Monitoring and Managing Ash (MaMA)

- Launched by ERI in 2017
- Aims at long-term ash conservation by integrating:
  
  • Citizen science
  
  • Management guidance

See [www.MonitoringAsh.org](http://www.MonitoringAsh.org)
Management decisions can either hinder or facilitate finding lingering ash
Management choices for trees

Decision tree *without* long-term conservation perspective

**Cut if:**
- Potential hazard tree but pesticide treatment too costly/impractical *or*
- Cutting *necessary* to maintain habitat type (rare cases) *or*
- Harvesting *needed* for other purposes.

**Treat if:**
- Tree has special role in landscape, *and* treatment is practical/affordable.
Management choices for trees

Decision tree *including* long-term conservation perspective

- **Cut if:**
  - a) Potential hazard tree but pesticide treatment too costly/impractical  
  - or  
  - b) Cutting *necessary* to maintain habitat type (rare cases)  
  - or  
  - c) Harvesting *needed* for other purposes.

- **Treat if:**
  - Tree has special role in landscape, *and* treatment is practical/affordable.

- **Use for mortality monitoring/lingering ash detection if:**
  - Tree doesn’t need to be cut or treated *and* tree isn’t planted cultivar.

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PSA: Don’t needlessly cut healthy ash

• Although cutting ash for reasons mentioned above (hazard tree elimination, harvesting, etc.) is sensible, Don’t needlessly cut ash, because

  … enough healthy ash need to be left standing to reasonably enable finding lingering ash and

  … reducing ash presence generally increases local mortality (Knight et al. 2013), increases spread rate (Mercader et al. 2011) and promotes large-scale plant invasion, and
## Tasks for each stage of EAB infestation

<table>
<thead>
<tr>
<th>Pre-infestation</th>
<th>Early infestation</th>
<th>Mid-infestation</th>
<th>Late infestation</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAB not yet present</td>
<td>Some EAB signs; some dead ash along w/ healthy and declining trees</td>
<td>Widespread EAB signs; higher ash mortality; few healthy trees</td>
<td>Ash largely dead, with remainder very unhealthy except for very rare lingering ash</td>
</tr>
</tbody>
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### 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

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Includes three citizen-science projects on \texttt{Anecdata.org} platform.

These two designed to help find lingering ash.
MaMA Mortality Monitoring Plots Network

- Already includes 58 plots in four states
- Documents EAB-induced mortality rates
- Indicates where/when to search for lingering ash
- Provides focal points for outreach efforts
MaMA Monitoring Plot
Network requirements

a) ERI modified Knight et al. (2014) protocols to make more accessible while retaining rigor.

b) Plots need to have ≥ 40 adult ash trees (≥ 4” dbh) spread over 0.5 to 10 acres

c) Plots can be any shape

d) Trees must be native, naturally occurring ash

e) Trees must not be treated w/ insecticide

f) Live trees cannot be cut down until relevant mortality threshold reached

g) *Plot set-up takes ≤ ½ day; annual data collection ≤ 2hrs.*
Example of how MaMA AMPs fit into overall framework

In the Catskill and adjacent Lower Hudson regions of NY:

• 17 training workshops, attended by representatives of about 70 institutions, plus private individuals.

• Attendees learned all three MaMA citizen-science projects, how to incorporate lingering ash into mgmt.

• Has yielded 33 plots in these two regions

• We use data from these plots, our Ash/EAB Surveys project, NY DEC and iMapInvasives to create a regional MaMA Action Map.
Catskills/Lower Hudson MaMA Action Map

EAB first detected 2010-2012
- Actions: Search for lingering ash, using MaMA Lingering Ash Search project on Anecdata.org; protect them from felling. Remove dead/dying ash near potential lingering ash.

EAB first detected 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 Anecdata.org. Remove dead/dying ash near potential lingering ash. Establish mortality monitoring plots for the MaMA Monitoring Plots Network.

EAB first detected 2015-2018
- Actions: At sites with ≥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.

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.

- PRISM boundaries
- County lines
- MaMA ash mortality monitoring plot (showing percentage of adult ash trees killed by EAB as of 2019)

Monitoring and Managing Ash
Ecological Research Institute
CRISP Catskill Regional Invasive Species Partnership
• In areas indicated by MaMA Action Maps as ready to be searched for lingering ash, such trees can be reported via MaMA Lingering Ash Search project.

• This project can also be used to report “potential lingering ash” = healthy trees where most of the trees are dead or have significant die-back (so canopy classes 4 or 5).

These trees should be reported and should be protected from cutting as long as they’re healthy.

• We’ll follow up when area ready for lingering ash search, to see if they’re still healthy.
Marking potential lingering ash

Potential lingering ash in area that reached 93% mortality in 2019

Protecting it is crucial
How can MaMA help you take action to help conserve ash?

- Visit [www.MonitoringAsh.org](http://www.MonitoringAsh.org) to see the resources and information offered
- For the MaMA Monitoring Plots Network, you need to attend a training session by ERI or someone who’s been trained by us – contact us if interested
- Visit Anecdata.org or download Anecdata app, search for MaMA’s citizen-science projects
- Integrate the search for lingering ash into your management strategy
- Contact us at [Outreach@MonitoringAsh.org](mailto:Outreach@MonitoringAsh.org)
Take-home messages

• Lingering ash offer great hope due to the work of Dr. Koch, Dr. Knight, and their colleagues.

• Finding lingering ash depends on broad participation to gather the necessary data, and management that enables lingering ash detection.
Thank you
• Dr. Kathleen Knight and Dr. Jennifer Koch, USFS
• Everyone responsible for Urban Forest Connections
• Dr. Radka Wildova, ERI
• Our partners (list growing rapidly):
  Bedford Audubon
  Cary Institute of Ecosystem Studies
  Catskill Center
  Catskill Forest Association
  Cornell Cooperative Extension Delaware County
  Cornell Cooperative Extension Dutchess County
  Cornell Cooperative Extension Greene & Columbia County
  Cornell Cooperative Extension Oneida County
  Cornell Cooperative Extension Orange County
  Cornell Cooperative Extension Schoharie & Otsego County
  Cornell Cooperative Extension Sullivan County
  Cornell Cooperative Extension Ulster County
  Cornell University
  Green Chimneys
  Michael Kudish Natural History Preserve
  Mohawk Council of Akwesasne
  Mohonk Preserve
  New Paltz High School
  Catskill Regional Invasive Species Partnership (CRISP)
  Finger Lakes PRISM
  Lower Hudson PRISM
  St. Lawrence Eastern Lake Ontario PRISM (SLELO)
  New York State Parks, Recreation & Historic Preservation
  NYC Dept. of Environmental Protection
  NYS DEC Forest Health
  NYS Dept. of Environmental Conservation
  Otsego County Conservation Association
  SUNY Ulster
  Teatown Lake Reservation
  The Fresh Air Fund
  The Morton Arboretum
  The Nature Conservancy
  The Watershed Institute
  Tug Hill Tomorrow Land Trust
  University of Illinois at Urbana-Champaign
  US Forest Service
  Vassar College
  Vermont Land Trust
  Watershed Agricultural Council
  Westchester County Parks