dbh, 12-18'dbh, >18"dbh); the higher percentages of larger ash trees on a property, the larger the economic impact will be if the ash die.

Priority actions include conducting an ash inventory, determining management goals, and assessing EAB risk (proximity and potential loss). If the potential economic damage is low consider thinning ash to shift stand to best residual (non-ash) trees and monitor to get the best regeneration. If the potential economic damage is high consider harvesting high-value ash and low-quality residual non-ash trees to favor desirable species. Overall, it is premature to target ash trees if in an area beyond known infestations, thus, stick to the previously determined harvest entry schedule but consider managing ash within the next 10-15 years.

## **Biosurveillance: The Mass Wasp Watchers Project**

*Speaker: Jenn Forman Orth, MDAR*

Biosurveillance is a tool currently used to detect emerald ash borer (EAB) by monitoring the nests of a native EAB predator, the Smoky-Winged Beetle Bandit (*Cerceris fumipennis*). This predator is a small, non-stinging wasp that is a parasitoid on the family of jewel beetles (which includes EAB). This wasp flies into the environment, captures a jewel beetle, paralyzes them, and brings them back to subterranean nests to lay their eggs. The wasp's nests are often in ball fields or other hard packed, sandy soils and have a "tumulus" or "soil volcano" with a tunnel that leads to subterranean nest cells where the eggs are laid.

This detection method is used both on a federal and state level. In Massachusetts, staff and volunteers pick up dropped beetles near the nests or actively sample from females foraging. So far they have found over 300 nests and counting. In 2015 alone, over 141 sites were visited by staff and volunteers, which included land stewards, friends groups, master gardeners, retirees, scout troops, parents of kids who play little league. The sites visited were spread throughout 135 towns/cities in 7 counties and resulted in the collection of 648 beetles.

## **Working with Pesticides**

*Speaker: Phil Lewis, USDA APHIS*

Various pesticide options and application methods are available depending on goals and resources when treating ash trees. When insect pressure is high, treating every year is most effective at protecting against EAB. Conversely, when insect pressure is low, treatment every 3-5 years is often adequate.

One application option is the use of tree injection systems, which include capsule and pressure systems. This option can make large impacts on both the tree and budget. However, trunk injection methods provide a good distribution of pesticide throughout the tree and deliver rapidly and at higher levels than in the soil. Fall treatments are good for the following growing season but it is important to recognize that residues decline rapidly in following year.

An alternative option for application is through the soil in which case basal drenches or injections achieve best results. Best practices for these methods include an even distribution of the chemical around the trunk, concentrating at the base of the tree where most of the roots are. Uptake is slow, approximately 2-3 months for maximum uptake, and larger trees require more chemical.

### **Biocontrol of EAB: A Decade of Progress**

*Speaker: Theresa Murphy, UMass Amherst*

Biocontrol uses the importation of a natural enemy to control the population of a pest species. The invader has to be established for at least five years before biocontrol can be used successfully. In general, biocontrol species have intense regulation and go through years of testing before they can be used as part of a pest management strategy.

Currently, *Tetrastichus planipennisi*, *Oobius agrili*, and *Spathius agrili*, three parasitic wasps native to Asia, have been released. *Spathius agrili* does not match well with our climate. Moreover, while *T.s planipennisi* and *O. agrili* are increasing and spreading at the release sites, *T. planipennisi* can only target small trees because of its short ovipositor (the part of a wasp that inserts eggs into prey). A new biocontrol species, *Spathius galinae* is now being tested. This species has a longer ovipositor and a better climate match making it a promising candidate for successful biocontrol.

### **Efforts to Mitigate the Impact of Emerald Ash Borer in New York Through Community Engagement in Education and Planning**

*Speaker: Mark Whitmore, Cornell University*

Emerald ash borer was first detected in New York in 2009 and in that same year serious outreach began with the help of APHIS funding. Local talks and educational events were organized to spread the word about EAB, however, they realized it was not enough to do “train the trainer” sessions and send folks on their way. They found the outreach to be too slow moving to keep people interested and that there was a lack of focus for the efforts of everyone’s enthusiasm. In 2011, New York had formed an EAB Community Task Force which has led to multiple local task force groups, composed of more than one town, across the state.

These local task forces provide an efficient transfer of the latest scientific and management findings, an opportunity for volunteers to put their energy to good use, the ability to identify local resources, needs, and issues, and the capacity to apply management strategies to local situations. From the lessons learned through forming these groups, New York communities have found that in order to be successful, local task forces need a contact person, proper facilitation of meetings through leaders that can keep the meetings on track and moving forward, and the ability to fight apathy in the absence of tree death.

An excellent example of a successful local task force group can be found within Onondaga County, NY. This group took the initiative to conduct tree inventories which led to the development of cost metrics and comparing options. They then looked at a realistic budget and crafted a plan which would cost \$15 million over 5 years. By taking this initiative, they helped about 50% of the county’s

municipalities develop plans. After the plans were in place they did detect EAB within Onondaga County and are currently executing these plans across municipalities.

Preliminary insights from a Cornell Graduate student analyzing how networks develop after task forces are implemented has found that some of the strengths of these groups include the diverse participation of stakeholders, ability to draw on information from public and private sector members, application of scientific information to local situations and input of local and municipal knowledge. Alternatively, some of the common weaknesses of local task force groups include nebulous goals and a lag in the engagement of municipal decision makers. In summary, the essential aspects of a successful task force include partnerships, mutual respect, stakeholders which bring local knowledge, openness to change and adaptive management.

### **Safety of Working with Infested Trees**

*Speaker: Brian Skinner, National Grid*

Working with EAB infested trees is a whole new experience in tree removal and safety. Once EAB invades a tree the wood starts to dry out rapidly, becoming brittle and losing the flexibility and strength characteristics of ash. When trees die from EAB, it only takes 1-2 years for branches to begin to snap, the base to snap or the tree to uproot entirely. Dead ash trees will have an impact on residential, commercial and public properties.

It is unsafe to leave standing deadwood and essential that EAB killed ash be removed. Safe removal methods include the use of a bucket, crane, backyard lift, or tying onto a safe tree. Costs to take down a tree prior to infestation or death are much lower than post-mortality. It is important to remember that safety *must* take priority when working with EAB affected ash trees.

### **Community Response in Massachusetts**

*Speaker: Felicia Bakaj, MDAR*

The Massachusetts Department of Agricultural Resources (MDAR) surveyed community response to EAB within Massachusetts to determine who is taking action, where they are taking action, and to create the agenda for the EAB Preparedness Forum. Ninety-two surveys were sent out to municipalities and large scale land owners in and around infested communities. Questions focused on inventorying, planning, treatment, response, and outreach.

Thirty-four survey responses (37% response rate) were received. 68% of responses indicate no action has been taken beyond basic outreach. Actions that had been taken included inventories, response plans, treatment, discussions, and the “do nothing” approach. About 25% of the responses indicate they have completed an inventory, however, the majority of inventories were coarse with very few knowing the exact locations of ash trees. Treatment was not a favored response to EAB with only 3 respondents having treated with insecticides. 38% of respondents provide outreach through methods including hardcopy items (e.g. brochures ID cards, etc.), presentations, informational signs at trail heads/property entrances and educational webpages. In response to this survey, over 4,050 outreach material items were sent out. Overall, the majority of respondents indicated they are not currently taking action; however, there is indication that many respondents would like to be doing more than they are, including completing inventories and providing outreach.

## **Communicating the Message: Resources Available to You**

*Speaker: Felicia Bakaj, MDAR*

Focusing on outreach is a valuable investment for all sectors, including municipalities, non-profit and for-profit organizations. The resources available through state and federal entities make outreach resources free to individuals and organizations. Focusing on outreach increases volunteer and stewardship opportunities by inspiring passion in others. Moreover, communicating the signs and damage of an invasive pest, such as EAB, can lead to early detections and an increased amount of time to plan and respond to the discovery. Free outreach materials, online resources, and local experts are all available to citizens, organizations and communities. The MA Department of Agricultural Resources or MA Forest Pest Task Force can help connect people with these resources.

## **Summary of Challenges and Objectives Identified by Discussion Groups:**

After a day of lectures and discussions, the forum ended by relaying back to the participants the challenges and gaps in resources that had been identified throughout the day. Under the heading of each moderated discussion topic, a few key takeaways from each session are identified below:

### Working with Pesticides

Participants saw the need for resources that are more readily available and accessible for communities regarding treatment methods, chemicals, and non-target effects, including a quick-reference list of specific pesticides that are approved for use in Massachusetts.

### Tips from Those Already Feeling the Impacts

Resources such as funding and time were identified by participants as a major challenge in preparing for EAB. One suggested solution was to use students as a resource for conducting inventories. Participants already feeling the impacts of EAB recommended increasing people's desire to prepare for and deal with EAB by focusing on the liability aspect of EAB, specifically the risk associated with ash killed by EAB. Reaching out to decision makers and municipalities to remind them of their liability was also recommended. Finally, participants noted the importance of being conscious of messaging tone and that the perception of the threat of EAB portrayed as a gloom and doom scenario often does not lead to favored results.

### Detecting EAB in Your Community

Land managers in attendance expressed interest in knowing how to girdle their own trees as a way to monitor for EAB without the help of outside groups or funding.

### Completing Tree Inventories:

Participants identified time, funding sources, community leadership, staff/volunteer resources, and determining the cost of an inventory without knowing how many trees there are as the biggest challenges when completing inventories. As a result, participants saw the need for a document outlining a methodology that could be used for inventorying less urban stands in addition to a resource that specifies funding opportunities for completing inventories.

### Outreach & Working with Volunteers

Working with birders to look for woodpeckers and woodpecker damage on ash and creating a woodpecker-specific project where people can report woodpecker activity to as a way of monitoring for EAB were proposed by participants as means to increase outreach and volunteer opportunities. Participants also suggested identifying groups that have not been reached out to yet, or expanding further into groups that have been contacted, such as the green industry, utilities, golf courses, hunting/gun clubs. Lastly, participants saw the need for an ash identification resource for volunteers to use.

### Additional Objectives Identified

Participants saw the need for resources that would help share knowledge and capabilities across communities, as well as an overall movement towards interagency collaboration. Furthermore, participants sought an increase in the presence of the Forest Pest Task Force through making communities aware of the support and resources that they can provide.