

Opportunities to participate in MaMA include:

Using the MaMA Ash/EAB Surveys citizen science project to report sites where you have or have not detected signs of EAB infestation.

This project, hosted on the citizen-science platform Anecdota.org, is open to public participation and tracks EAB's spread and effects in real time. Because knowing where EAB has not yet appeared is important in prioritizing management, both EAB presence and absence reports are needed. It takes only a few minutes to document EAB status at a site and submit a report!

Setting up an ash mortality monitoring plot as part of the MaMA Monitoring Plot Network.

This rapidly growing network comprises sites where land managers or citizen scientists designate particular trees to monitor when they are killed by EAB. The data that you upload via Anecdota.org are used by ERI to determine which areas are ready to be searched for likely EAB-resistant lingering ash. *Participation in this project requires attending a single-session MaMA training workshop.*

Searching for and reporting lingering ash and "potential lingering ash" using the MaMA Lingering Ash Search project.

Once the appropriate ash mortality threshold has been reached in an area, ERI will notify citizen scientists and land managers to search for lingering ash there so they can be reported using the MaMA Lingering Ash Search project.

However, even in areas that haven't reached this status, if most of the ash are dead or nearly dead due to EAB, you can also use this project to report healthy ash (potential lingering ash) you find there. For lingering ash and potential lingering ash, in addition to reporting their locations, you should also ask the land manager to protect them from felling.



Marking a potential lingering ash

MaMA's decision tree provides guidance on whether to cut or treat trees or use them for mortality monitoring and lingering ash detection (crucial for ash conservation). Although there are good reasons to cut ash in particular circumstances, cutting should not be done for the purpose of decreasing the spread or lethality of EAB, as in fact it has the opposite effect – accelerating it. Our decision-tree will help you choose how to best manage your ash.

MaMA's single-session training workshops include training in all three citizen science/land manager projects and an overview of MaMA's other tools and overall approach to EAB management and ash conservation.

To find out about or schedule a MaMA training workshop near you, contact us at outreach@MonitoringAsh.org or 845-419-5229.

Tasks for each stage of EAB infestation

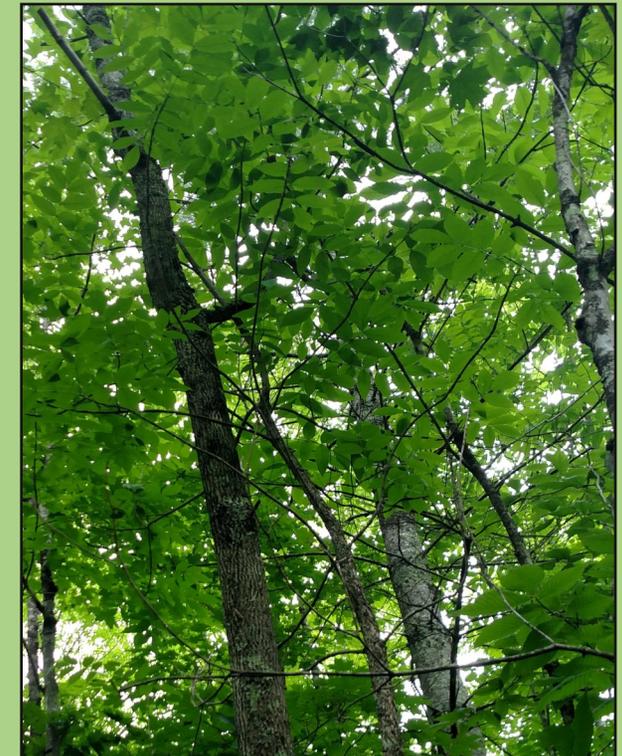
Pre-infestation EAB not yet present	Early infestation Some EAB signs; some dead ash along w/ healthy and declining trees	Mid-infestation Widespread EAB signs; higher ash mortality; few healthy trees	Late infestation Ash largely dead, with remainder very unhealthy except for very rare lingering ash
Assess ash presence/importance			
Decide which trees to be treated vs. cut vs. left for mortality monitoring/lingering ash detection			
Identify sites where mitigation needed (for: invasive plants, hydrological changes, etc.)			
Document infestation onset			
Establish/use mortality monitoring plots; detect when thresholds reached			
Record, report, protect potential lingering ash			Find/mark lingering ash, report for possible scion collection, possibly collect their seed
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Program partners include: Ecological Research Institute; US Forest Service; The Nature Conservancy; NYS DEC Forest Health; NYS DEC; Vermont Land Trust; New York Invasive Species Research Institute; NY Natural Heritage Program-iMapInvasives; Bedford Audubon; Bedford Audubon Society; Cary Institute of Ecosystem Studies; Catskill Center; Catskill Forest Association; Catskill Regional Invasive Species Partnership; Cornell Cooperative Extension of Delaware, Dutchess, Greene & Columbia, Oneida, Orange, St. Lawrence, Schoharie & Otsego, Sullivan, and Ulster counties; Cornell University; Green Chimneys; Haudenosaunee Environmental Task Force; Lower Hudson PRISM; M. Kudish Natural History Preserve; Mohawk Council of Akwesasne; Mohonk Preserve; New Paltz High School; New York State Parks, Recreation & Historic Preservation; New York-New Jersey Trail Conference; NYC Department of Environmental Protection; Oneida County SWCD; Otsego County Conservation Association; St. Lawrence County EAB Task Force; St. Lawrence-Eastern Lake Ontario PRISM; SUNY Ulster; Teatown Lake Reservation; The Fresh Air Fund; The Morton Arboretum; The Watershed Institute; Tug Hill Tomorrow Land Trust; University of Illinois at Urbana-Champaign; Vassar College; Watershed Agricultural Council; Westchester County Parks.



You Can Help Save Ash From Emerald Ash Borer!

- Some trees of each native ash species show **partial EAB resistance**. Selectively breeding them can yield highly resistant trees.
- By participating in **Monitoring and Managing Ash (MaMA)**, you can help find these trees for use in a breeding program.
- You can also learn about important actions to take at each stage of EAB invasion and even before it!



For more information:
MonitoringAsh.org
Outreach@MonitoringAsh.org
 845-419-5229

Monitoring and Managing Ash (MaMA) is an innovative ash conservation and emerald ash borer (EAB) mitigation program created and directed by the Ecological Research Institute (ERI) in close consultation with leading scientists of the US Forest Service. MaMA provides crucial, constructive actions to be taken in all areas where ash occur, including areas where EAB has already killed all the ash trees and areas where it has not yet arrived.



Vermont Land Trust staff tagging trees in a plot of the MaMA Ash Mortality Monitoring Plot Network

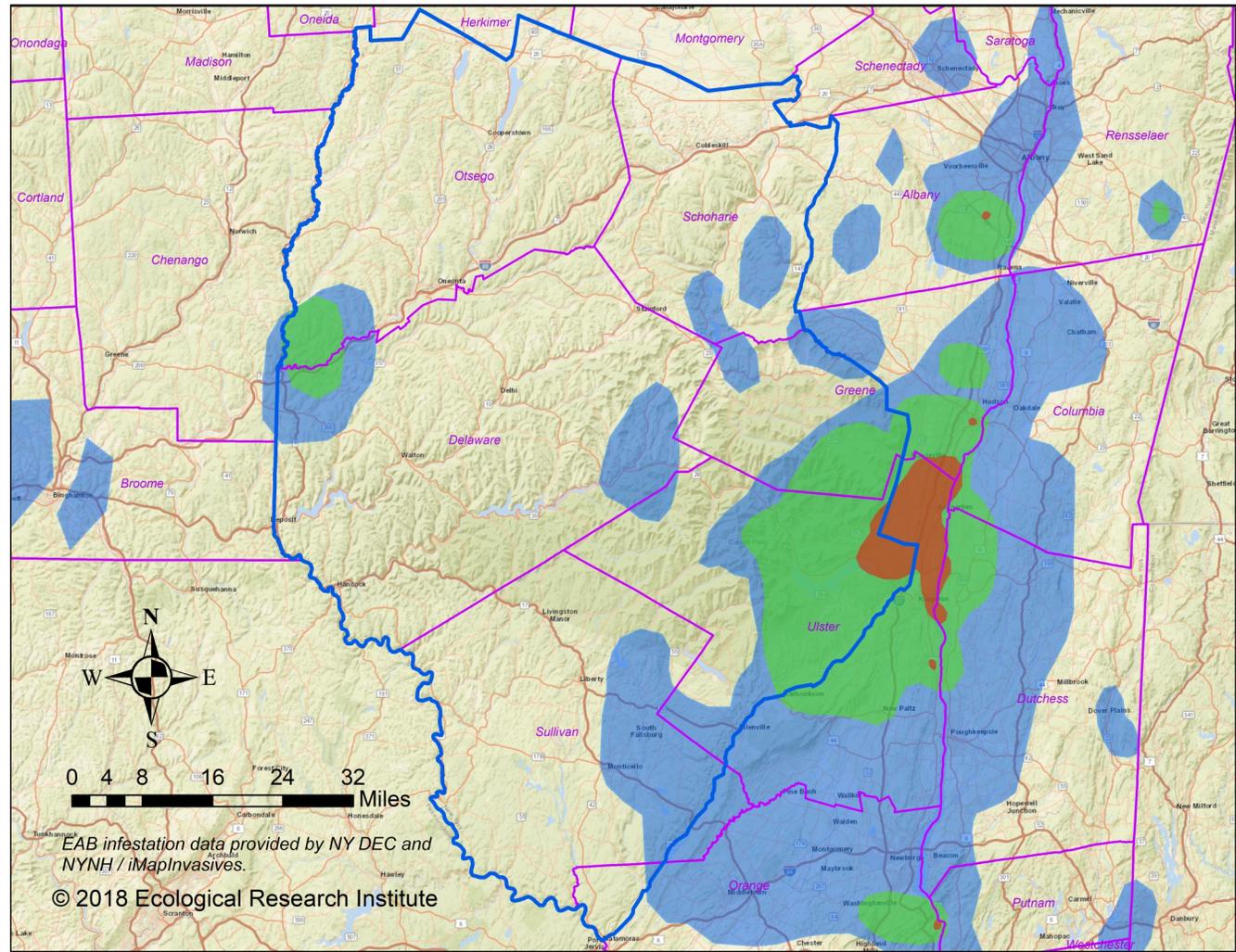
MaMA's land-manager and citizen-science projects enable detection of "lingering ash", naturally occurring trees that stay healthy even when the nearby trees around them have died from EAB. Our partners at the US Forest Service use lingering ash to yield EAB-resistant lines of native ash, with these trees offering the best hope for ash conservation and restoration.

As part of MaMA, ERI develops action maps using data from our partner institutions and citizen scientists to prioritize particular ash conservation actions based on EAB invasion status and history. Such maps, updated as EAB spreads, let you know the most important steps to take for ash conservation in your area.



Emerald ash borer larval galleries

Example: 2019 Catskills MaMA Action Map



Priority actions for the CRISP region

- 1. EAB first detected 2010-2012**
Actions: Search for and report lingering ash, using MaMA Lingering Ash Search project on Anecdota.org; protect them from felling. Remove dead/dying ash near lingering ash.
- 2. EAB first detected in 2013-2014**
Actions: Protect healthy, untreated, mature native ash ("potential lingering ash") in this area from felling; report their locations using the MaMA Lingering Ash Search project on Anecdota.org. Remove dead/dying ash near potential lingering ash. Establish mortality monitoring plots for the MaMA Monitoring Plots Network.
- 3. EAB first detected in 2015-2018**
Actions: At sites with $\geq 50\%$ mortality, protect healthy ash trees from felling; report their locations using the MaMA Lingering Ash Search project. Establish mortality monitoring plots as part of the MaMA Monitoring Plots Network.
- 4. Areas with no infestation yet detected**
Actions: Inspect ash for EAB evidence and report data via MaMA Ash/EAB Surveys project. Consider establishing a mortality monitoring plot as part of the MaMA Monitoring Plots Network, especially if you detect EAB. Do ash management planning, including setting aside trees for lingering ash detection. Do invasive plant mitigation if appropriate.

CRISP boundary County lines