

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; Vermont Land Trust; New York Invasive Species Research Institute; NY Natural Heritage Program-iMapInvasives; New York-New Jersey Trail Conference; Cornell Cooperative Extension of Delaware, Dutchess, Greene & Columbia, Oneida, Orange, St. Lawrence, Schoharie & Otsego, Sullivan, and Ulster counties; NYC Department of Environmental Protection; Catskill Regional Invasive Species Partnership; St. Lawrence-Eastern Lake Ontario PRISM; Lower Hudson PRISM; Haudenosaunee Environmental Task Force; Mohawk Council of Akwesasne; The Morton Arboretum; Catskill Center; Catskill Forest Association; Watershed Agricultural Council; Oneida County SWCD; Otsego County Conservation Association; M. Kudish Natural History Preserve; The Watershed Institute; Tug Hill Tomorrow Land Trust; SUNY Ulster; St. Lawrence County EAB Task Force; Bedford Audubon Society; Green Chimneys; Teatown Lake Reservation; Vassar College.



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!



See action map inside to learn which steps to take in your area



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.

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.



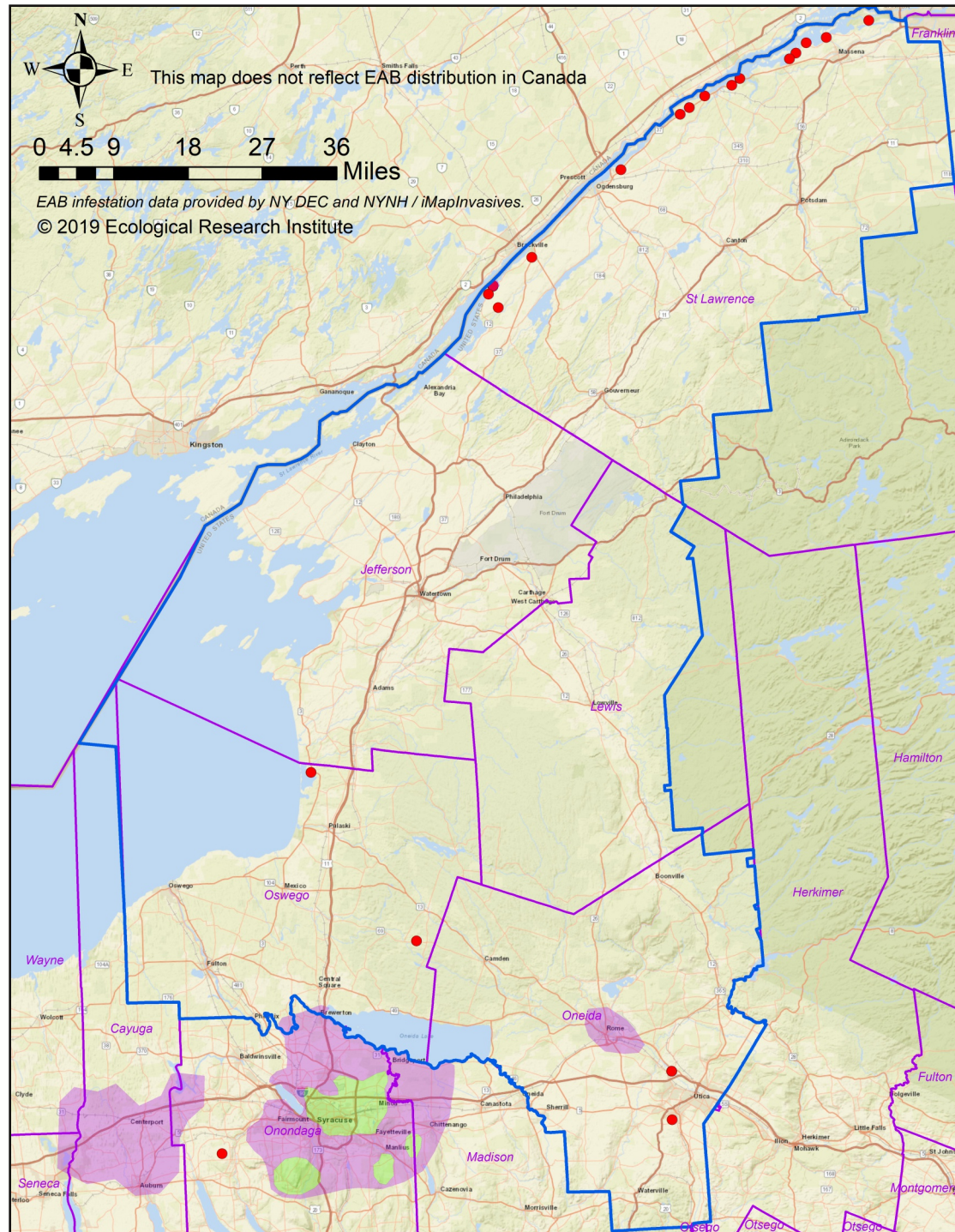
Vermont Land Trust staff tagging trees in a plot of the MaMA Ash Mortality Monitoring Plot Network

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

2019 St. Lawrence-Eastern Lake Ontario region MaMA Action Map



County lines SLELO boundaries

Priority actions for the SLELO region

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 Lingered Ash Search project. Remove dead/dying ash near potential lingering ash. Establish mortality monitoring plots for the MaMA Monitoring Plots Network.

EAB first detected in

2015-2017
2018-2019
Actions: At sites with $\geq 50\%$ mortality, protect healthy ash trees from felling; report their locations using the MaMA Lingered Ash Search project. Establish mortality monitoring plots as part of the MaMA Monitoring Plots Network.

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.