



# Emerald Ash Borer

## Experiences & Realities

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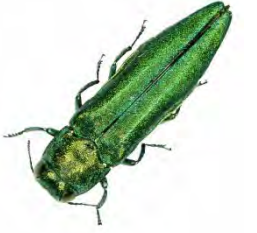
# Experience with Emerald Ash Borer (EAB)

ISA Board Certified Master Arborist IL-9359B

- Over a decade experience with EAB
- (2008-2014) Field Research in Lansing & Traverse City, MI at start of outbreak in Midwest
- (2014-2018) Chicago Botanic Garden at introduction of EAB to Chicago
- (2018- 2020) Managed private tree collections for Chicago communities and homeowners
- (2020-Present) Arborist for Town of Basalt



# Emerald Ash Borer is a SERIOUS Pest



- Effectively 100% of ash trees are susceptible to mortality from EAB
- Ash trees are an introduced species in the Roaring Fork Valley (native range extends to Eastern CO)
  - 99% of ash in RFV exists in managed landscapes
- Some genetic resistance has been identified in native populations
  - All ash trees in RFV are genetically identical due to their cultivar nursery status
  - There is NO genetic resistance to EAB locally
- Majority of ash trees in RFV are Green or White Ash, highly susceptible
  - Some less common species are more tolerant, still susceptible

**If you have an Ash Tree, assume it's under threat from EAB!**



# Ash vs. Mountain Ash

- Ash trees (*Fraxinus* sp.) and Mountain Ash (*Sorbus* sp.) ARE NOT THE SAME
- Mountain Ash is NOT susceptible to EAB



VS



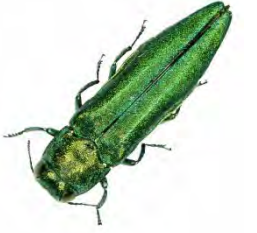


# Spread of EAB in the Community

- Emerald Ash Borer moves rapidly once introduced into community
- Key difference in RFV is population density and location of ash trees
  - Does not exist natively
  - Can be found in pockets wherever large residential/commercial areas exist
  - More opportunity to reduce initial wave through preventative treatments
  - EAB will have to “leapfrog” from community to community
- Where to expect EAB
  - Major outbreaks will be in Glenwood Springs, Carbondale (identified), Basalt, Aspen
  - Minor outbreaks will be large residential communities and country clubs (ie Blue Lake, Aspen Glen, RVR, etc.)
- Insect can travel up to 30 miles to find new host tree, but typically shorter



# Collaboration between Communities



- Municipal Arborists are working together to identify common goals
  - Define minimum standards for EAB management
  - Large urban areas are/were at disadvantage for cohesive regional plans
  - Major differences in policy and resources between towns greatly hindered “big picture” management in large cities
- Sharing of educational resources and communication bandwidth (get the word out!)
  - Valley-wide collaboration of outbreak identification
- Recommendations of shared policies
  - Firewood movement bans (CO state enacted), we are now a “quarantine” area
  - Ban on movement of infested chips/logs up- and down-valley during active adult months (**May thru August**)
- Reach out to unincorporated/rural areas to share resources and provide guidance



# The Role of Private Industry

- The private tree care industry is robust and full of knowledgeable Arborists
  - Our eyes and ears in the field
- Communicate shared policies, outbreaks, management strategies to connect gap between municipalities and homeowners
  - Most homeowners rely on their client reps to be their expert!
- Define a “preferred” list of tree care companies that are trained in EAB detection and treatment methods
  - ISA Certifications
  - CPO and QS license (state required for pesticide application)
  - Training of trunk injection system to minimize misapplication
- There will be many newcomers to the field looking for easy work
  - So called \*gold rush\* of EAB opportunists
  - Not all are bad, but be wary of the lone Joe with a chainsaw
  - Make sure to vet the company working for you





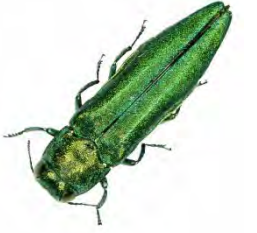
# EAB Management- Don't Let it Manage You!

- The best way to reduce the spread and initial impact is through preventative treatment
  - ALL homeowners should have a plan on how to deal with EAB if they own an Ash tree
- Do not wait for symptoms to show up in your neighborhood before discussing strategy
  - Once announced discovery within town limits, preventative actions should start ASAP
  - OR sooner for high value trees!
- Often when a tree shows symptoms of EAB, it's too late to correct health through treatment
  - As little as 30% canopy dieback can leave tree permanently deformed
- Have a long-term plan for ash collections





# EAB Management- Be Ready for Dead Trees



- Inevitably some Ash trees are going to die
  - Late treatment, ineffective treatment, untreated
- HOA's and Municipalities should consider ordinances that require removal of infested, dead trees
  - Dead trees become brittle and highly prone to failure, heightened hazard risk
  - Removal of long-dead trees can be dangerous and very expensive
- Another reason to vet your tree care company!

# EAB Management- Reducing Pest Pressure

- Unrealistic to aim for eradication
  - Only time will tell how insect spreads and persists in RFV
  - Highly dependent on collective actions of community
- Use of preventative treatments to slow spread of insect within and between communities
- Ensure the most valuable trees get immediate care
- Aim to manage the pace of removals, NOT save every Ash tree in existence
  - Trees will require indefinite treatment
  - Identify your high and low value trees
  - Proactively remove Ash trees that are not worth saving
  - Many Ash aren't valuable to justify treatment forever
  - You don't want to be stuck removing large quantities of Ash at once (\$\$\$)



# EAB Management- Other Notes

- Hard decisions about the long-term viability of ash trees
  - Every ash tree will need to be treated for the remainder of its' life, or removed
  - Communities will need to balance the cost of treatment vs. the cost of removal
- Not every ash will (should) be eligible for saving
  - Focus on managing removals over time
  - Initially treat many ash, reduce to only high value trees over time
  - Some ash trees initially treated may still be removed
- Important to effectively communicate the expectations to residents
  - Changing values of trees over time
  - The long-term responsibility of treatment and removal
  - Potential for ineffective treatment on high value trees
  - Planned removal of some trees even if initially treated



**Be ready to be flexible in your management strategy, review annually!**



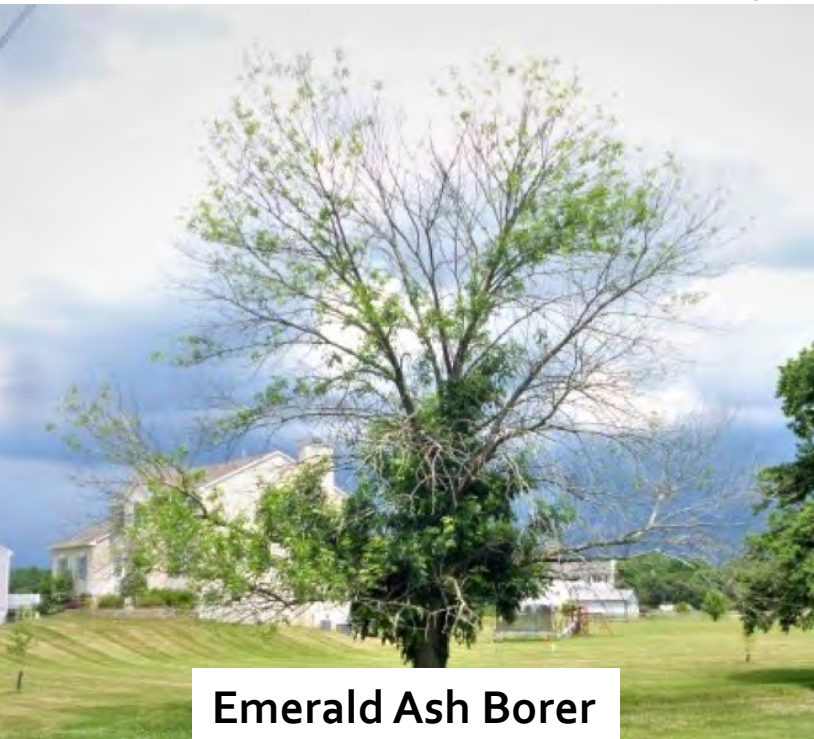
# EAB Identification and Pitfalls

- Several look-alike pests and environmental disorders on Ash
  - Lilac Borer (LB)
  - Ash Bark Beetle (ABB)
  - Poor cultural care (CC)



# EAB Identification and Pitfalls

- Canopy dieback is common with all infestations and cultural issues
  - Drought can cause similar dieback as LB and EAB
  - EAB will cause significant epicormic growth just below where boring occurred (sometimes from base of tree), thinning portions of canopy
  - LB dieback usually associated with trees already stressed. Will resemble drought symptoms



**Emerald Ash Borer**



**Lilac Borer**



**Drought Stress**



# EAB Identification and Pitfalls

- Exit holes found on tree
  - Irregular (usually round) holes found initially lower and under branch crotches (**LB**)
  - Clusters of very small, round holes (**ABB**)
  - Very clear “D-shaped” exit hole, usually found just below extent of dieback (**EAB**)





# EAB Identification and Pitfalls

- Feeding Gallery differences

**Ash Bark Beetle**



**Emerald Ash Borer**



**Lilac Borer**



# EAB Identification and Pitfalls

- Individual symptoms will not provide a confident identification of pest/disorder
- Most unique singular symptom is “D-shaped” exit hole
- Best identification comes with exit hole combined with other common symptoms
  - Canopy thinning
  - Canopy dieback
  - Epicormic growth
  - S-shaped feeding galleries
  - Blonding or sloughing of bark caused by woodpecker feeding
- Do not hesitate to reach out to your local Arborist!!!
  - Let a Certified Arborist help with diagnosis
  - Suspicious trees should be reported to your local municipal Arborist

**Take pictures of your tree annually so you can compare year to year!**



# Treatment Options

- Trunk Injection
  - Pressurized injection of concentrated insecticide directly into tree trunk
- Soil Drench
  - A drench or probe injection of diluted insecticide around the base of tree
- Trunk Spray (also called bark banding application)
  - A backpack spray of insecticide + bark penetrant onto bottom 5 ft of tree trunk
- All treatments have useful application in specific situations
  - All treatments should be applied by trained and certified technician (not recommended for homeowner application)
  - **TLDR; trunk injection is the highly favored method**



# Treatment Options- Trunk Injection

- Most effective method if applied correctly (nearly 100% effectiveness)
- Can be applied [effectively] anytime in growing season
- Most expensive, but protects tree for multiple years (2-3 years)
  - Is comparable cost if you factor in the less frequent interval
- Tree should be at least 6 inches DBH for injection
- Tree needs to be able to heal from treatment
- Must be applied by trained technician
  - This treatment purposefully wounds the tree (drilling holes to set plugs)
  - Pressurized injection of insecticide has potential to blow off bark and increase damage
  - Vet your tree care company (3<sup>rd</sup> time now...)



# Treatment Options- Soil Drench

- Mixed results in studies on effectiveness
  - Most effective on healthy trees that can effectively take up product
  - Most effective on smaller trees where product won't struggle to distribute throughout plant
- Can be applied [effectively] anytime in growing season
  - Should not apply during drought conditions
  - Best time is Spring (during leaf out) for maximum control of insect
- Cheaper cost per application, but must be reapplied annually
- Has potential to move off target
  - No spray, but nearby plants can uptake if in same rootzone
  - Should not be used where flowering beds exist under tree canopy
  - Should not be used where there is potential for product to leach into waterways (riparian areas)
- Low potential for “misapplication” that will damage tree



# Treatment Options- Bark Banding Spray

- Mixed results in studies on effectiveness
  - Highly effective in most cases, but considered “least effective” of the available treatment options
- Must be applied annually, at specific window
  - Product only effective for 1-2 months after application
  - Must be applied in spring during active feeding window
- Highest potential for pesticide to move off target
  - Applied via backpack sprayer, produces mist that can “drift” to nearby plants
  - Bark penetrant additive has potential to burn sensitive annuals/perennials if misapplied
  - Product stays wet on bark for up to 1-2 hours, should not be touched for several days
- Generally, not recommended unless other options not feasible
  - Situations where fast uptake is needed, but injection can’t be used
  - Situations where nearby water sources won’t allow soil drench



# Treatment Options- Bio Controls



- Bio Controls are active area of study by USDA
- Promising preliminary results on releases of several species of parasitic wasps
  - This is the same method used to wrangle Gypsy moth in the 90's
  - Still active area of study
- This is not an option for average homeowner, controlled releases are a "Grand Experiment" that should be left to institutions and government agencies
  - Parasitic wasp broods not commercially available (as far as I know.)
  - High potential for error with purposeful exotic species introduction
- Potential for municipal Arborists to contact USDA to do releases in region

# Long-Term Expectations of EAB in RFV

- Next 5-10 years of tree management will be shaped by the movement of Emerald Ash Borer
  - It will likely never fully go away
  - Initial spike in insect outbreak; may be greatly reduced by proactive measures and unknown factors
- New policies (temporary and permanent) in tree management will emerge from municipalities dealing with EAB
  - Requirements of diversity in new landscape plantings
  - Invasive pest policy and enforcement
  - How communities manage and support private treatments/removals
  - Each town/city will chart own path, with commonalities throughout
- See this as an opportunity for community growth and improvements
  - Urban tree canopy will become more resilient as it diversifies
  - Climate is requiring changes in plant palette anyways
  - Encourage new opportunities for local biodiversity (plant native!)



Thanks! Questions?

