

Emerald Ash Borer Preparedness Forum Summary

This document provides a summary of the major points from each of the sessions held during the Emerald Ash Borer Preparedness Forum, presented by the Massachusetts Forest Pest Task Force, and conducted 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. 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.

Additional resources, as well as the presentations associated with each session, can be found [here](#) under the heading “Emerald Ash Borer Preparedness Forum”. You are encouraged to explore the resources provided and referenced in these sessions, as well as to contact Felicia Bakaj at 617-626-1738 or Felicia.Bakaj@state.ma.us with any additional questions or comments.

To skip to a section, please click one of the following links:

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Massachusetts Forest Pest Task Force

Speaker: Eric Seaborn, National Grid

- The Task Force meets every other month; all are welcome to participate
- They are looking for additional members, especially from municipalities and large scale land owners who are not yet represented
- For more information about the Task Force's mission and affiliations of its current representatives:
 - Visit: http://massnrc.org/pests/linkedddocuments/Forest_Pest_Task_Force.pdf
 - contact Eric Seaborn at 781-907-3749 or Eric.Seaborn@nationalgrid.com

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Emerald Ash Borer: Background and Overview of the Green Menace

Speaker: Nathan Siegert, USDA Forest Service

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Introduction of Invasive Pests to New England

- The Northeast is no stranger to non-native forest pests
 - History of industrialization
 - Many different tree species
- Approximately 2.5 new species have arrived in New England per year since the 1850s
 - We have had 1 economically damaging forest pest per year establish since the 1850s
- Trade has increased globally, and a lot of pests have come from solid wood packing material

EAB Arrival in N. America

- EAB was first detected in Detroit, MI in 2002, when many thousands of ash trees were already dying as a result of the unnoticed EAB infestation
 - The port in Detroit receives a lot of international shipments
- EAB is the most destructive forest insect in North America
 - It has been detected in 25 states in the US

EAB Life History

- Native to Asia
 - Rare in its native range, EAB tends to be a secondary insect pest, much like bronze birch borer
 - When moved outside of its native range, it is very destructive
- A lot of work has been done regarding host susceptibility
 - Asian origin ash trees have higher survivability

- N. American ash have moderate survivability
- European ash have the lowest survivability
- EAB take 1-2 years to develop into adults
- Larvae feed in July, causing extensive S-shaped galleries beneath the bark and disrupting water transport through the tree
- EAB infestation causes rapid mortality of ash within 3-5 years

EAB in New England

- In the Northeast we have been focusing on detection:
 - purple traps
 - double-decker traps
 - green funnel traps
 - girdled trees
 - *Cerceris fumipennis* (native wasp used for biosurveillance)
- First detected in MA in 2012; a statewide quarantine is in effect in MA
- As of January 2016, EAB has not been detected in VT, ME, or RI in New England

How EAB Spreads

- EAB spreads naturally through flight, and through human-assisted movement
- Can fly almost 1 mile per day, can do this for about 3-4 days
- Majority of EAB eggs are laid <100 yards from their emergence point
- Natural EAB front moves on average about 2 miles per year; longer jumps are from humans moving infested materials
- EAB movement is associated with ash phloem abundance—travel in the direction of most phloem abundance
- Isolated satellite infestations across the country through human aided introductions
 - Ex. firewood movement associated with race-car events (NASCAR)
 - 75% of the 5,000 campsites at the NH Motor Speedway race site are occupied by out-of-state race fans
 - Pre-race day outreach not to bring wood for camping at NH race track; people still brought wood
 - 15% of the firewood originated from within the federal EAB quarantine
 - 80% of the wood came from within 200 miles of NH
 - International violations from Quebec, movement from FL, CA, Washington state, etc.
 - Some people brought wood from as far away as California
- Management of satellite populations distant from the core infestation and near urban areas are the most economically damaging

- A study showed slowing the establishment of satellite populations in 2009 reduces damages by millions of dollars
- It is economically advantageous to spend money preventing the spread

EAB Spread in N. America

- Completed a historical reconstruction of the invasion in North America (Siegert et. al., 2014)
 - Reconstruction based in Michigan, where EAB was first discovered
 - Core infestation and several outlier sites sampled since 2004
 - Area sampled was >5,800 square miles
 - Sampled tree cores from EAB-killed trees over declining or non-stressed trees
 - Dendrochronology to determine when each tree died
 - Tree ring series averaged 53.6 yrs in length
 - Found that in 1997 we had ash trees being killed by EAB in Detroit; infestation was not discovered until 2002
 - Sites tend to be infested for 3-5 years before dead trees occur
 - Population expansion: in 1998 less than 4 mi² infested, by 2003 there was more than 1900 mi² of infestation
 - Stratified dispersal, natural spread slow expansion from center combo with human moving long distances
 - In 5 years, the infestation increased by almost 500 fold; extremely quick spread

What is at risk because of EAB?

- EAB has killed nearly 100% of the ash trees >2 inch in diameter
- 16 native N. American ash tree species are at risk
- In NE, ash makes up 4-8% on average of our hardwood forests; can be clumped in distribution, particularly riparian areas, where composition can be 20-30%
- More than just timber loss
- Ecological effects:
 - Hydrology
 - Biodiversity
 - Loss of ecosystem services
 - Other invasive species coming in
- Cultural significance
 - Wabanaki people use black ash to make baskets; black ash is also part of their creation story and marriage ceremonies
- Economic impacts:

- Over 10 years, projected EAB was going to cost us over 10 billion dollars in the US (Kovacs et al. 2010; this work was conservative; did not include long-distance dispersal)
- In New England, estimated damages over \$800 million as of 2008

Overview of EAB Management

- In general, management in areas with EAB focuses on ash resources; mitigate impacts by reducing population growth, rather than eradication or control of the pest itself
- We have more management tools now than ever before:
 - Insecticides: numerous formulations and application methods are available now, but efficacy varies; we do have the ability to protect high value landscape trees
 - Biological control: Asian parasitoids; natives- woodpeckers- can cause more than 90% mortality of late instar larvae and a good survey tool; native parasitoids
 - Clusters of girdled trees in forested areas: makes the tree very attractive to dispersing adults; can use as a population sink; can influence the spread of EAB
 - Targeted ash removal: can reduce the phloem in an area, and reduce the number of EAB adults that can be produced out of a tree
 - Try to integrate as many of these tools as possible depending on the site (Slowing Ash Mortality or SLAM); can buy time for planning and prevent catastrophic ash mortality
- The national focus is shifting to the urban environment; NE will also have to focus on the forest component
- Future direction:
 - Communities should start to conduct an ash inventory and assess the need for an EAB management plan
 - The plan shouldn't merely outline the response following a detection, but outline a clear 5-yr. plan
 - A solid management plan helps ensure that the community transitions through the invasion on their terms and their budget
 - Additionally, it increases the likelihood for state or federal funding opportunities in the future
 - Resources are increasingly limited

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Massachusetts EAB update

Speaker: Ken Gooch, DCR Forest Health

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- Check out the latest map of infested towns in MA:
http://massnrc.org/pests/linkedddocuments/EAB_Timeline.pdf

History of EAB in MA

- Emerald ash borer progression and detection throughout MA
 - August 31, 2012: detected in Dalton, MA on a purple trap
 - November 22, 2013: detected in North Andover, MA by homeowner call
 - July 16, 2014: detected in Boston, MA on purple trap at Arnold Arboretum
 - November 23, 2015: detected in Worcester, MA by Asian longhorned beetle surveyors
- Very concerned about October Mountain State Forest- majority of DCR's ash resources

Ash ID and EAB Detection

- DCR uses Continuous Forest Inventory (CFI) plots on state forest land
 - Helpful in identification of large amounts of ash
- Tools DCR uses:
 - purple panel traps
 - green funnel traps
 - girdled trees
- Will continue girdling trees for monitoring and some trapping
- Plan to do more trapping in Essex county

Biological control

- Currently have released 2 species of parasitic non stinging wasps as biocontrol: *Tetrastichus planipennis* (larva parasitoid) and *Oobius agrili* (egg parasitoid)
 - Have released in North Andover and Dalton only
 - Goal to release more throughout the state
 - Biocontrols have established in both sites (overwinter)
- Potential to release a new species of biocontrol: *Spathius galinae* (larva parasitoid)

EAB Quarantine Information

- The entire state is under the federal EAB quarantine
- Regulated materials from within MA may not be moved outside the federal EAB quarantine
 - The latest federal quarantine boundaries can be found here:
<http://bit.ly/1RNOFQf>
 - Regulated materials: EAB live or dead in all life stages, all ash host materials, nursery stock, etc.
- October 1-May 1 can move materials outside of federal EAB quarantine with a compliance agreement (from USDA-APHIS)

- Can move between other areas within the quarantine, but it is recommended that you keep it local
 - *Cannot move ash out of the Asian Longhorned Beetle regulated area as it is a regulated host for ALB as well as EAB*
 - The latest boundaries of the ALB regulated area can be found here: <http://bit.ly/r7JwV6>
- Can have materials treated at USDA approved sites
- DCR Recommends limiting ash material movement: need to slow the spread

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The Importance of Doing Inventories

Speaker: Mollie Freilicher, DCR Urban Forestry

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What are they and why are they important?

- A tree inventory is generally a record of publically-managed trees in a community
- Tree inventories provide information about trees:
 - Location (is a tree on public or private land?)
 - Size (benefits provided by tree, cost of tree removal/replacement)
 - Health (identification of high risk trees)
- Think about your goals:
 - Maintain a safe urban forest
 - Slow EAB in your community
 - Save money
 - Preserve tree canopy
 - Preserve existing tree benefits
 - Increase Funding for Management
- You cannot start planning unless you know what you have
 - How many trees do we have?
 - How many are ash? (what is at stake?)
 - Where are they? (near powerlines? private or public land?)
 - What type of habitat?
 - What is their condition?

Tree Inventory Benefits, Uses and Results

- Tree inventory can aid in :
 - systematic tree care; knowing the current condition of public trees

- reducing liability and improve long-term mgmt.
- prioritizing maintenance needs and focus of limited resources
- justifying or leveraging tree mgmt. funds
- emergency preparation; responding quickly and efficiently to EAB
- saving money; spread costs over time
- public engagement; inventories are a great outreach tool
- providing homeowner/contractor the ability to look up a tree
- determining your ash resource and what will be left if you lost a species
- Tree inventories can result in knowing:
 - which trees to remove
 - which trees are treatable
 - the order of which trees should be removed as resources allow
- There are lots of ways to conduct an inventory:
 - Complete inventory looking at all public trees and planting spaces
 - Partial inventory- a random sample (3-6% of street segments to get a ballpark idea)
 - Specific geographic areas- downtown, major roads, etc.
 - Ash-only inventory

How to Collect Data

- Identify who will collect data:
 - municipal or in house staff (requires staff training**)
 - hire consultant arborist
 - volunteers
 - any combination of these

** ask DCR Urban and Community Forestry for assistance in training
- Identify collection methods:
 - Paper or electronic inventory (smartphone, tablet, PDA, GPS unit)?
 - Collect data on foot or windshield survey (driver and recorder collecting general information; species, estimating size)?
 - Ex. roadside ash rapid assessment (VT form)
- What information do you collect: **collect only what you need!**
 - Species
 - Diameter
 - Condition
 - Location
 - Planting space
 - Management recommendations
 - Conflicts with utilities or sidewalks

How to Pay for an Inventory

- DCR Urban Community Forestry Challenge Grant (annual)
 - \$1,000-30,000 dollars
 - Deadline is November 1, 2016
- USFS matching grant
- Conduct inventory in stages- target areas of importance to your community
- Utilize volunteers
- Contact DCR Urban & Community Forestry for ideas

Best Practices for Completing Tree Inventories

- Think about your goals and exactly what data you need prior to conducting the inventory
- Condition should be evaluated by professionals or well-trained individuals (ex. good, fair, poor, dead or dying)
- Management recommendations should be by professionals or well-trained individuals
- Data management- think about what your DPW is already using to see if you can integrate your survey in with their information

Post-tree Inventory Steps

- Once you know what you have, you can think about how you would like to respond (inform management)
 - Ex. remove and replace all ash or remove some and treat some to buy time for removal or remove some, treat some or treat all trees in good/fair condition or other scenarios
- EAB Cost Calculator: <http://extension.entm.purdue.edu/treecomputer>
 - Enter the total trees in different diameter classes, pick your management scenarios, can input your own costs for treatment and removal, end up with charts comparing your three scenarios to project your costs over time (online)
- Create a written response plan for your community
 - Template will be available online soon
- Can also analyze inventory data with i-Tree and calculate your ecosystem services provided by your trees (online resource)
- For more information contact:
 - Julie Coop, Urban and Community Forester, 617-626-1468, julie.coop@state.ma.us
 - Mollie Freilicher, Community Action Forester, 413-3577-2966, mollie.freilicher@state.ma.us
 - www.mass.gov/dcr/urban-and-community-forestry

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Emerald Ash Borer: Forest Management Considerations

Presentation: Nathan Siegert, USDA Forest Service

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Managing EAB in Forested Areas

- Targeted removal of ash trees in a forested environment to manage EAB

Phloem, DBH, and EAB

- Total phloem area can be estimated from tree size (diameter at breast height or DBH)
- Potential EAB production can be predicted based on DBH (phloem area vs. DBH; correlated)
- Trees tend to produce about 100 adult beetles out of 1 square meter of phloem
- A high proportion of your inventory may be small size class, low proportion in the large size class (McCullough & Siegert, 2007)
 - Small trees accounted for approximately 78% of the inventory but only 14% of the EAB population
 - Large, merchantable trees (>~17in DBH), accounted for only 6% of the inventory, but over 50% of the EAB population that is produced
- Only taking merchantable trees equates to a small amount of work but getting rid of 50% of EABs

Inventories & EAB Potential

- If you have inventory, can predict EAB infestation levels
- Ex. NYC watershed detection (2011); watershed supplies 1.3 billion gallons of water per day for 9 million consumers
 - Estimated potential EAB impact using the watershed's inventory data
 - Have used their tool to start removing trees to prevent the spread of EAB
- Can use this tool to predict the EAB potential for the state, municipalities, forested areas, or single trees
- Potential economic impacts dependent on inventory; funding proposals are much stronger if they have this information

EAB risk assessment

- Proximity to known EAB infestations:
 - if you are >10 miles away, you are at low risk;
 - if you are <5 miles away, you are at higher risk of invasion in the next 5 years;

- all of this depends on whether or not human assisted movement is occurring- that may speed up the timeframe
- Economic impacts dependent on inventory
 - low if most ash is <12dbh
 - moderate if >12"dbh but low % of total stand
 - high if ash 12-18"dbh and high % of stand
 - highest if >18"dbh and high % of stand
- One option is to do nothing (especially if at low end of assessment); if you do nothing and EAB invades:
 - All ash present will likely die, with dead, standing trees typically lasting 5-10 years (hazard trees and wildlife trees)
 - EAB pop will build rapidly and spread at a higher rate
 - Most economic value from ash will be lost, especially if you have large ash
 - Desirable tree regeneration may be affected (invasive species could dominate)

Recommendations & Summary

- If potential economic damage is low:
 - consider thinning ash to shift stand to best residual (non-ash) trees
 - monitor that you are getting the best regeneration
- If potential economic damage is high:
 - consider harvesting high-value ash (sawlogs) and low-quality residual non-ash trees to favor desirable species (keep invasive species out)
 - develop a regeneration plan
- Priority actions:
 - assess your EAB risk (proximity and potential losses)
 - conduct ash inventory
 - determine what your management goals are
 - consult a professional forester
- It is premature to target ash trees if you are beyond known infestations, stick to your harvest entry schedule (rotation of timber harvest)- but consider managing ash within the next 10-15 years (harvesting high-value ash)

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Biosurveillance: The Mass Wasp Watchers Project

Speaker: Jennifer Forman Orth, MDAR

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- A tool used to detect emerald ash borer by monitoring nests of a native predator
- Being done on the state and federal level; happy to have volunteers join the effort

The Smoky-Winged Beetle Bandit (*Cerceris fumipennis*)

- **Not all wasps are bad:** we have a small, native, **non-stinging** wasp that is a parasitoid on jewel beetles (including emerald ash borer)
 - They fly into the environment, capture the jewel beetles, paralyze them, and bring them back to subterranean nests to lay their eggs
- Biology of the wasp: *Cerceris fumipennis* (Crabronidae family)
 - ½- ¾ inch long
 - Identified by yellow markings on the face and one band on the abdomen
 - Prey solely on Buprestid beetles
- Nests are surrounded by a “tumulus” or “soil volcano” with a tunnel in the center that leads down to subterranean nest cells where the eggs are laid; holes are about the diameter of a pencil, go straight down (not angled), and are in the center of the circle of excavated soil

Monitoring & Collection

- Volunteers can monitor aggregations in ball fields or other hard packed, sandy soils
- Can pick up dropped beetles near the nests or actively sample from females foraging (by netting)
- Look in: ball fields, dirt roads, or anyplace with hard-packed, sandy soils
- In MA we have found over 300 nests and counting
 - In 2015: over 141 sites visited by staff and volunteers; 135 towns/cities in 7 counties; 648 beetles (256 *Agrilus* spp.) collected
 - Volunteers could include: land stewards, friends groups, master gardeners, retirees, scout troops, parents of kids who play little league

Interested in Joining?

- Let us know, and we will assign you a site!
- Sign up online: <http://bit.ly/MassWaspWatchers>
- Visit www.cerceris.info for general information

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Working with Pesticides

Speaker: Phil Lewis, USDA APHIS

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- There are various trunk injection systems:
 - Depends on your goals, resources, what you can afford
 - Capsule systems- passive (Mauget systems; small drill bit); tend to have leakage, have to go back to remove capsules which presents the danger of people touching or playing with them
 - Pressure systems- stay away from slotted tips which create a lot of pressure and splits bark which kills that part of the tree
- For tree injection systems, be aware of the impact they make on the tree and your budget
- Best practices for trunk injection:
 - Good distribution throughout tree, large trees probably only need standard dose
 - Delivers rapidly and in higher levels than in the soil
 - Fall treatments are good for the following growing season (similar results to spring treatments)
 - Residues decline rapidly in following year
 - Treatments with imidacloprid (imidicide formulation); uptake is rapid, within weeks
- Best practices for soil injection:
 - Basal drench or basal injection achieves best results
 - Even distribution of the chemical around the trunk
 - Grid system may be wasting the chemical; concentrate at the base of the tree where the most of the roots are
 - Larger trees require more chemical;
 - Uptake is slow- 2-3 months for max uptake
- If you have high insect pressure, treat every year; low pressure treat every 3-5 years
- 1 liter treats about 400 DBH inches which is about \$1.25 per DBH inch

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Biocontrol of EAB: A Decade of Progress

Speaker: Theresa Murphy, UMass Amherst

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What is Biocontrol

- Classical biocontrol: importation of natural enemy to control population of pest
- Invader has to be established for at least 5 yrs for successful use of biocontrol
- Biocontrol has intense regulation; they look for FONSI – Finding of No Significant Impact
- A study in NY says trees are surviving EAB long enough for parasitoids to get established

Species of Control

- Control species are parasitic non-stinging wasps native to Asia
- *Spathius agrili* (larval parasitoid) can overwinter in northern US but populations do not exist; climate matching makes it suitable for more southern climates
- *Tetrastichus planipennisi* (larval parasitoid) and *Oobius agrili* (egg parasitoid)
- are increasing and spreading
 - *Tetrastichus* can only target small trees because of short ovipositor (part that inserts egg into prey)
- *Spathius galinae*, a new larval parasitoid, is now being tested
 - It has a longer ovipositor and is better climate match

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

Speaker: Mark Whitmore, Cornell University

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Spread of EAB in NY

- 2009 was the first detection of EAB in NY
 - By 2010, it was detected further throughout the state
 - By 2013, half of the state was quarantined
- Trap finds don't always lead to infested tree finds!
 - Used woodpeckers to detect low level infestations
- Leading edge of infestation grew 5mi/year in one part of state, slower in others; *spread faster in areas where there was not a lot of ash*
 - On average in the hardwood forests of NY state, approximately 10% is ash
 - Highest percentages of ash on the Ontario plain in NY- 16-28% ash
 - Some of the old fields in NY were repopulated 100% with ash

The Beginning of Outreach

- Serious outreach began in 2009 with the help of APHIS funding
- Conducted outreach with Cornell Cooperative Extension, NYS Dept. of Environmental Conservation
- Local talks and educational events were organized to spread the word about EAB
 - Was not enough to do "train the trainer" sessions and send folks on their way
 - Found there was no place to focus the efforts of everyone's enthusiasm
 - Slow moving outreach was losing people's interest

- Monetary impact was what helped get the most traction
 - EAB impacts were not yet apparent to communities and so gloom and doom messaging didn't work as much as reporting the need for communities to act and what it would cost them
- “Economic Impacts of Non-Native Forest Insects in the Continental United States” PLOS One article in 2011 helped to quantify the need for action
 - Check out the article here: http://bit.ly/Economic_Impacts_of_Invasives
- Utilities began to estimate the costs of EAB
 - \$1.5 billion was the estimate for cost to transmission lines across NY State
- By the time you realize you have a problem, you have only a few years to implement your control before costs rise exponentially and public health problems arise (hazard trees)
- Graduate student at Cornell working on EAB is finding that in Monroe County, the tree industry is driving the response in that area; citizens are not going to extension or Cornell

The Creation of Local Task Forces

- In 2011- an EAB Community Task Force was needed to pull together all of the different individuals with experience across the state
 - Currently, NY has multiple task force groups across the state (with the exception of northern NY, as of yet)
 - These local task forces are composed of more than one town and focus on a county or regional level
- Local EAB task forces provide the:
 - efficient transfer of latest scientific and management findings
 - opportunity for volunteers to put their energy to good use
 - ability to identify local resources, needs, and issues; ability to share resources
 - capacity to apply management strategies to local situations
- To be successful, local task forces need:
 - proper facilitation of task force meetings; need leaders to keep the meetings on track and moving forward
 - a contact person
 - the ability to fight apathy in absence of tree death
 - to understand rural vs. urban EAB impacts (such as the value held in urban trees)
- Municipal make-up of task forces tends to be large, but otherwise a very diverse group
 - If you are going to influence anyone regarding EAB, you must reach them through the green industry- they are having a huge influence

- Once the task forces got going, they were able to get more and more people engaged in the process
- Task Force projects have included:
 - ash tree tagging events
 - early detection and first detector trainings
 - organizing inventories: volunteer street tree inventories; surveying ash on public properties & rural roads
 - creating equipment lists and marshaling yards
 - surveys to assess municipal needs and preparedness
 - trainings for road and municipal DPW crews
 - biosurveillance
 - brochures, joint earth day event, elementary environmental club presentation, door hangers

Onondaga County Task Force

- Shining example of their NY task forces in Onondaga County; a lot of the enthusiasm was by one of the county managers
- Task force actions:
 - Conducted tree inventories: all county owned buildings and parks, subsampling of county roads, surveys included: size, condition, threat level (proximity to buildings or other infrastructure), exact location
 - Developed cost metrics and compared options
 - Looked at realistic budget and crafted a plan, \$15 million over 5 years.
 - they did NOT use EAB cost calculator; however, one available calculator can be found here: www.eabindiana.info
 - Helped municipality develop plans
 - about 50% of county municipalities have a plan in place
- As soon as they had their plan in place, Onondaga County found EAB
 - Realized over 5 years, their plan would need \$15 million
 - Actively treating 17,000 street trees to keep them alive in one community; using emamectin benzoate because it costs less to treat

Task Force Insight from NY

- Preliminary insights from Cornell Graduate student looking at how networks have developed after task forces implemented:
 - Strengths:
 - diverse participation of stakeholders
 - draws on information & insights from diverse members, public & private
 - apply scientific information to local situation

- input of local and municipal knowledge
 - Weaknesses:
 - engagement of municipal decision makers lags
 - goals are nebulous
- Future Task Force Goals:
 - Encourage the management of urban forest
 - Help municipalities and towns develop EAB preparedness plans and funding
 - Continue education efforts and early detection
 - Engage decision makers
 - Work with tree care professionals to develop best management practices
 - Develop ash utilization
- Essential aspects of the Task Force: partnerships, mutual respect, stakeholders bring local knowledge, open to change, adaptive management, multiplier effect

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Safety of Working with Infested Trees

Speaker: Brian Skinner, National Grid

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- Message: never trust dead ash; do not climb
- A whole new ball game in tree removal and safety, when working with EAB
- When trees die from EAB, it only takes 1-2 years for branches to snap, trees to snap at the base, can entirely uproot
- Once EAB invades the tree, the wood starts to dry out rapidly, becoming brittle, losing the flexibility and strength characteristics of ash
 - Massive, unpredictable structural failure
 - Catastrophic stem failures

What will be affected?

- Dead ash trees will have an impact on residential, commercial and public properties
- Every type of utility and public infrastructure is going to be impacted to some degree:
 - roads
 - guardrails
 - electric systems and utility lines
 - bridges & culverts
- New hazards will arise in recreation:
 - trail safety and maintenance issues for walking in the woods

- hanging deer stands for hunting
- fishing along creek banks
- cross-country skiing
- golfers
- Storm events will be a nightmare; “an ice storm on steroids”
 - damage to plows from fallen trees in snow events

Infested Tree Removal

- Cannot leave standing deadwood!
- Dead EAB ash: only safe ways with bucket, crane, backyard lift, tie into a safe tree
- Davey Tree now bans climbers from climbing ash trees with >20% dead canopy
 - tree care companies or utilities could just refuse to do work
- Take the ash down if you have a target sooner rather than later
- It will cost less to take a tree down prior to infestation/death
 - Tree removal costs will be going up to account for greater safety risks
- Work safe! Safety MUST take priority!

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Community Response in Massachusetts,

Speaker: Felicia Bakaj, MDAR

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Surveys & Responses

- Surveyed community response to EAB within MA to determine who is taking action in the state & where
 - Responses were used to create EAB Preparedness Forum agenda
- MDAR sent out 92 surveys were sent out to 6 counties to gauge response to EAB in and around infested communities
 - Focused on municipalities and large-scale land owners
- Focal points of the questions asked:
 - Planning and response?
 - Have any tree inventories been created?
 - Have any trees been treated
 - Do you provide any outreach materials?
 - Would you be willing to provide free outreach?
- About 37% response rate (34 responses)
 - non-profits and land-trusts responded; few responses from municipalities

- 68% of responses indicate no action has been taken beyond basic outreach (23 responses)
- Some actions included: inventories, response plans, treatment, discussions, and the “do nothing” approach

Municipality Case Study: Cambridge

- Inventory:
 - Very active city tree inventory
 - 775 ash trees in the city under the tree warden’s jurisdiction
 - Used inventory to determine status of trees and priority removals
- Response Plan:
 - Have a response plan including treatment, removal of ash trees in poor/dead condition, replanting locations
- Treatment:
 - Completed one full round of treatments using TreeAzin; plan to continue until the threat of EAB has decreased
 - ½ the ash population was treated Summer 2014
 - ½ of ash population was treated Summer 2015
- Outreach:
 - Created an EAB page on their forestry website: www.cambridgema.gov/eab
 - Site includes: EAB background, info on Cambridge plans, city maps of replanting sites, removal sites, and potential removals

Utility Case Study: National Grid

- Inventory:
 - Completed a statistical survey of the entire utility forest and its service area
 - Used i-Tree software to generate reports from the data to present to communities
- Response Plan
 - Developed a strategic EAB response plan for entire service area
 - Plan covers topics such as: intensive inventories to find EAB, cooperating with communities, dealing with EAB quarantine rules, wood handling, & worker safety
- Treatment:
 - Not planning to treat the ash
- Outreach:
 - Educated staff and tree crews about EAB
 - Created laminated ID cards about EAB and Asian longhorned beetle

- Worked with the MA Forest Pest Task Force to develop an EAB informational brochure

Land Trust Case Study: Notchview, The Trustees of Reservations

- Inventory:
 - Counted all trees within 50 feet of an extensive ski trail system (1500 trees)
 - Approximately 10-20% of their 3200 acres is white ash based on separate inventory plots
- Response plan:
 - Discussion is still ongoing

Inventory Responses

- About 25% of the responses indicate they have completed an inventory
- Additional inventory responses:
 - Saw inventories for some municipal parks but none Citywide
 - Extensive surveys on landscaped areas but not focusing on ash in particular
 - Coarse inventory of trees over 18 inches DBH
 - Basic qualitative understanding of ash distribution
- Majority of inventories were coarse, very few knew exact locations of ash trees
- Why? Is it a result of:
 - Lack of resources?
 - Unsure how to get started and/or what type of inventory to complete?

Treatment Responses

- Only 3 respondents have treated with insecticides (Tree-age- emamectin benzoate; TreeAzin- Azadirachtin)
- Insecticide treatments:
 - Berkshire Botanical Garden has treated two of their most important ash trees; may treat more
 - Stevens-Coolidge Place, The Trustees have treated their legacy ash tree; may let nature play out with other ash trees
- Some communities and land-owners choose not to treat with pesticides or have policies against the use of them
 - Some of these communities may be open to the use of biocontrols
- In general, treatment does not seem to be a favored response
- Why? Is it a result of:
 - Cost/benefit analyses?
 - Opposition to usage or policy barriers?
 - A lack of inventory knowledge?

Outreach

- 38% of respondents provide outreach (13 respondents); some outreach methods include:
 - hardcopy items (brochures, ID cards, etc.)
 - presentations
 - informational signs at trail heads/property entrances
 - educational webpages
- 85% said they would like to be sent outreach materials (29 respondents)
 - Over 4,050 items were sent from this one survey

Summary of Results

- The majority of respondents indicated they are not currently taking action
- Many want to be doing more than they are
- There are desires to complete inventories and to provide outreach

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Communicating the Message: Resources Available to You

Speaker: Felicia Bakaj, MDAR

View the [PowerPoint](#)

- Why focus on outreach?
 - One of the simplest forms of action
 - It's free
 - Increases early detection opportunities which can lead to more time to plan and react to the discovery of a pest in your community
 - Inspiring passions about EAB in others can increase your volunteer and stewardship opportunities
- Resources include: outreach materials, online resources, local experts
- Bringing in local experts provides the opportunity for interaction between audiences and presenters, emphasis of key points, evaluation of participants
 - Available presenters can be found here:
http://massnrc.org/pests/linkedddocuments/Local_Presenters.pdf
- Many online resources
 - An extensive list of topics with relevant online resources can be found here:
http://massnrc.org/pests/linkedddocuments/Online_Educational_EAB_Resources.pdf

- www.emeraldashborer.info –comprehensive resource with example response plans, info on treatment options, free webinar series, etc.
- www.massnrc.org/pests –Massachusetts Introduced Pests Outreach Project:
- MDAR provides free outreach materials including: tree tagging kits, USFS Pest Alert and brochure, ID cards, Task Force Brochure
 - An extensive list of available outreach materials and digital versions:
http://massnrc.org/pests/linkedddocuments/Available_Outreach_Materials.pdf

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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 they themselves had identified throughout the day.

Working with Pesticides

- Participants saw the need for:
 - resources that are more readily available and accessible for communities regarding treatment methods, chemicals, non-target effects
 - quick-reference lists with specific pesticides that are approved for use in MA

Tips from Those Already Feeling the Impacts

- Participants identified resources, such as funding and time, as a major challenge to prepare for EAB
 - One suggested solution was to use students as a resource for conducting inventories
- Participants already feeling the impacts of EAB recommended:
 - focusing on liability (specifically the risk associated with EAB killed ash) to increase people’s desire to prepare for and deal with EAB
 - they noted to remind decision makers & municipalities of their liability
 - some folks proposed using this National Grid [PowerPoint](#) on what happens to EAB infested ash once they are killed as a tool to raise awareness about liability
 - being conscious of messaging and the perception of the threat of EAB

Detecting EAB in Your Community

- Participants managing land expressed interest in knowing how to girdle their own trees and noted that it can feel futile to do visual surveys
 - The forest service’s girdling protocol can be found here:
http://massnrc.org/pests/linkedddocuments/Girdling_Protocol.pdf

Completing Tree Inventories:

- Participants saw the need for:
 - A document outlining methodology that could be used for inventorying larger stands and what resources are available for that
 - Thinking about the intersection of forested parcels and urban areas, and a way to connect groups that manage these areas
 - Resources specifying funding for inventories (Grants, CPA funds)
- Participants identified the following challenges when completing inventories:
 - having the labor or volunteers or time to manage volunteers
 - having the leadership in the community for the project
 - obtaining sources of funds
 - determining the cost for an inventory without knowing # of trees you have

Outreach & Working with Volunteers

- Participants proposed the following ideas to increase outreach and volunteer opportunities:
 - Working with birders to look for woodpeckers and woodpecker damage on ash
 - Creating a woodpecker-specific project where people can report woodpecker activity to detect EAB
 - Identifying groups that have not been reached out to yet, or expand further into groups that have been contacted: green industry, utilities, golf courses, hunting/gun clubs
- Participants saw the need for an ash identification resource for volunteers to use
 - Check out some of the Ash Identification sheets other states have used:
 - quick-reference ash ID by Michigan State University: <http://bit.ly/23VbANQ>
 - “Common problems of Ash Trees” with ash tree ID provided by Iowa State University: <http://bit.ly/205oMQU>
 - resource distinguishing ash from other common trees by Michigan State University: <http://bit.ly/1PBgeiO>

Additional Objectives Identified

- Participants saw the need for:
 - Means to share knowledge and resources across communities; working towards interagency collaboration
 - Increase the presence of the Forest Pest Task Force by making communities aware of the support and resources the Task Force can provide

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