Emerald Ash Borer is Close:
Be Prepared to Manage!

Eric Berg, Community Forestry Program Leader, Nebraska Forest Service
Overview:

1. Eric’s Soap Box
2. EAB Fast Facts
   - The bug
   - Spread
   - Timeline
   - National impacts
3. Management Considerations
   - Discovery pattern
   - Ash death curve
   - Impact of ash loss
   - Utilization
4. Implications
   - What to do now
   - Considerations
Overview

1. The trees we manage today are a function of all past policies.

2. Our choices have trans-generational effects.

3. All (almost) current responses to EAB are reactive in nature.

4. Sustaining any form of an ash population for the future requires choices that meet long-term urban forestry system goals.

5. Your Action NOW is critical for long term success and $$$ savings.
The opinions expressed . . .

1. I believe EAB is in NE and remains undetected. Probability is . . .

2. I believe the 15 mile treatment recommendation is based on the best science and will work for most communities.

3. I believe “proactive treatment” to improve tree vigor and protect against EAB is generally a waste of time and money.
4. I believe communities should already be targeting removal of poor condition, defective and conflict trees and working towards removal of “fair” trees.

5. I believe the science behind the “environmental benefits” is sound but needs to be communicated clearly and accurately.

6. I believe “one size fits all” management approach will not work for all communities.
   - Lincoln & Omaha will need to treat
I believe EAB is one of the best management opportunities to improve community forest resources and forestry programming.

I believe the best long term strategy to manage EAB must include:
- replacement of removals
- proactive planting
- reliance on regionally adapted spp
- waste wood utilization
EAB: IMPACTS and OPPORTUNITIES

Ash-lined street

3 years later

EAB: Coming to a street near you
Eric’s “Soap Box” = Community Forestry

- The PLACE
- The RESOURCE
- The ACTIVITIES
Nebraska U&CF Resource:

- 83% of population lives in the community forest
- For every dollar invested in the resource $3 - $5 dollars are retuned in benefits
- Urban plot analysis done across the state 2009 - 11
  - 13.3 million trees
  - 15% tree cover
  - 9.8 billion dollars total value
Integration of the green with gray
Problem Solving with Trees:

- Sequester of gaseous air pollutants and particulates.
- Conserve energy through transpirational cooling, shade, and wind reduction.
- Reduce storm water run-off.
- Reduce noise.
- Provide wildlife habitat.
- Increase property value.
- Improve aesthetics, and
- Psychological well being.
Example – Downtown trees

- In tree-lined commercial districts...
  - More frequent shopping
  - Longer shopping trips
  - Shoppers spend more for parking
  - Shoppers spend 12% more for goods
World Without Trees . . .
The trees we manage today are a function of all past policies.

GOOD & BAD.

The current problem with EAB is, in part, the failure to learn from Dutch Elm Disease.

Photo courtesy Dan Herms, OSU
The trees we manage today are a function of all past policies.

In contrast, communities that have learned to diversify have felt less of an impact.

A street block in Oak Park, Illinois where eleven different species have been planted and all of the ash removed.

Natural Path Urban Forestry, 2014
The trees we manage today are a function of all past policies.

You have a choice . . .

Photo courtesy Dan Herms, OSU

Natural Path Urban Forestry, 2014
EAB: aggressive tree killer

Ash-lined street

3 years later

EAB: IMPACTS and OPPORTUNITIES

D. Herms
Ohio State Univ
All (most) current responses to EAB are reactive in nature

Whether a community chemically treats, removes and replaces, or implements a combination of both, the responses selected are a necessary reaction to the immediate crisis.

The challenge is making choices that support an economically sustainable system that maximizes at a generational level the benefits to the community.
EAB: aggressive tree killer

Ash-lined street

3 years later
1. EAB Fast Facts...

- Has killed over 40 million trees since 2002
- Exotic species from Asia
- All native ash trees susceptible (16 spp.)
- Kills trees regardless of health condition or size
- Trees die within a few years following infestation
- Financial losses in the millions of dollars
- Treatment available but has to be done for life of tree
Cooperative Emerald Ash Borer Project
EAB locations in Illinois, Indiana, Michigan, Maryland, Ohio and southwest Ontario, Canada
January 21, 2007
The bug:

- metallic-green
- ½ inch long
- feeds on ash leaves

- creamy white
- tunnels under bark
Symptoms:

dieback

gig-zag tunnels

epicormic sprouts

D-shaped exit holes
EAB: aggressive tree killer

Ash-lined street

3 years later
2. Management Considerations . . .

- EAB will likely kill all native, planted unprotected trees over most of North America
- Within a community
  - 10% of ash killed in first 4 years
  - 70% killed in the next 4 years
  - After 8 – 10 years only treated trees remain
- Eradication is infeasible
- Treatments are available to protect trees
- Economics favor insecticide treatment to protect mature urban trees
- Treatments must continue for the life of the year
Stages of EAB Management (in Illinois)

Stage 1 Awareness (2002 – 2008)

Stage 2 Decision Making (2008 – 2012)

Stage 3 Management (2012 and on)
Exponential growth

Ash Mortality vs Years

Years: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

Ash Mortality Percentage: 0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%
EAB Death Curve

- Little mortality in early stages of infestation.
- Within a few years, the rate of trees dying rises quickly.
- Nearly 100% loss of ash trees within 15 years.
- Typical time frame when EAB is first detected.
North Platte
Public Ash Tree Population: 670

# of dead ash trees by year

Cost to remove and replace all ash = $402,000
CTAP...In the east

**Blair** (public ash trees: 453)

- Number of dead ash trees by year:
  - Year 1: 1
  - Year 2: 2
  - Year 3: 5
  - Year 4: 9
  - Year 5: 18
  - Year 6: 36
  - Year 7: 77
  - Year 8: 54
  - Year 9: 27
  - Year 10: 9
  - Year 11: 5
  - Years following infestation:

**Wayne** (public ash trees: 321)

- Number of dead ash trees by year:
  - Year 1: 1
  - Year 2: 1
  - Year 3: 8
  - Year 4: 13
  - Year 5: 26
  - Year 6: 74
  - Years following infestation:

**Fremont** (public ash trees: 779)

- Number of dead ash trees by year:
  - Year 1: 1
  - Year 2: 2
  - Year 3: 9
  - Year 4: 19
  - Year 5: 31
  - Year 6: 62
  - Year 7: 171
  - Year 8: 179
  - Years following infestation:
### Potential Mortality of Public Ash Trees and Removal & Replacement Costs

*(Private ash tree numbers typically several times higher)*

<table>
<thead>
<tr>
<th>Community</th>
<th>Public Ash Trees</th>
<th>Tree Mortality per year during peak years (17-23 % loss)</th>
<th>Removal and Replacement Costs: Annual cost during peak years ($600/tree)</th>
<th>Total Removal and Replacement Costs of All Public Ash Trees ($600/tree)</th>
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<tbody>
<tr>
<td>Arlington</td>
<td>95</td>
<td>16 - 22</td>
<td>$9,600 – 13,200</td>
<td>$57,000</td>
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<tr>
<td>Ashland</td>
<td>125</td>
<td>21 - 29</td>
<td>$12,600 – 17,400</td>
<td>$75,000</td>
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<tr>
<td>Auburn</td>
<td>186</td>
<td>32 - 43</td>
<td>$19,200 – 25,800</td>
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<td>Aurora</td>
<td>298</td>
<td>51 - 69</td>
<td>$30,600 – 41,400</td>
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<td>$7,200 – 9,600</td>
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<td>171</td>
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<td>1 - 2</td>
<td>$600 – 1,200</td>
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<td>453</td>
<td>77 - 104</td>
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<td>Blue Hill</td>
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<td>$40,200</td>
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<tr>
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<td>301</td>
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<td>7 - 9</td>
<td>$4,200 – 5,400</td>
<td>$24,000</td>
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<tr>
<td>Cortland</td>
<td>42</td>
<td>7 - 10</td>
<td>$4,200 – 6,000</td>
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<td>Creighton</td>
<td>134</td>
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<td>$13,800 – 18,600</td>
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<td>Curtis</td>
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<td>5 - 7</td>
<td>$3,000 – 4,200</td>
<td>$17,400</td>
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<tr>
<td>David City</td>
<td>328</td>
<td>56 - 75</td>
<td>$33,600 – 45,000</td>
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<tr>
<td>Fairbury</td>
<td>442</td>
<td>75 - 102</td>
<td>$45,000 – 61,200</td>
<td>$265,200</td>
</tr>
</tbody>
</table>
3. Implications . . .

- Communities should gain an understanding of their ash resource
- Management strategies focus on spreading the cost over the greatest period of time
- Consider the following activities
  - Begin to remove poor and fair condition trees
  - Remove poor location trees
  - Increase planting diversity
EAB Management Cost Calculator

1.) Start by filling in the circumference of your ash tree.
2.) Other fields will fill automatically.

Tree Circumference (inches)\(^*\)

\(4\)\(\times\)

Measure circumference by wrapping a string around the trunk of the tree at chest height and measuring that length in inches with a tape measure or ruler.

Please enter a value greater than or equal to 15.

Tree Diameter

\(1\)\(^*\)

Estimated Annual Benefits Provided by Tree

\$10

Includes carbon storage, carbon sequestration, stormwater interception, air pollution removal, reduced heating/cooling costs, and property value increase. Use the National Tree Benefit Calculator (www.treebenefits.com) to find exact values for your trees.

Estimated Treatment Cost

\$10

A single treatment is effective for 2-3 years.

Estimated Removal Cost

\$10

*The cost of tree removal is widely variable depending on accessibility, obstacles, tree condition, and other characteristics. This is only an estimate.

Years until treatment costs reach removal cost

2 Years

This online calculator is a tool developed by the Urban Tree Alliance to help property owners make an informed decision about how to manage their ash trees in the context of the Emerald Ash Borer.

These are rough estimates. To receive an exact price for tree treatment or removal contact the Urban Tree Alliance or another qualified arborist.

Treatment prices are based on a systemic injection of Emamectin Benzoate. Studies have repeatedly shown this to be the most effective EAB treatment option. Though labeled for 2 years of protection, several studies have shown the chemical to be highly effective for 3-4 years after treatment. Some tree care providers will offer other
20" Diameter Ash Tree Management over 20 Years

- Treatment
- Removal
- Benefits
Municipal Response

Discussions:
- Resources (possible aid/partnerships)
- Pre and post-planning
- Plan of action
- Liability
- Reaction to infestation
Municipal Response, cont.

- Management plan
- Communication
- Mutual aid/beyond
- Training
- Reforestation
First stages, pre-infestation

- Know what you have
  - Identify population/average size of ash trees and LOCATION!
- Parkways
- Park Districts
- Numbers of private trees?
Once number identified:

Research costs of management for:

- Insecticides
- Removals
- Disposal
- Labor
- Equipment
Followed by:

- Diseased/dead tree ordinances?
  - Subsequent enforcement to be successful
  - Recognize liability
LIABILITY: LINCOLNWOOD, ILLINOIS

- Forty-three inch diameter silver maple
- Located completely on Village property
- Whole tree failure
- Property damage
- Settlement totaled $20,000

Copyright: Natural Path Urban Forestry, 2007
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Copyright: Natural Path Urban Forestry, 2007
LIABILITY: MAYWOOD, ILLINOIS

- Thirty-two inch diameter green ash
- Located partially on private property and partially on Village Property
- One of two large scaffolds split out of tree
- Two fatalities
- Settlement totaled $3.35 Million

Copyright: Natural Path Urban Forestry, 2007
Write a management plan!

- Prescribe:
  - Why
  - How
  - Where
  - When
Management plan

- Formalize your plan
  - Time frame
  - Options considered?
    - Chemical treatment?
    - Removals?
    - Doing nothing?
  - In-house or out? Both?
- Rate of removal:
  Average tree removal per day - 4 person crew:
  8-12 in-house
Reacting, ...if not aggressive then:

- **Standing removals**-high impact target zones.
  - If trees are to come down identify:
    - School zones
    - Bus stops
    - Hospitals
    - Parks
    - Major thoroughfares
    - Additional high target areas
Management plan includes:

Material/debris storage
- Wood chips
- Logs
- Equipment
- Contractors
  - Others?
  - EPA regulated burners
In-house removals?

- If you need an excuse to replace equipment – *This is it!*
  - Budget for and buy what you need.
  - Not feasible? Partnerships!
  - Still not feasible? *Grants, corporate sponsorship, etc.*
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5. I believe the science behind the “environmental benefits” of trees is very “squishy science” (Correlation = Causation?)

6. I believe “one size fits all” management approach will not work for all communities.  
   - Lincoln & Omaha will need to treat
The opinions expressed . . .

EAB: IMPACTS and OPPORTUNITIES

I believe EAB is one of the best management opportunities to improve community forest resources and forestry programming.

I believe the best long term strategy to manage EAB must include:
- replacement of removals
- proactive planting
- reliance on regionally adapted spp
- waste wood utilization
Summary

- Remove marginal trees
- Check ash trees as they are pruned or removed
- Diversify
- Explore treatment options
- Public awareness to gain citizen support
Additional EAB Publications for Nebraska

• Treatment Options
• Guidelines for Nebraska Homeowners
• FAQs
• Decline in Ash Trees: Borers & Bark Beetles
• Decline in Ash Trees: Diseases & Environmental Stresses

Nebraska Forest Service EAB website:
nfs.unl.edu/EAB
Questions?

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Nebraska Forest Service
(402) 472-6511
Eberg2@unl.edu
www.nfs.unl.edu
EAB: IMPACTS and OPPORTUNITIES
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- Nearly 100% loss of ash trees within 15 years.

Years following EAB infestation

Ash mortality

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Years following EAB infestation:
- 3: Little mortality
- 4-5: Rate of trees dying rises quickly
- 6-15: Nearly 100% loss

Typical time frame when EAB is first detected.
**Summary cont. . .**

- Promote arborist training and certification
- Invest in technology
  - Cloud based inventories and work orders
- Educate community leaders and citizens
- Minimize homeowner treatments
- Promote diverse, small caliper plantings
- Invest in staff capacity, infrastructure and communications
  - Municipal Forestry Institute (leadership)
  - Media relations and communications
EAB: aggressive tree killer

Ash-lined street

3 years later
EAB: IMPACTS and OPPORTUNITIES

CTAP . . . In the west

**McCook** (public ash trees: 363)

<table>
<thead>
<tr>
<th>Years following infestation</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
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<tbody>
<tr>
<td># of dead ash trees by year</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>9</td>
<td>15</td>
<td>29</td>
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<td>80</td>
<td>83</td>
<td>44</td>
<td>22</td>
<td>7</td>
<td>4</td>
<td></td>
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</tbody>
</table>

**Sidney** (public ash trees: 55)

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<tr>
<th>Years following infestation</th>
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<th>15</th>
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</thead>
<tbody>
<tr>
<td># of dead ash trees by year</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>9</td>
<td>12</td>
<td>13</td>
<td>7</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**North Platte** (public ash trees: 670)

<table>
<thead>
<tr>
<th>Years following infestation</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<th>12</th>
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<tbody>
<tr>
<td># of dead ash trees by year</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>7</td>
<td>17</td>
<td>27</td>
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<td>54</td>
<td>80</td>
<td>40</td>
<td>13</td>
<td>7</td>
<td></td>
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</tbody>
</table>
CTAP . . . In the east

Blair (public ash trees: 453)

Wayne (public ash trees: 321)

Fremont (public ash trees: 779)
North Platte
Public Ash Tree Population: 670

# of dead ash trees by year

Years following infestation
Lincoln

Public Ash Tree Population: 30,000

Total ash population in the Lincoln area is likely over 70,000

# of dead ash trees by year

EAB: IMPACTS and OPPORTUNITIES
Identifying available resources:

Call upon:

- Extension
- Department of Ag
  - State and Federal
- Department of Natural Resources
- APHIS PPQ
- Others including local municipal leagues
First stages, pre-infestation

- Know what you have
  - Identify population/average size of ash trees and LOCATION!
    - Parkways
    - Park Districts
    - Numbers of private trees?
Once number identified:

Research costs of management for:

- Insecticides
- Removals
- Disposal
- Labor
- Equipment
Followed by:

- Diseased/dead tree ordinances?
  - Subsequent enforcement to be successful
- Recognize liability
LIABILITY: LINCOLNWOOD, ILLINOIS

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- All removals scheduled for winter
- Interval too long for high-risk trees

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Pass along the information!

- Involve city administrators!
- Inform your residents of problem
  - Inform both admin. and residents of quantity of ash
  - Inform both of the impending budgetary hit-whether short/long-term
- Fall out
Information management

- Update during operations:
  - Administrators
    - Board meetings, etc.
  - Residents
    - Village newsletters and correspondence
  - Media
    - Field presentations throughout
# EABPLANS Cost/Benefit Calculator

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>UNIT</th>
<th>VALUE</th>
<th>NOTES ON HOW TO ENTER DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starting Diameter</td>
<td>Mean Size (Inches)</td>
<td>10</td>
<td>Average (mean) diameter (DBH, 4.5 feet) of the ash tree population at the start of the simulation</td>
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<tr>
<td>Starting Population</td>
<td>Number of Trees</td>
<td>1000</td>
<td>Number of ash trees in your management area at the start of the simulation</td>
</tr>
<tr>
<td>Preemptive Removal</td>
<td>Number of Years</td>
<td>5</td>
<td>Number of years for preemptive removal of ash annually (enter a value of 1 to 10 years)</td>
</tr>
<tr>
<td>Tree Growth Rate</td>
<td>Inches/Year</td>
<td>0.40</td>
<td>The average (mean) annual increase in tree diameter (DBH, 4.5 feet)</td>
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<tr>
<td>Maintenance Cost</td>
<td>$/Diameter Inch</td>
<td>3.50</td>
<td>Total annual cost per tree diameter inch (DBH, 4.5 feet) to maintain trees in the management area</td>
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<tr>
<td>Removal Cost</td>
<td>$/Diameter Inch</td>
<td>31.90</td>
<td>Cost to remove a tree per diameter inch (DBH, 4.5 feet)</td>
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<tr>
<td>Treatment Cost</td>
<td>$/Diameter Inch</td>
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<td>Cost for each application treatment per diameter inch (DBH, 4.5 feet) to prevent EAB mortality</td>
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<tr>
<td>Treatment (Tx) Interval</td>
<td>Years Between Tx</td>
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<td>Interval between ash tree treatments (Tx) in years</td>
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<tr>
<td>Expected Tx Success</td>
<td>Percent</td>
<td>99%</td>
<td>Percent of treated ash trees that will survive peak EAB pressure under chosen protocol</td>
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<tr>
<td>Natural Survival</td>
<td>Percent</td>
<td>98%</td>
<td>Percent annual survival normally expected for ash trees without regard to EAB</td>
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<td>Control Survival (EAB)</td>
<td>Percent</td>
<td>80%</td>
<td>Annual survival of nontreated ash trees starting at the 7 year tipping point (user does not modify)</td>
</tr>
<tr>
<td>Replacement Size</td>
<td>Inches</td>
<td>2</td>
<td>Average (mean) diameter (DBH, 4.5 feet) of a replacement tree</td>
</tr>
<tr>
<td>Replacement Cost</td>
<td>Dollars</td>
<td>100</td>
<td>Cost to purchase a replacement tree</td>
</tr>
<tr>
<td>Installation Cost</td>
<td>Dollars</td>
<td>200</td>
<td>Cost to install a replacement tree</td>
</tr>
<tr>
<td>Unit Tree Cost</td>
<td>$/eq. in.</td>
<td>31.83</td>
<td>CTLA calculated unit tree cost of replacement tree (user does not modify, based on replacement size)</td>
</tr>
<tr>
<td>Species</td>
<td>Percent</td>
<td>70%</td>
<td>CTLA species percentage of the ash tree population</td>
</tr>
<tr>
<td>Condition</td>
<td>Percent</td>
<td>75%</td>
<td>CTLA average (mean) condition of the ash tree population</td>
</tr>
<tr>
<td>Location</td>
<td>Percent</td>
<td>70%</td>
<td>CTLA average (mean) percent for ash trees in the management area</td>
</tr>
<tr>
<td>Interest Rate + 1</td>
<td>Percent</td>
<td>1.06</td>
<td>Discount interest rate (Enter value as 1 + the interest rate, i.e. 6% interest rate enter as 1.06)</td>
</tr>
<tr>
<td>Replant Lost Trees?</td>
<td>Yes=1, No=0</td>
<td>0</td>
<td>Replant trees killed by EAB in the Control and Treatment management options</td>
</tr>
</tbody>
</table>
## EAB Cost/Benefit Calculators

To be an effective tool, the numerous cost/benefit calculators available must be carefully massaged for local considerations. Pre-loaded variables may contain instrument bias that skew outcomes.

- **Removal Cost**
- **Expected Treatment Success**
- **Species Rating**
- **Replanting**
Calculating Average Removal Costs

Table 4 - Village of Oak Park Average Per Inch Removal Cost

<table>
<thead>
<tr>
<th>Diameter Class</th>
<th>Quantity of Ash</th>
<th>Total Inches</th>
<th>Removal Cost (per inch)</th>
<th>Removal Cost by Size Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 11&quot;</td>
<td>336</td>
<td>2,659</td>
<td>$7.50</td>
<td>$19,443</td>
</tr>
<tr>
<td>12 - 18&quot;</td>
<td>383</td>
<td>5,889</td>
<td>$7.50</td>
<td>$44,168</td>
</tr>
<tr>
<td>19 - 24&quot;</td>
<td>466</td>
<td>9,972</td>
<td>$11.50</td>
<td>$114,678</td>
</tr>
<tr>
<td>25 - 30&quot;</td>
<td>168</td>
<td>4,443</td>
<td>$13.50</td>
<td>$59,981</td>
</tr>
<tr>
<td>31 - 36&quot;</td>
<td>31</td>
<td>1,002</td>
<td>$17.50</td>
<td>$17,535</td>
</tr>
<tr>
<td>37 “+”</td>
<td>10</td>
<td>415</td>
<td>$16.50</td>
<td>$6,848</td>
</tr>
<tr>
<td>Total</td>
<td>1,394</td>
<td>24,380</td>
<td>$262,653</td>
<td>$10.77</td>
</tr>
</tbody>
</table>
## Treatment Success

### Table 5 - Conditi

<table>
<thead>
<tr>
<th>Condition</th>
<th>Quantity</th>
<th>Expected Treatment Success</th>
<th>Quantity of Expected Treated Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>5</td>
<td>100%</td>
<td>5</td>
</tr>
<tr>
<td>Good</td>
<td>267</td>
<td>100%</td>
<td>267</td>
</tr>
<tr>
<td>Fair</td>
<td>590</td>
<td>50%</td>
<td>295</td>
</tr>
<tr>
<td>Poor</td>
<td>567</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Very Poor</td>
<td>150</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>Dead</td>
<td>19</td>
<td>0%</td>
<td>0</td>
</tr>
</tbody>
</table>
|             | 1,598    |                            | 567                                   | 35%
EAB: IMPACTS AND OPPORTUNITIES

Asking for help

- Local
  - Mutual aid from neighboring municipalities
- County
- State
- Federal
- Any others?
Begin training crews ASAP!
Training

- Safety
  - ANSI Z-133.1
- Industry standards
  - UTILIZER
  - Game of Logging
  - S-212
  - Arbormaster
  - Etc.
- Logging specifications – marketable timber?
Forest replacement:

- Once feasible, Replant!
  Recognize:
  - Where
  - How many
  - Diversity% 30, 20, 10!
  - Cost
  - Size - plant small?
  - *Follow-up care*
Forest replacement...

Opportunity exists to achieve excellence:

- Plant properly
- Educate employees
- Educate the media
- Educate community
- Rely on volunteers
- Mobilize local cable channel for information management
EAB: IMPACTS and OPPORTUNITIES
Emerald Ash Borer: Impacts on Our Communities

- Exotic species
- Aggressive killer
- All native ash susceptible
- Easily transported in firewood
Fairbury, NE

- More than 200 ash in park
- Comprises over 40% of the trees
An Analysis of EAB Management in the Chicago Metro Area

Great Trees on a Great Lake
ISA Annual International Conference and Trade Show
Milwaukee, Wisconsin
August 4, 2014

Mark Duntemann
Natural Path Urban Forestry Consultants
Table 1 – Chicago Metro Area Communities

<table>
<thead>
<tr>
<th>County</th>
<th>Communities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cook</td>
<td>135</td>
</tr>
<tr>
<td>DeKalb</td>
<td>14</td>
</tr>
<tr>
<td>DuPage</td>
<td>39</td>
</tr>
<tr>
<td>Kane</td>
<td>27</td>
</tr>
<tr>
<td>Kankakee</td>
<td>19</td>
</tr>
<tr>
<td>Lake</td>
<td>61</td>
</tr>
<tr>
<td>McHenry</td>
<td>32</td>
</tr>
<tr>
<td>Will</td>
<td>44</td>
</tr>
</tbody>
</table>
## Table 2 – Ash Distribution for Select Communities

<table>
<thead>
<tr>
<th>Community</th>
<th>Tree Population</th>
<th>Ash Population</th>
<th>Percent Ash</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrington</td>
<td>7,360</td>
<td>1,454</td>
<td>19.8%</td>
</tr>
<tr>
<td>Berwyn</td>
<td>12,981</td>
<td>1,598</td>
<td>12.3%</td>
</tr>
<tr>
<td>Des Plaines</td>
<td>25,000</td>
<td>3,600</td>
<td>14.4%</td>
</tr>
<tr>
<td>Glencoe</td>
<td>12,429</td>
<td>1,603</td>
<td>12.3%</td>
</tr>
<tr>
<td>Momence</td>
<td>1,296</td>
<td>188</td>
<td>14.5%</td>
</tr>
<tr>
<td>Mount Prospect</td>
<td>25,088</td>
<td>4,200</td>
<td>16.7%</td>
</tr>
<tr>
<td>Naperville</td>
<td>60,000</td>
<td>17,300</td>
<td>28.8%</td>
</tr>
<tr>
<td>Niles</td>
<td>7,459</td>
<td>379</td>
<td>5.1%</td>
</tr>
<tr>
<td>Oak Park</td>
<td>18,400</td>
<td>2,400</td>
<td>13.0%</td>
</tr>
<tr>
<td>Steward</td>
<td>213</td>
<td>34</td>
<td>16.0%</td>
</tr>
</tbody>
</table>
## Decision to Treat by Median Income

<table>
<thead>
<tr>
<th>Chemical Treatment</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forestry Manager on Staff</td>
<td>Yes</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Income (in $)</th>
<th>Treatment</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>$200,000</td>
<td>0</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>$180,000</td>
<td>0</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>$160,000</td>
<td>0</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>$140,000</td>
<td>0</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>$120,000</td>
<td>0</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>$100,000</td>
<td>0</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>$80,000</td>
<td>0</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>$60,000</td>
<td>0</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>$40,000</td>
<td>0</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>$20,000</td>
<td>0</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>$0</td>
<td>0</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>
To be successful, the trees being treated must be at least in good or better condition.
Species value

Based on the Council of Trees and Landscape Appraisers Guide, the species rating is based on a species' current overall quality as a plant:

- Has to be artificially maintained
- Not available in nurseries
- Has a significant pest issue

Treatment Success

The trees also have to be ash. Treated callerya pear.
Based on the Council of Tree and Landscaper Appraisers Guide, the species rating is based on a species current overall quality as a plantable species. Issues with the ash genus include:

- Has to be artificially maintained
- Not available in nurseries

EABPLANS inflates the value of ash by having its species rating at 70%. The Illinois Arborist Association has assigned a rating of 20% to all species of ash.
Adjusting EABPLANS to Oak Park values results in virtual no difference in cost/benefit between treatment and remove/replant. The decision to treat becomes a management decision rather than an economic decision.
### Table 3 – Management Choices by Select Communities

<table>
<thead>
<tr>
<th>Community</th>
<th>Tree Population</th>
<th>Ash Population</th>
<th>Ash Removed to Date</th>
<th>Ash Remaining</th>
<th>Ash Treated</th>
<th>Percent of Total Population</th>
<th>Ash to Remove</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berwyn</td>
<td>12,981</td>
<td>1,598</td>
<td>400</td>
<td>1,200</td>
<td>0</td>
<td>0.0%</td>
<td>1,200</td>
</tr>
<tr>
<td>Des Plaines</td>
<td>25,000</td>
<td>3,600</td>
<td>2,726</td>
<td>726</td>
<td>148</td>
<td>0.6%</td>
<td>726</td>
</tr>
<tr>
<td>Glencoe</td>
<td>12,429</td>
<td>1,603</td>
<td>631</td>
<td>972</td>
<td>288</td>
<td>2.3%</td>
<td>684</td>
</tr>
<tr>
<td>Mount Prospect</td>
<td>24,000</td>
<td>4,200</td>
<td>2,600</td>
<td>1,600</td>
<td>1,600</td>
<td>6.7%</td>
<td>0</td>
</tr>
<tr>
<td>Naperville</td>
<td>60,000</td>
<td>17,300</td>
<td>2,500</td>
<td>14,800</td>
<td>12,500</td>
<td>20.8%</td>
<td>2,300</td>
</tr>
<tr>
<td>Oak Park</td>
<td>18,300</td>
<td>2,400</td>
<td>1,000</td>
<td>1,400</td>
<td>0</td>
<td>0.0%</td>
<td>1,400</td>
</tr>
</tbody>
</table>

The most effective treatment choice is more than likely communities that select a sustainable number of ash to treat. This is typically a strategic target of no more than 3% of the total tree population comprise ash.
Opportunities – Tree Spacing

The Village of Oak Park is more than likely overstocked. Ash removals have provided an opportunity to slightly increase the distance between trees, providing the following long-term benefits:

1. Species takes on form unique to the species
2. Larger crown spread
3. Lower maintenance cost over time
4. Longer-lived trees
5. Reduced storm damage.
Since the infestation was first noted in Illinois 2006, the Village of Oak Park has planted over 2,600 trees and forty-one species. It’s time to stop using the 10/20/30 rule.
EAB: IMPACTS and OPPORTUNITIES

Observations – Lost Opportunities

Wood Utilization
Observations – Lost Opportunities

Under-served Communities
Observations

The eventual goal of an EAB management strategy is to develop a healthier more diverse urban forest. This can include preserving a sustainable portion of the ash population.

1. Most Chicago area communities opted for the remove/replace strategy.
2. The communities that have chosen to also include some chemical treatment can serve to inform our understanding of viable outcomes of including this option.
Target a sustainable quantity of the ash population to treat. It must meet long-term urban forestry goals.

2. Involve the Forestry Manager in the dialogue.
1. Informing residents of credible treatment providers.
5. Initiate a municipal-directed contract price for residents.
EAB should provide us the opportunities missed with DED to better inform our profession in arboricultural care and managing urban
EAB: IMPACTS and OPPORTUNITIES
Municipal Response Preparing for and combating EAB

Jim Tresouthick, Forester
Homewood Public Works
THANK YOU
EAB: IMPACTS and OPPORTUNITIES
1. The trees we manage today are a function of all past policies.

*Good and Bad.*

*The current problem with EAB is, in part, the failure to learn from Dutch Elm Disease.*

Photo courtesy Dan Herms, OSU
1. The trees we manage today are a function of all past policies.

In contrast, communities that have learned to diversify have felt less of an impact.

A street block in Oak Park, Illinois where eleven different species have been planted and all of the ash removed.

Natural Path Urban Forestry, 2014
1. The trees we manage today are a function of all past policies.

Photo courtesy Dan Herms, OSU

Natural Path Urban Forestry, 2014
2. All (most) current responses to EAB are reactive in nature

Whether a community chemically treats, removes and replaces, or implements a combination of both, the responses selected are a necessary reaction to the immediate crisis.

The challenge is making choices that support an economically sustainable system that maximizes at a generational level the benefits to the community.