



Nebraska
Forest
Service



*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.*

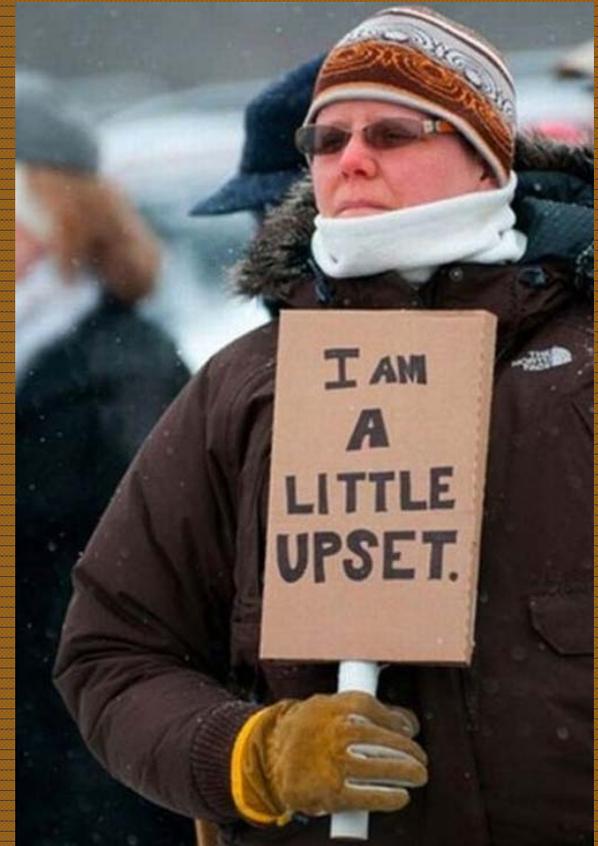
The opinions expressed . . .

EAB: IMPACTS and OPPORTUNITIES

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

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4. I believe communities should already be targeting removal of poor condition, defective and conflict trees and working towards removal of “fair” trees.

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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



D. Herms
Ohio State Univ

*EAB:
Coming to
a street
near you*

EAB

Ash-lined street

3 years later

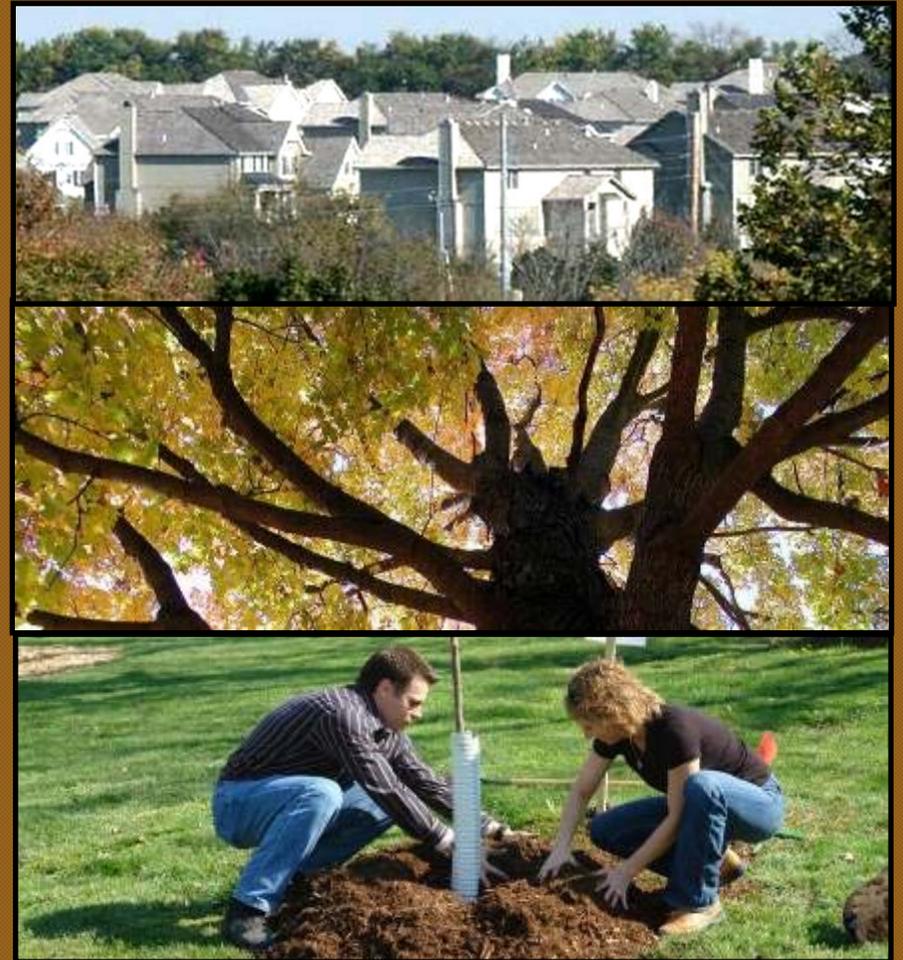


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Eric's "Soap Box" = Community Forestry

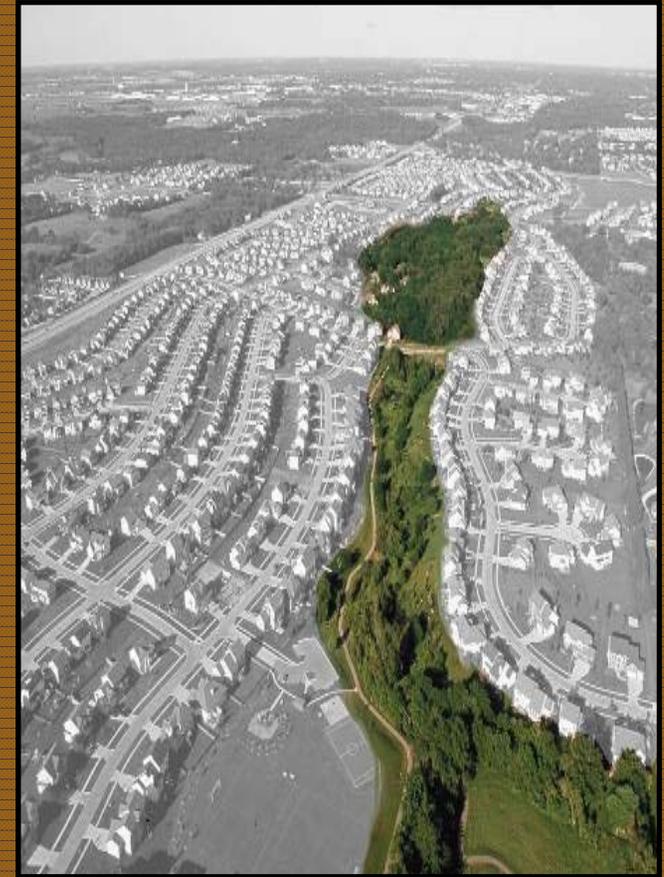
EAB: IMPACTS and OPPORTUNITIES

- The PLACE
- The RESOURCE
- The ACTIVITIES



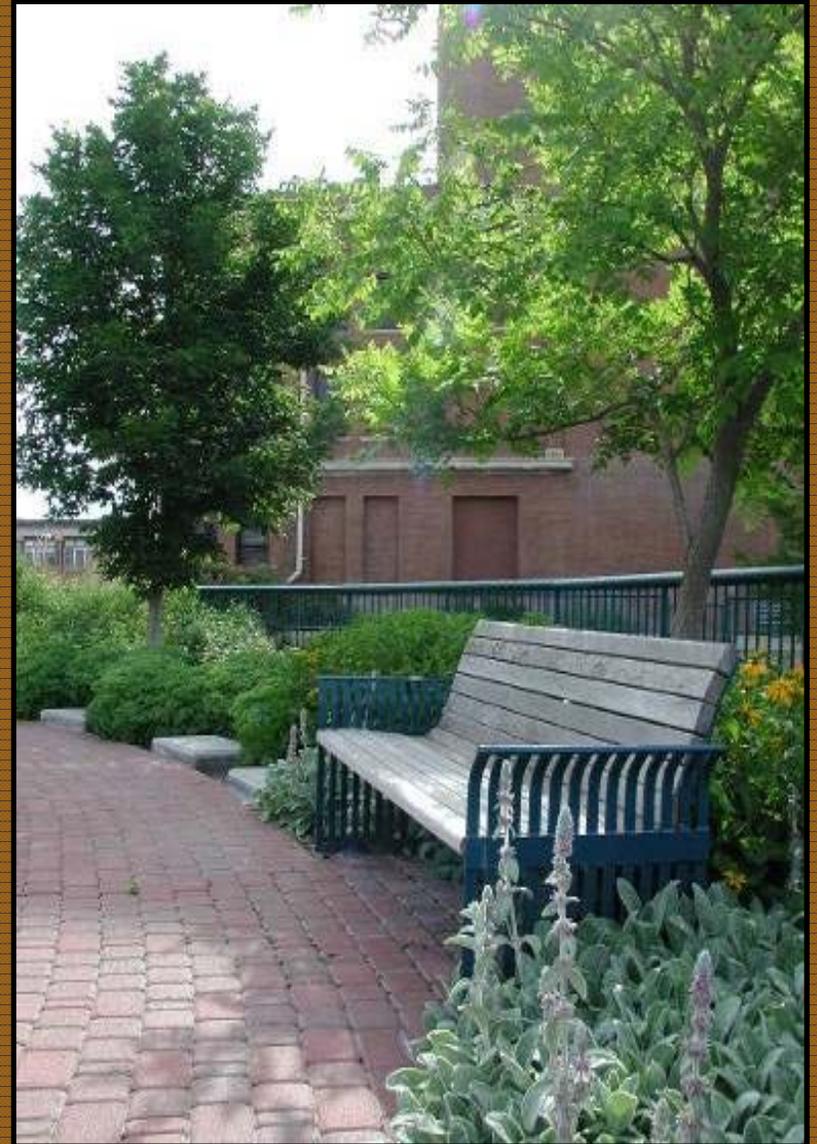
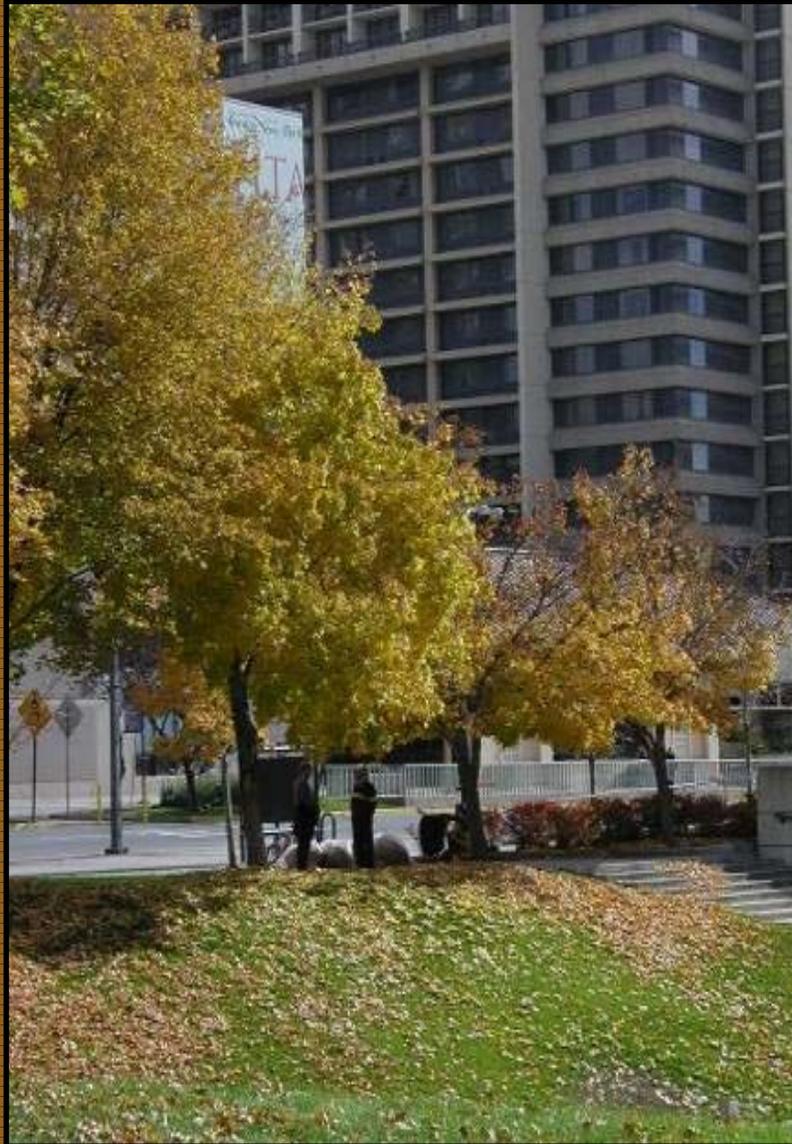
Nebraska U&CF Resource:

- 83% of population lives in the community forest
- For every dollar invested in the resource \$3 - \$5 dollars are returned 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

EAB: IMPACTS and OPPORTUNITIES



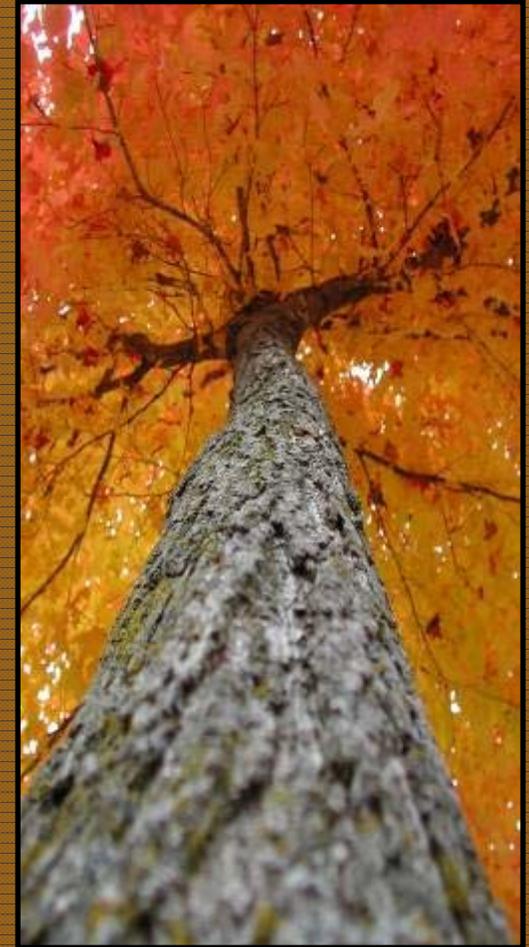
EAB: IMPACTS and OPPORTUNITIES



Problem Solving with Trees:

EAB: IMPACTS and OPPORTUNITIES

- 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

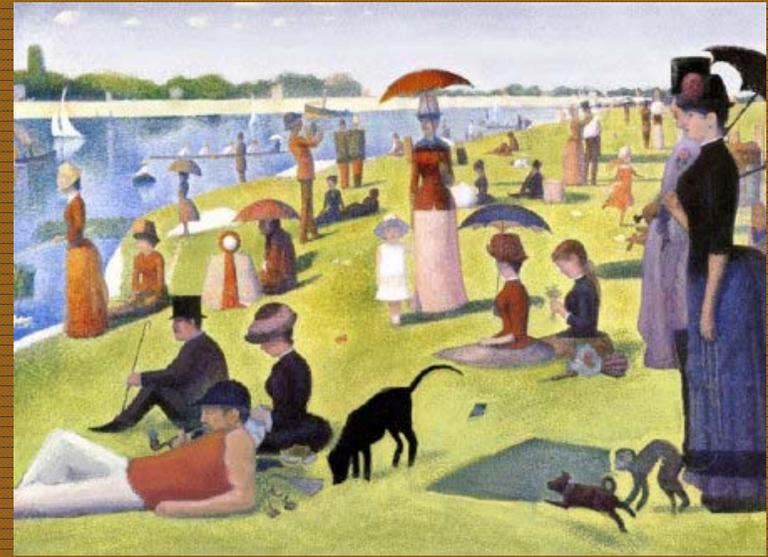


- **In tree-lined commercial districts...**
 - More frequent shopping
 - Longer shopping trips
 - Shoppers spend more for parking
 - Shoppers spend 12% more for goods



World Without Trees . . .

EAB: IMPACTS and OPPORTUNITIES







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



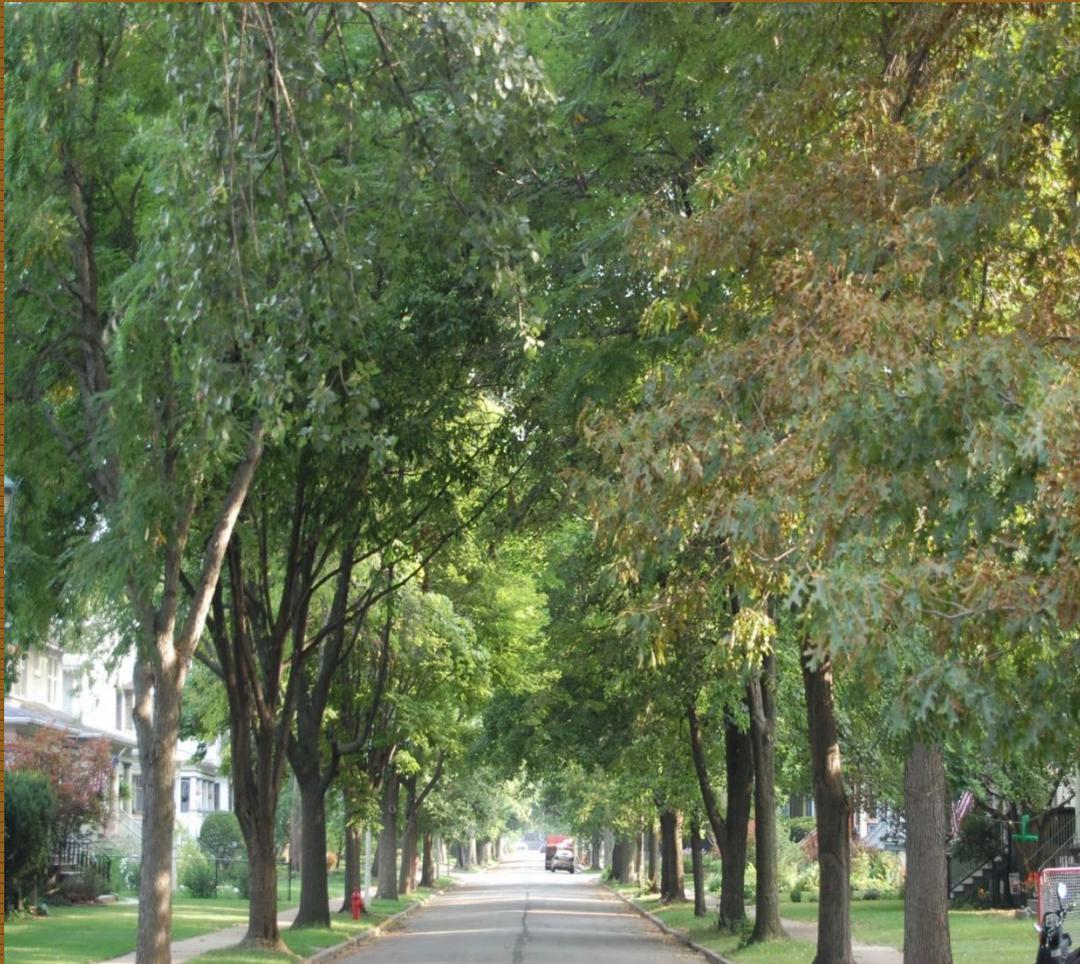
Photo courtesy Dan Herms, OSU

GOOD &
BAD.

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

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

EAB: IMPACTS and OPPORTUNITIES



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.

EAB: IMPACTS and OPPORTUNITIES

You have a choice . . .

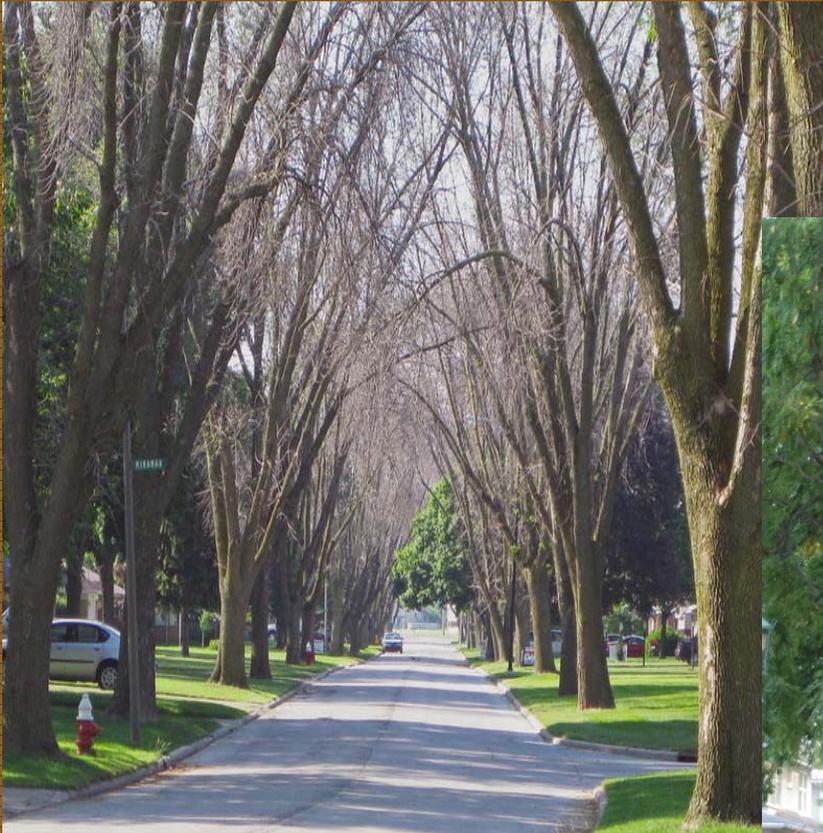
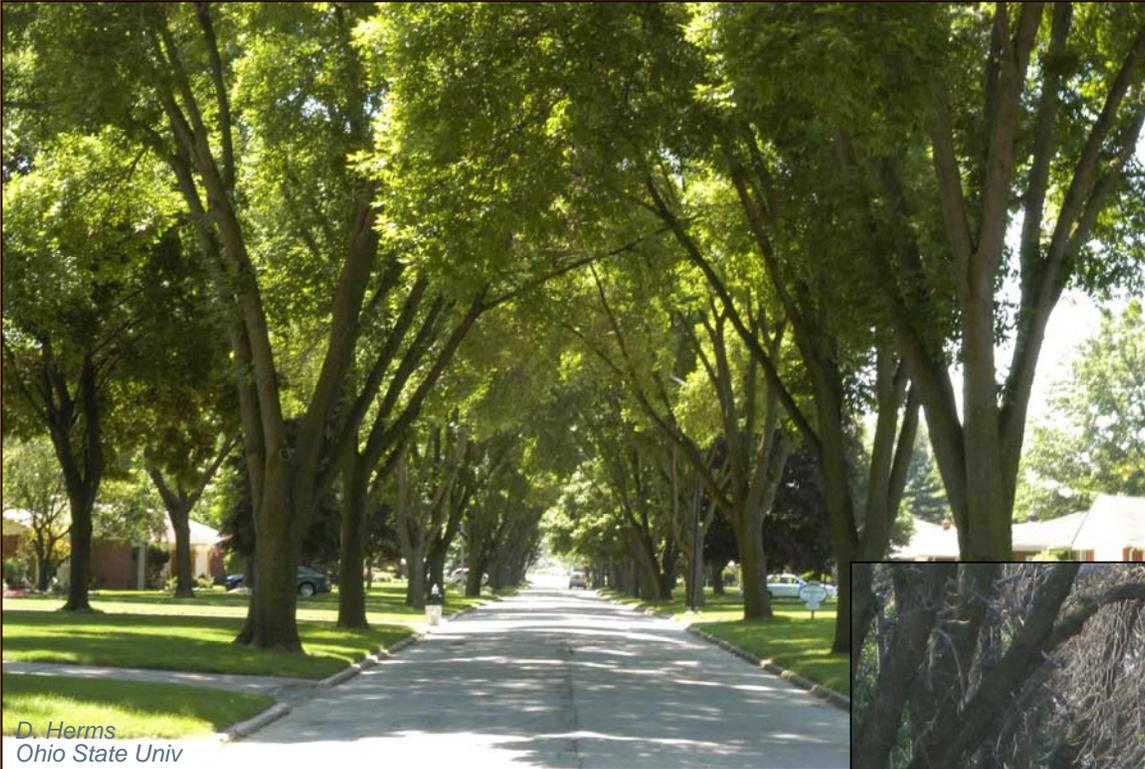


Photo courtesy Dan Herms, OSU



Natural Path Urban Forestry, 2014

*EAB:
aggressive
tree killer*



D. Herms
Ohio State Univ

E

Ash-lined street



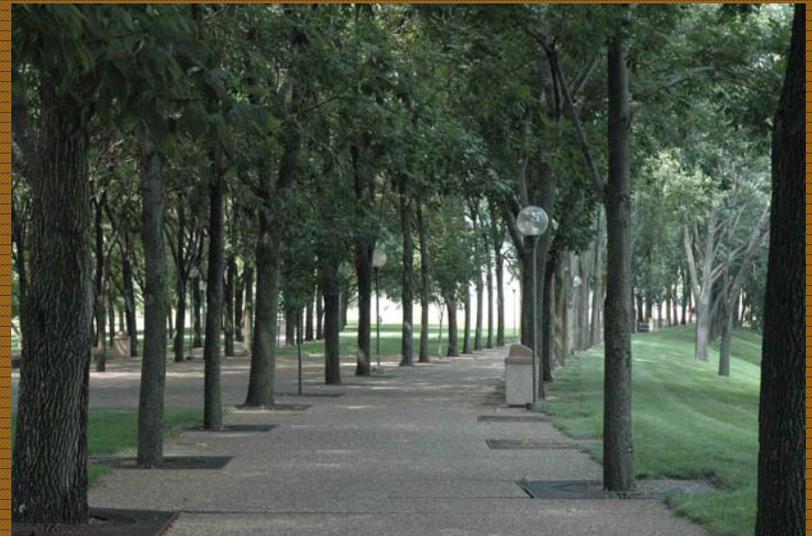
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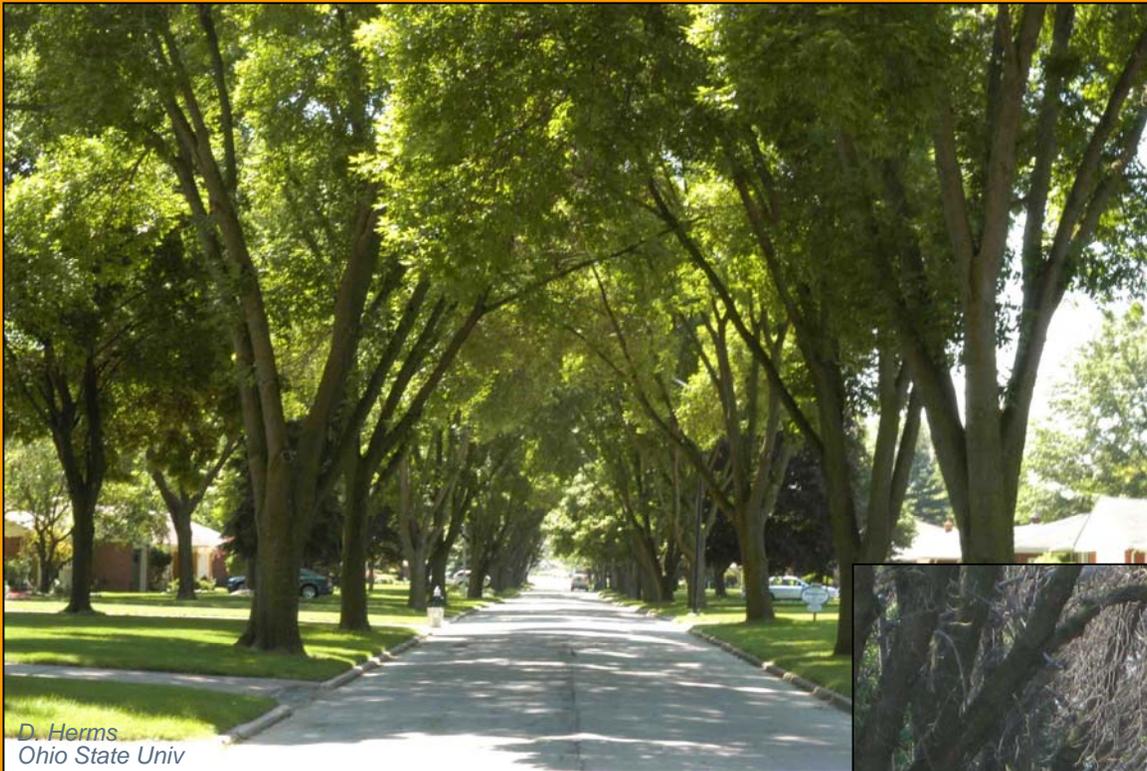
3 years later

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.





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Ohio State Univ

*EAB:
aggressive
tree killer*

Ash-lined street



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Ohio State Univ

3 years later

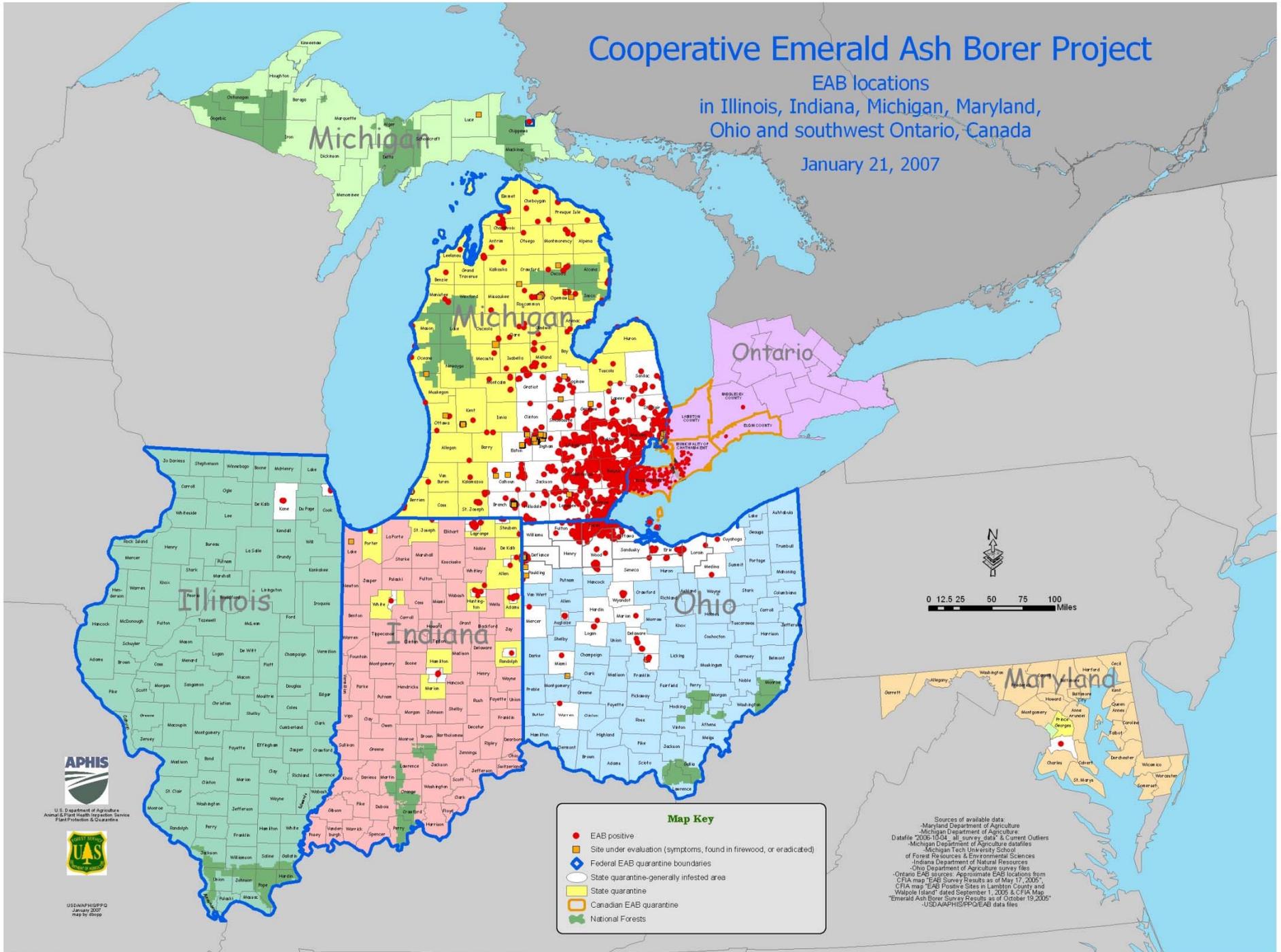
1. *EAB Fast Facts . . .*

- 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



Map Key

- EAB positive
- ◆ Site under evaluation (symptoms, found in firewood, or eradicated)
- ◆ Federal EAB quarantine boundaries
- State quarantine—generally infested area
- State quarantine
- Canadian EAB quarantine
- National Forests

Sources of available data:

- Maryland Department of Agriculture
- Michigan Department of Agriculture
- Datafile 2005-10/04 - all survey data & Current Outliers
- Michigan Department of Agriculture datafiles
- Michigan Tech University School of Forest Resources & Environmental Sciences
- Indiana Department of Natural Resources
- Ohio Department of Agriculture survey files
- Indiana EAB sources: Approximate EAB locations from CFIA map "EAB Survey Results as of May 17, 2005"
- CFIA map "EAB Positive Sites in Lambton County and Walpole Island" dated September 1, 2005 & CFIA Map "Emerald Ash Borer Survey Results as of October 19, 2005"
- USDA/APHIS/IPPQ/EAB data files



U.S. Department of Agriculture
Animal Plant Health Inspection Service
Plant Protection & Quarantine



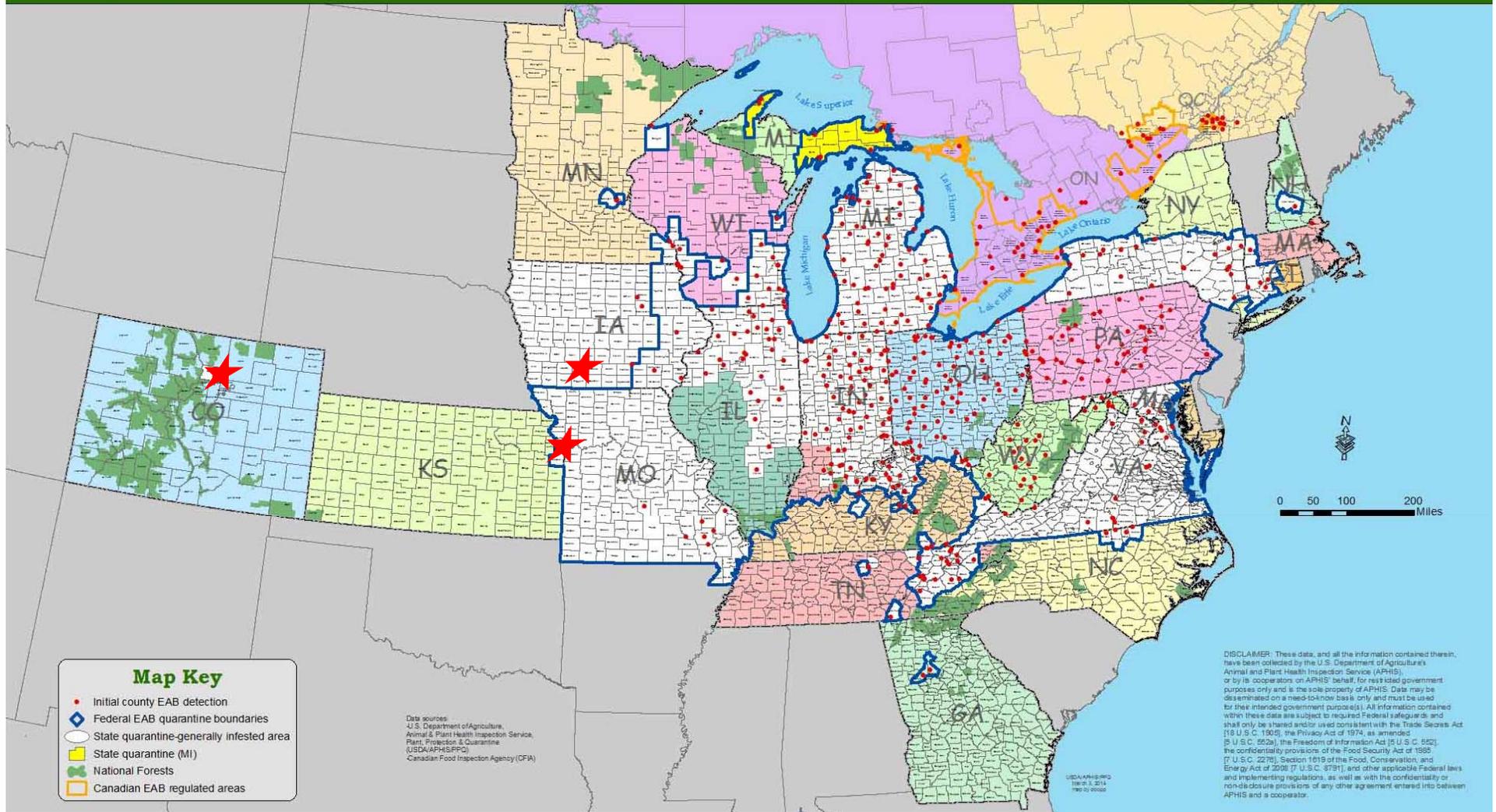
USDA/APHIS/IPPQ
January 2007
Map by SHPP



Cooperative Emerald Ash Borer Project

Initial county EAB detections in North America

March 3, 2014



★ *Boulder, CO*
 ★ *Creston, IA*
 ★ *Kansas City*

The bug:

EAB: IMPACTS and OPPORTUNITIES



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

- creamy white
- tunnels under bark



D. Cappaert
www.forestryimages.org

UGA1460071

Symptoms:

EAB: IMPACTS and OPPORTUNITIES

dieback



epicormic sprouts



zig-zag tunnels



D-shaped exit holes

*EAB:
aggressive
tree killer*



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E

Ash-lined street



D. Herms
Ohio State Univ

3 years later

2. Management Considerations . . .

EAB: IMPACTS and OPPORTUNITIES

- 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 tree

Stages of EAB Management (in Illinois)

EAB: IMPACTS and OPPORTUNITIES

Stage 1 Awareness
(2002 – 2008)



Stage 2 Decision Making
(2008 – 2012)



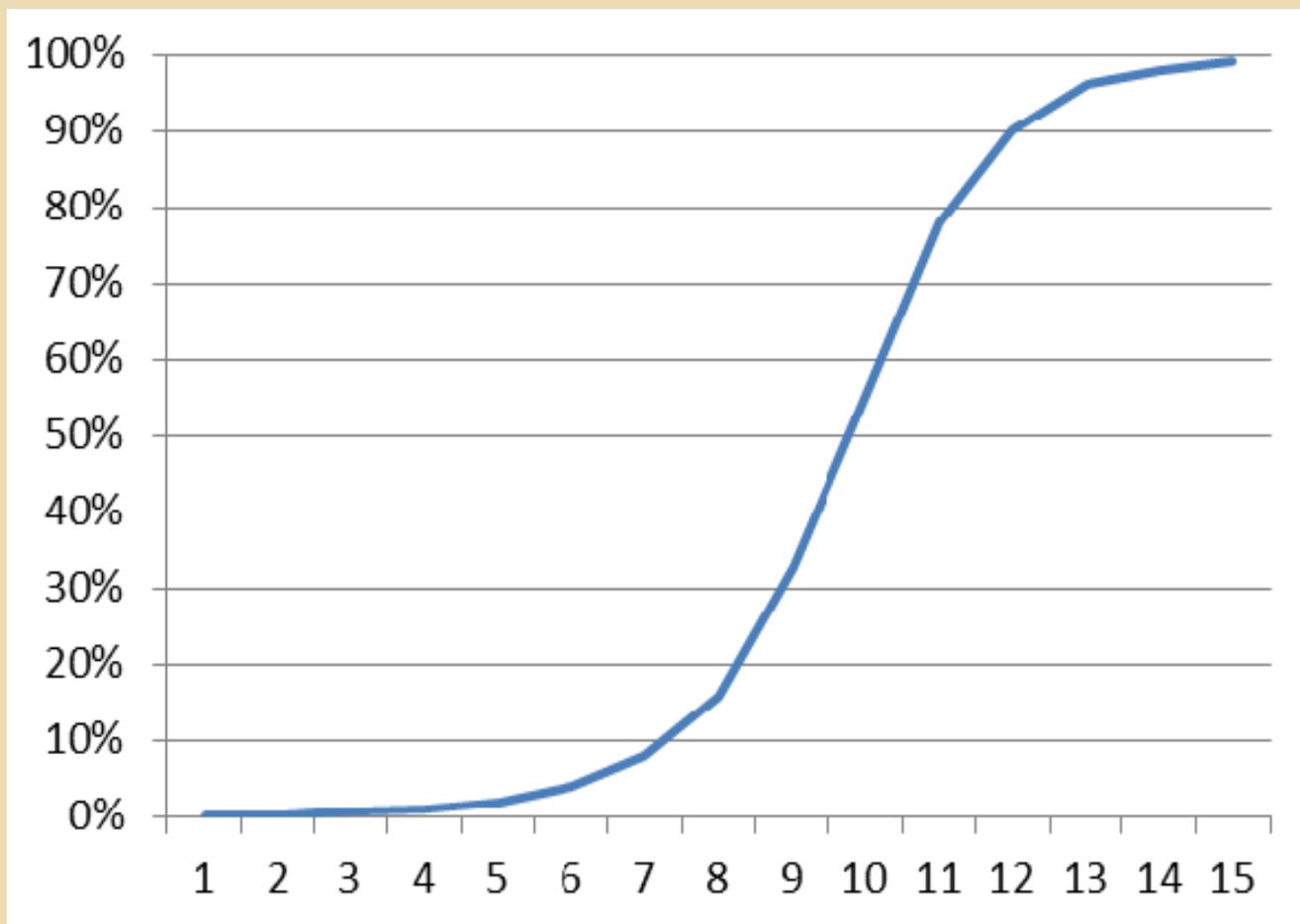
Stage 3 Management
(2012 and on)



Exponential growth

EAB: IMPACTS and OPPORTUNITIES

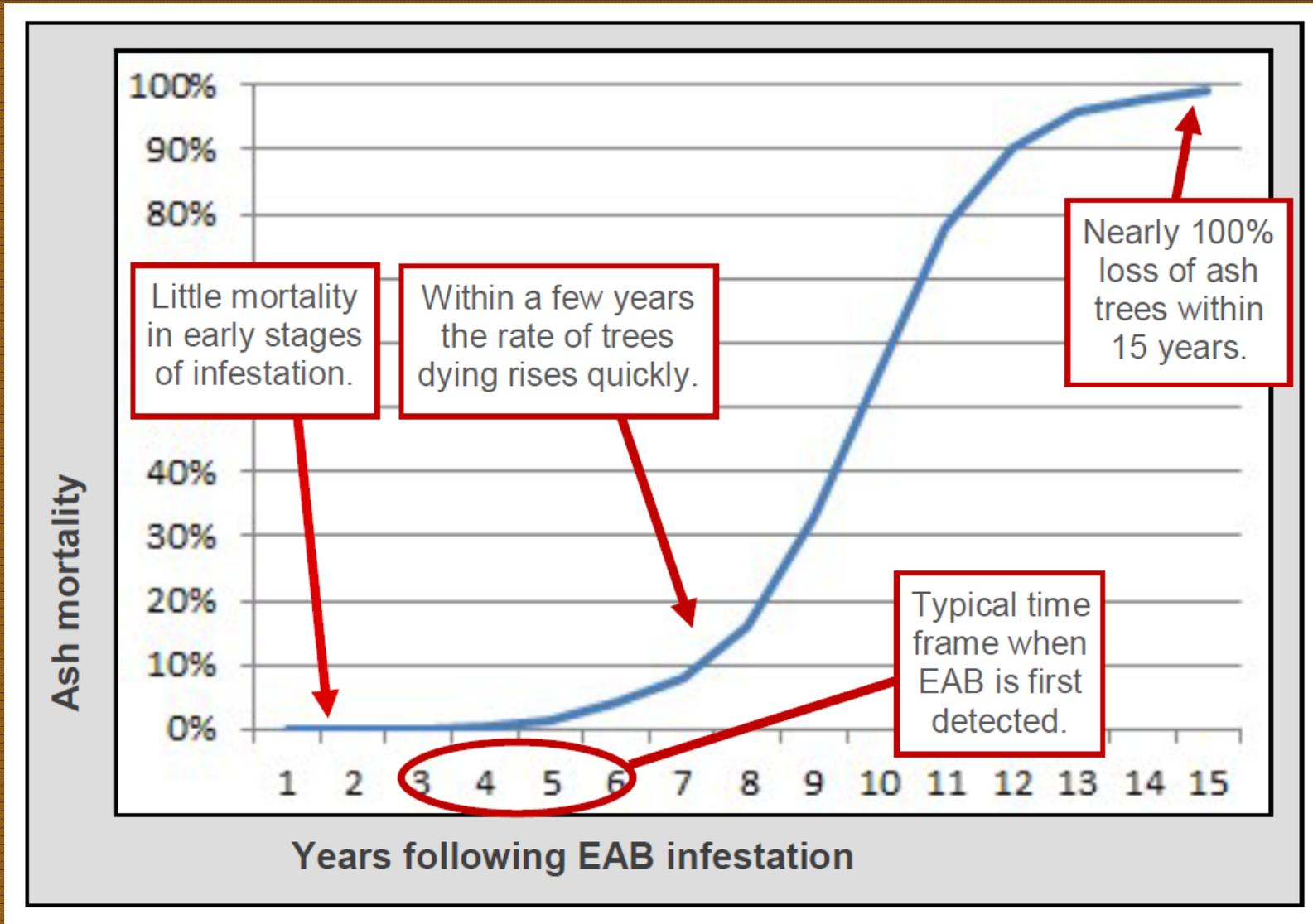
↑
*Ash
Mortality*



Years →

EAB Death Curve

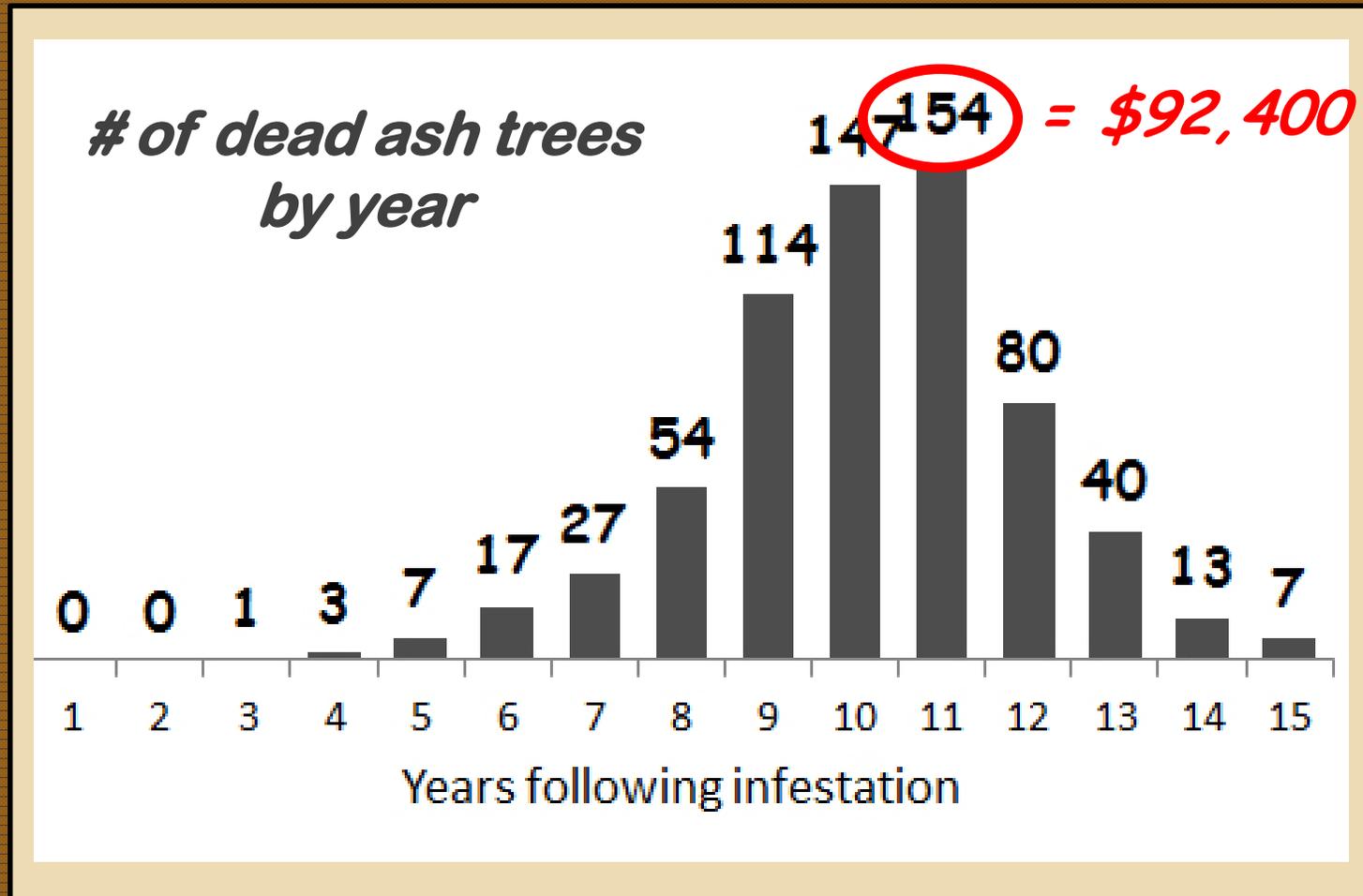
EAB: IMPACTS and OPPORTUNITIES



North Platte

Public Ash Tree Population: **670**

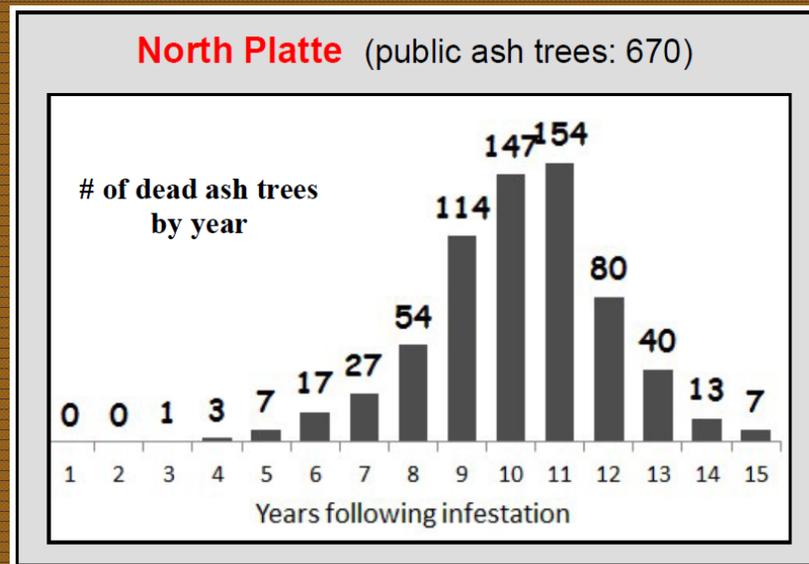
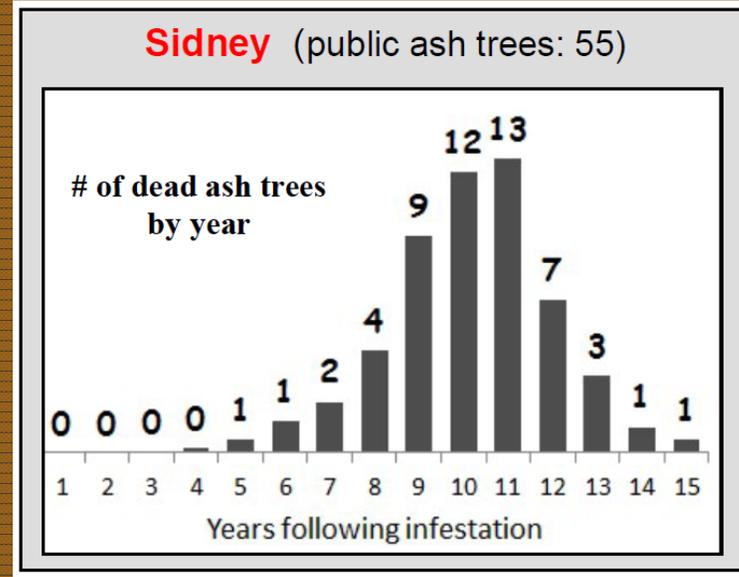
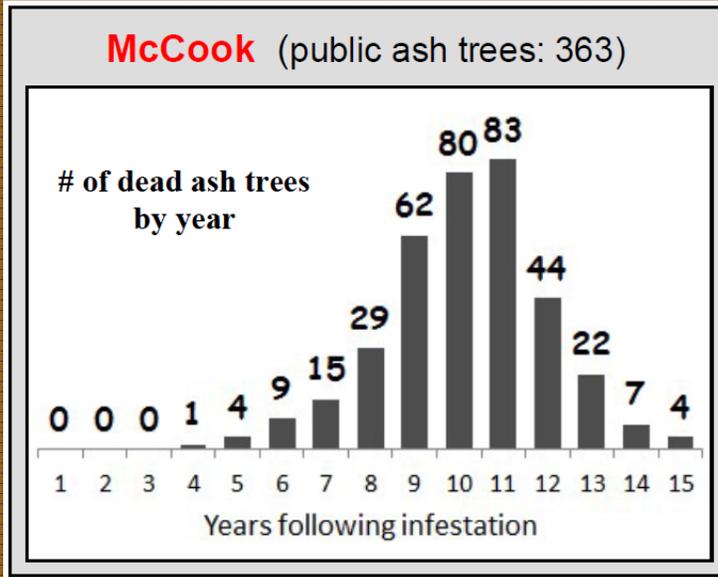
EAB: IMPACTS and OPPORTUNITIES



Cost to remove and replace all ash = \$402,000

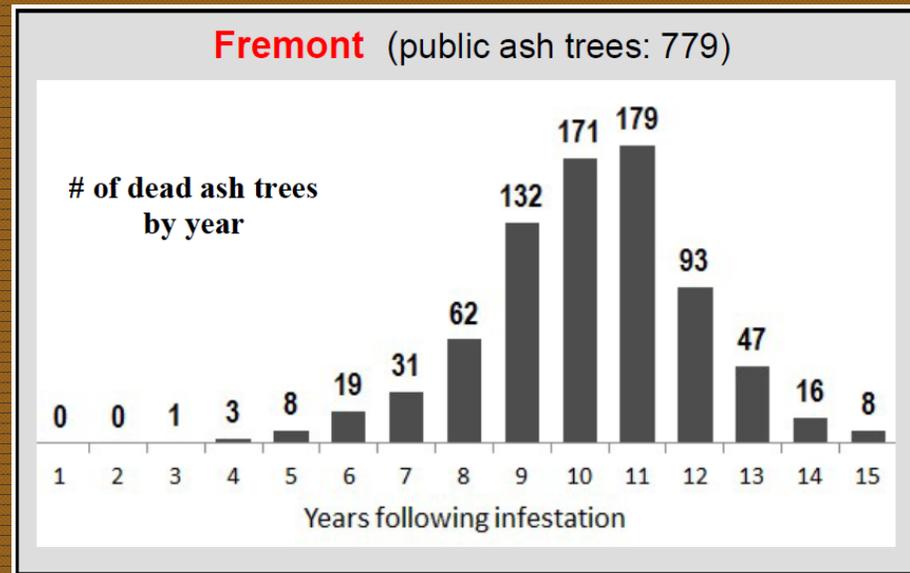
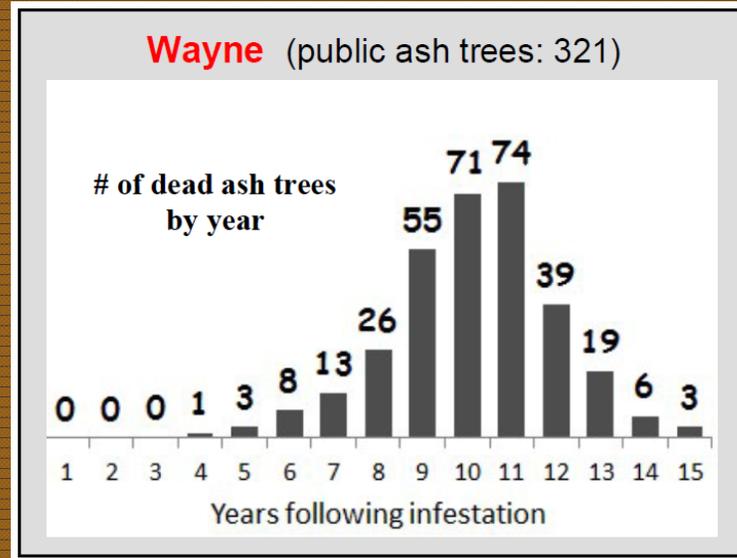
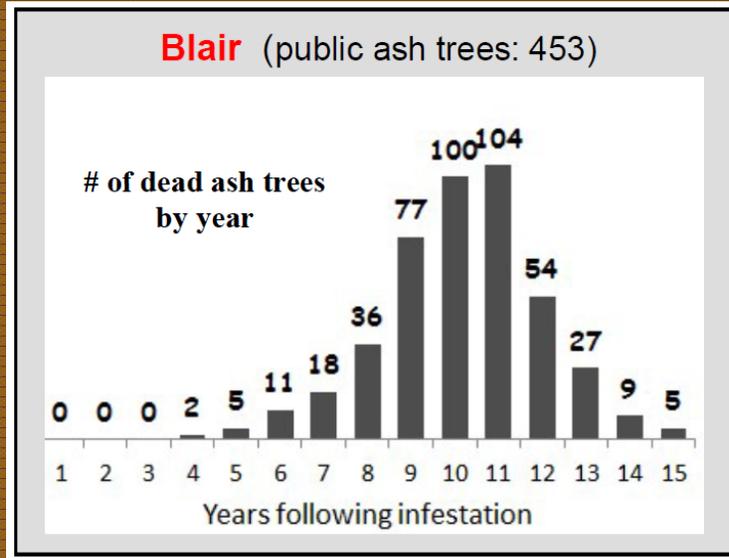
CTAP . . . In the west

EAB: IMPACTS and OPPORTUNITIES



CTAP . . . In the east

EAB: IMPACTS and OPPORTUNITIES



Potential Mortality of Public Ash Trees and Removal & Replacement Costs

(Private ash tree numbers typically several times higher)

Community	Public Ash Trees	Tree Mortality per year during peak years (17-23 % loss)	Removal and Replacement Costs: Annual cost during peak years (\$600/tree)	Total Removal and Replacement Costs of All Public Ash Trees (\$600/tree)
Arlington	95	16 - 22	\$ 9,600 – 13,200	\$ 57,000
Ashland	125	21 - 29	\$ 12,600 – 17,400	\$ 75,000
Auburn	186	32 - 43	\$ 19,200 – 25,800	\$ 111,600
Aurora	298	51 - 69	\$ 30,600 – 41,400	\$ 178,800
Bassett	70	12 - 16	\$ 7,200 – 9,600	\$ 42,000
Battle Creek	124	21 - 29	\$ 12,600 – 17,400	\$ 74,400
Beatrice	150	26 - 35	\$ 15,600 – 21,000	\$ 90,000
Bellevue	171	29 - 39	\$ 17,400 – 23,400	\$ 102,600
Benkelman	8	1 - 2	\$ 600 – 1,200	\$ 4,800
Bennington	112	19 - 26	\$11,400 – 15,600	\$ 67,200
Blair	453	77 - 104	\$ 46,200 – 62,400	\$ 271,800
Blue Hill	67	11 - 15	\$ 6,600 – 9,000	\$ 40,200
Cambridge	67	11 - 15	\$ 6,600 – 9,000	\$ 40,200
Central City	301	51 - 69	\$ 30,600 – 41,400	\$ 180,600
Cook	40	7 - 9	\$ 4,200 – 5,400	\$ 24,000
Cortland	42	7 - 10	\$ 4,200 – 6,000	\$ 25,200
Creighton	134	23 - 31	\$ 13,800 – 18,600	\$ 80,400
Curtis	29	5 - 7	\$ 3,000 – 4,200	\$ 17,400
David City	328	56 - 75	\$ 33,600 – 45,000	\$ 196,800
Fairbury	112	75 - 102	\$ 45,000 – 61,200	\$ 265,200

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

Cost Calculators

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

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.

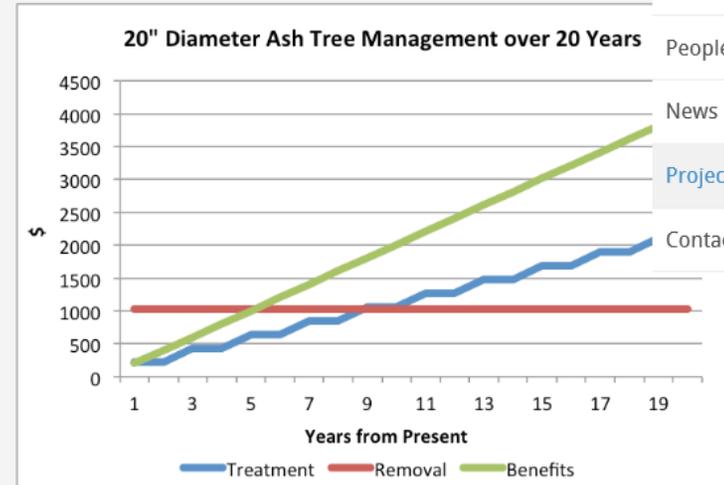
Estimated Removal Cost

\$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

Our Approach

Donate

People

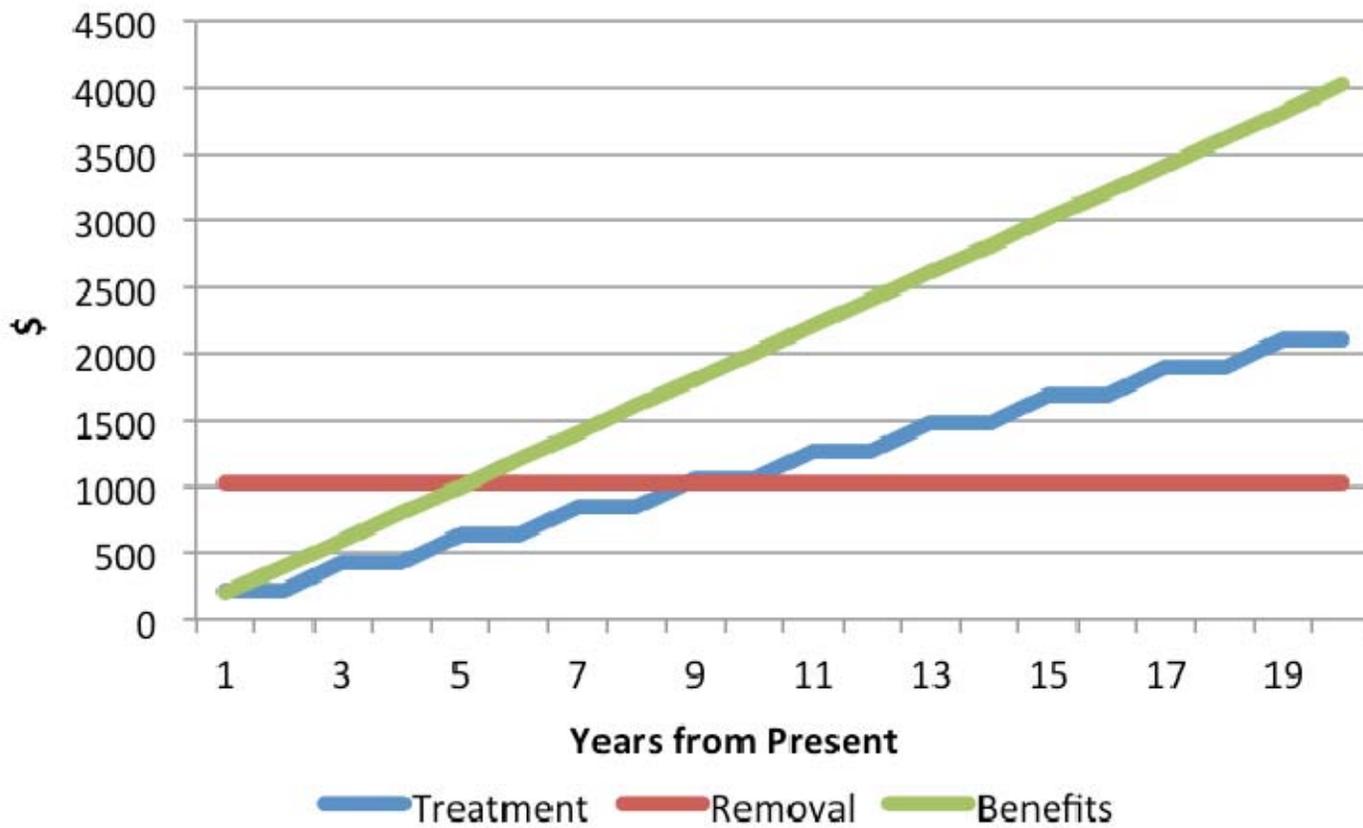
News

Projects

Contact Us



20" Diameter Ash Tree Management over 20 Years



Municipal Response

Discussions:

- Resources (possible aid/partnerships)
- Pre and post-planning
- Plan of action
- Liability
- Reaction to infestation

Municipal Response, cont.

EAB: IMPACTS and OPPORTUNITIES

- 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:

EAB: IMPACTS and OPPORTUNITIES



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



Copyright: Natural Path Urban Forestry, 2007

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

LIABILITY: LINCOLNWOOD, ILLINOIS

EAB: IMPACTS and OPPORTUNITIES



- Repeated requests to have tree removed
- Reluctance of Village to remove trees
- Poor understanding of structural issues
- Tree marked for removal in June
- All removals scheduled for winter
- Interval too long for high-risk trees

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!

EAB: IMPACTS and OPPORTUNITIES



- **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?

EAB: IMPACTS and OPPORTUNITIES



- 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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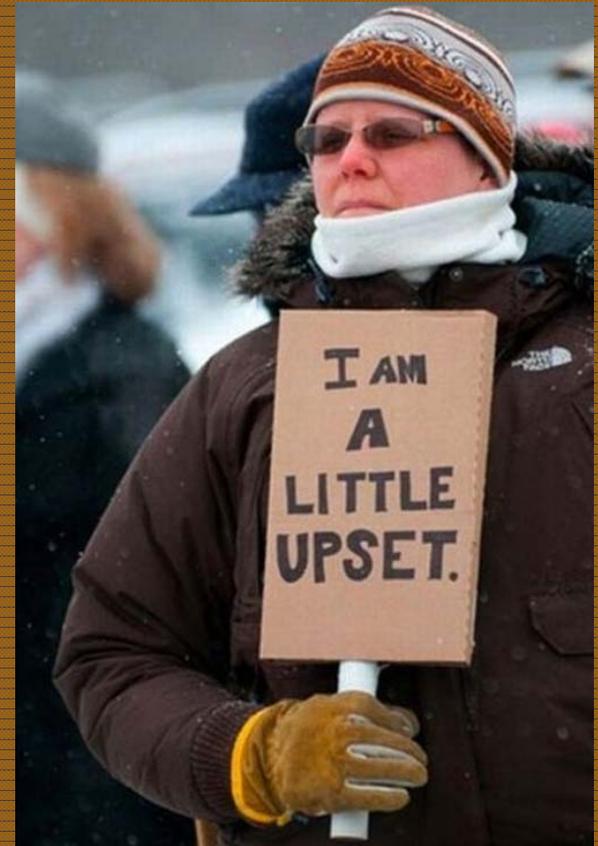
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- proactive planting
- reliance on regionally adapted spp
- waste wood utilization

Summary

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

Nebraska Forest Service

Emerald Ash Borer: Readiness Planning for Nebraska Communities

Is your community ready . . .



Ash-lined street in 2006, Toledo, Ohio.

. . . for this?



Same street three years later—all ash trees dead.

Emerald ash borer (EAB) is a pest of historical significance that will change the face of the landscape in your community. The Nebraska Forest Service can help you prepare!

FH22-2014

UNIVERSITY OF
Nebraska

Additional EAB Publications for Nebraska

EAB: IMPACTS and OPPORTUNITIES

- *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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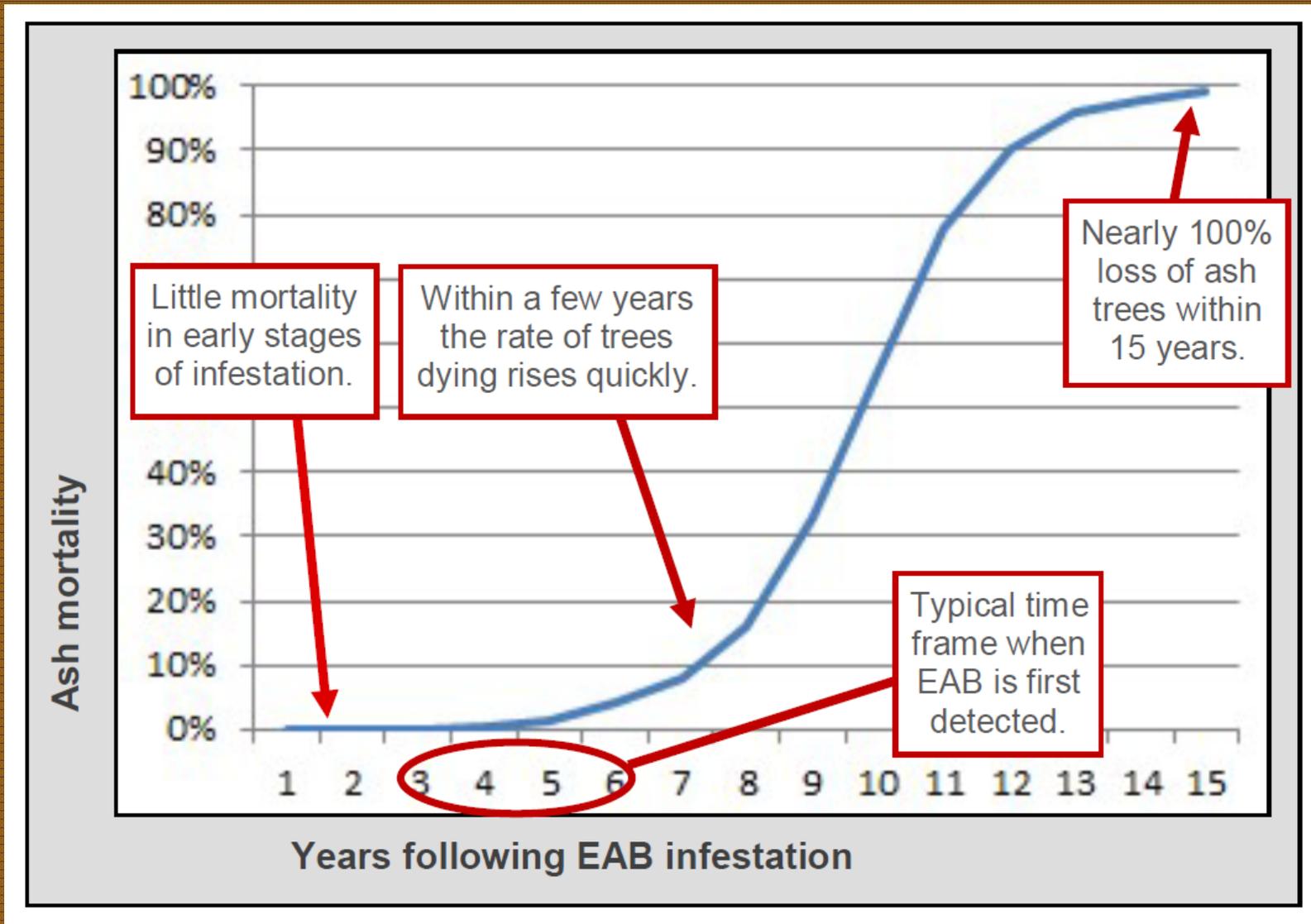
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EAB Death Curve

EAB: IMPACTS and OPPORTUNITIES

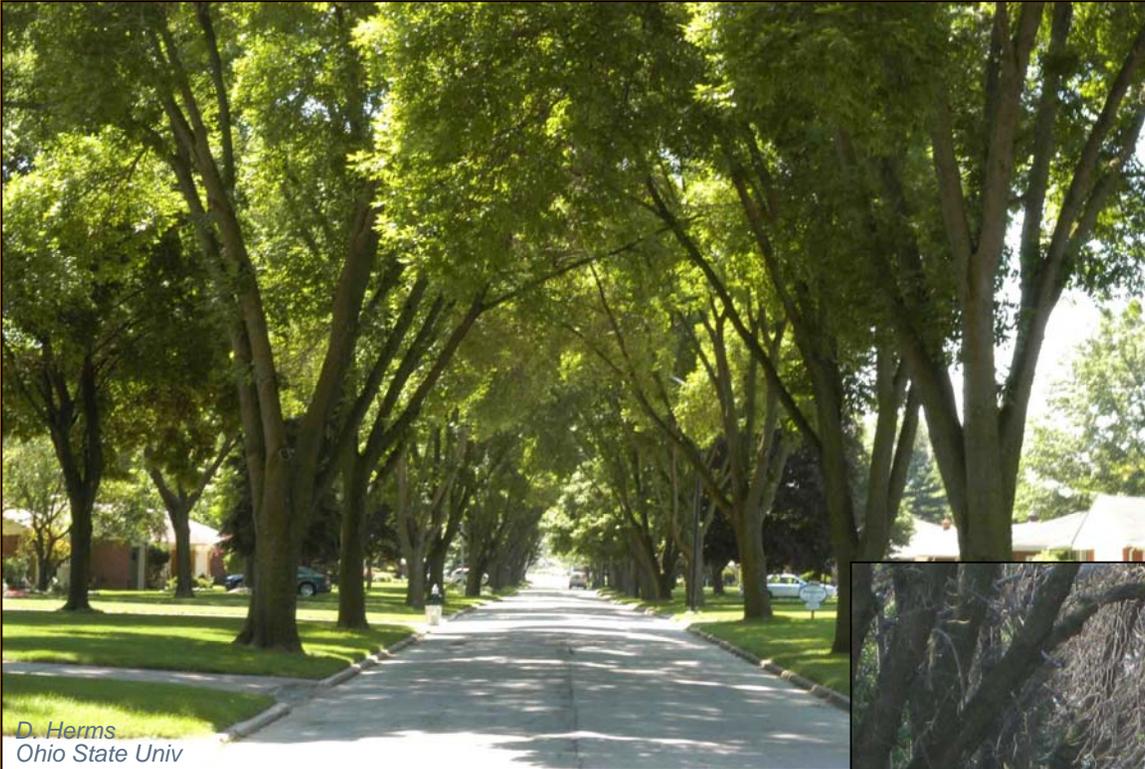


Summary cont . . .

- *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: IMPACTS and OPPORTUNITIES

*EAB:
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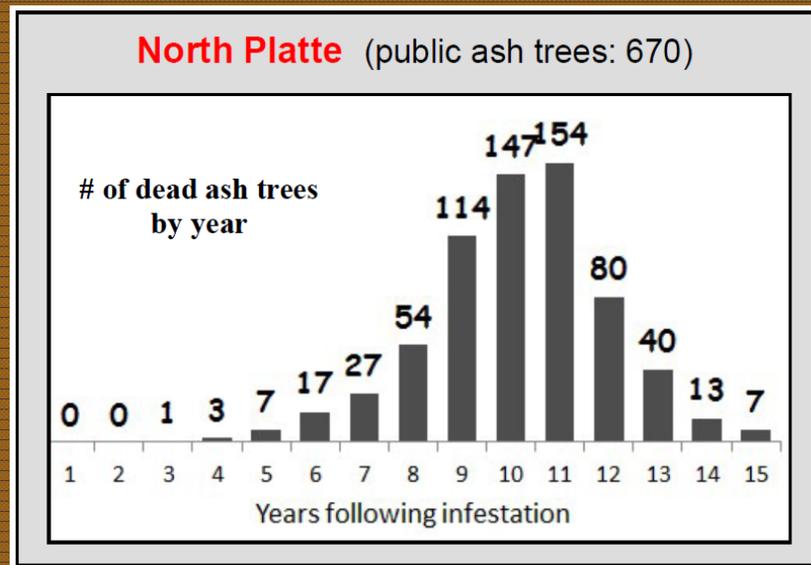
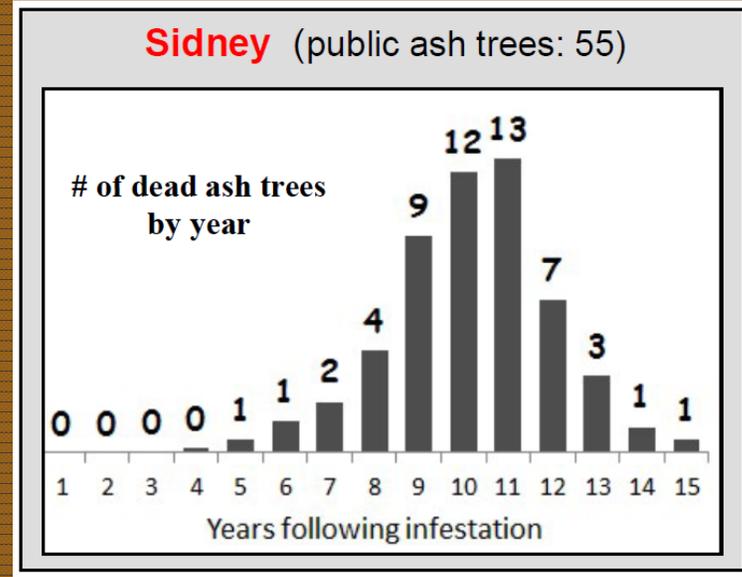
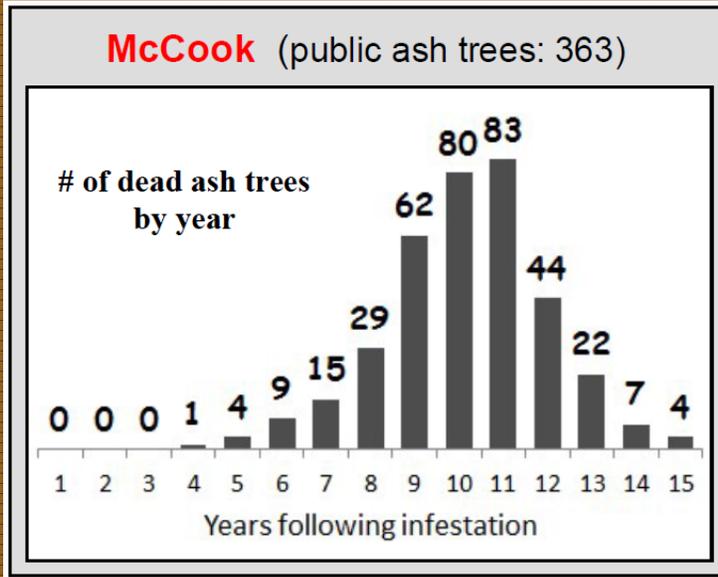


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3 years later

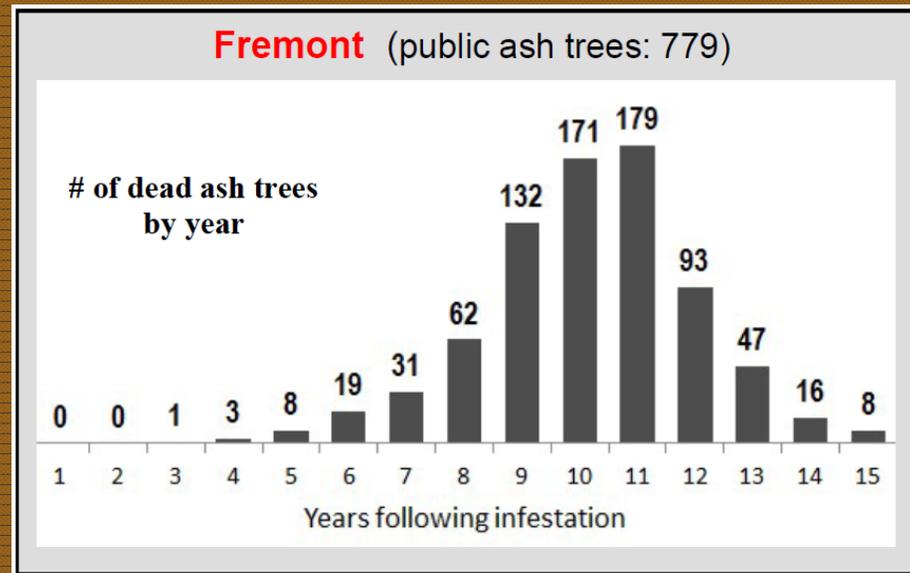
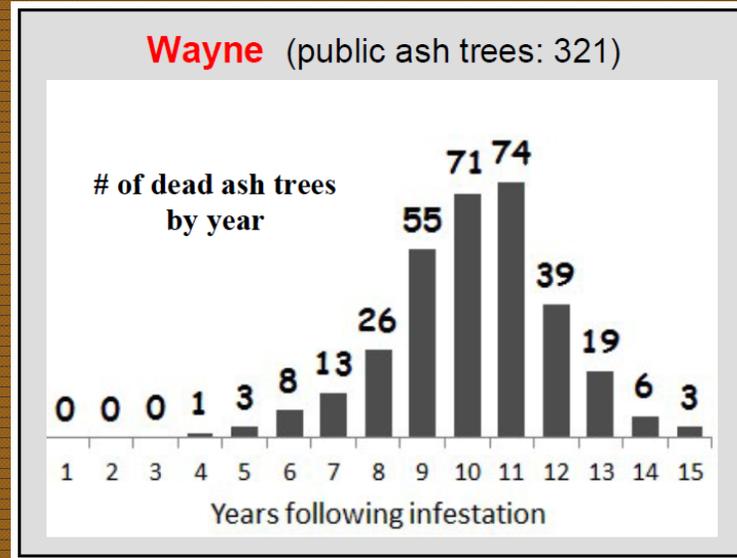
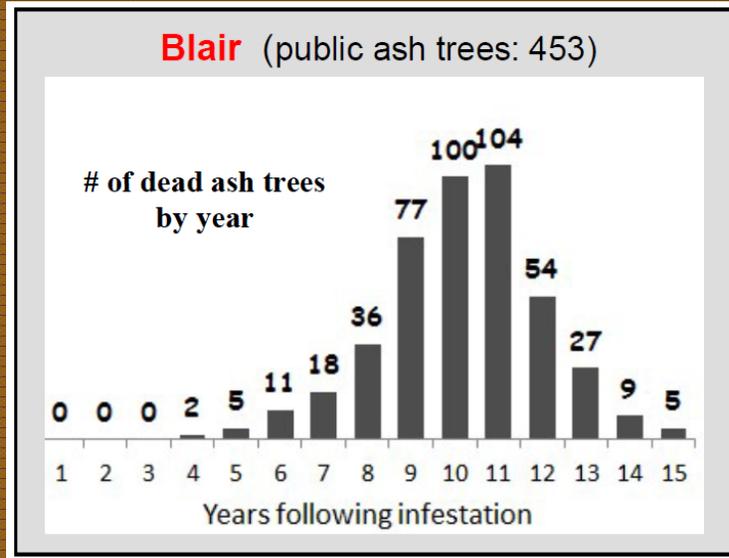
CTAP . . . In the west

EAB: IMPACTS and OPPORTUNITIES



CTAP . . . In the east

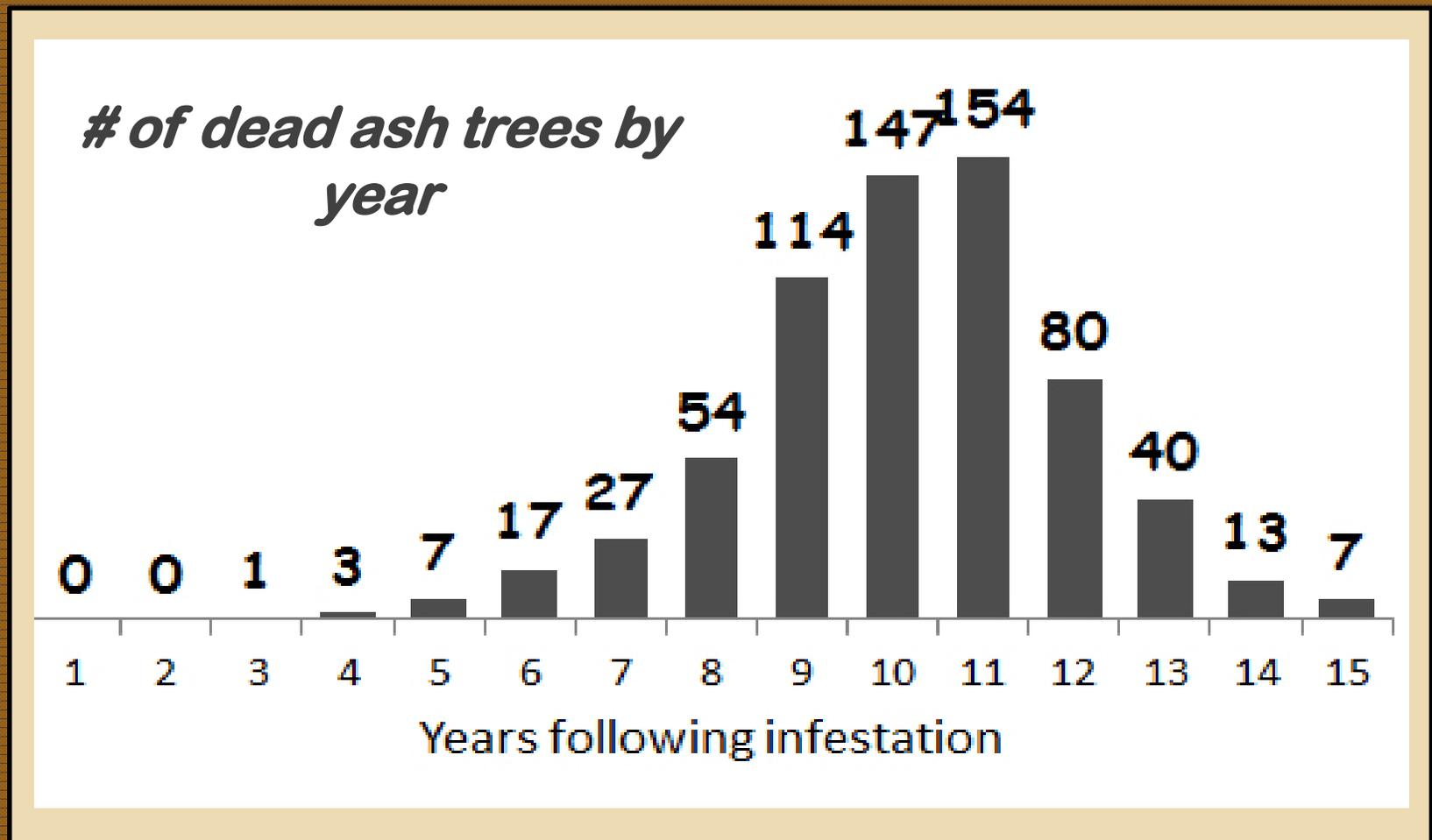
EAB: IMPACTS and OPPORTUNITIES



North Platte

Public Ash Tree Population: 670

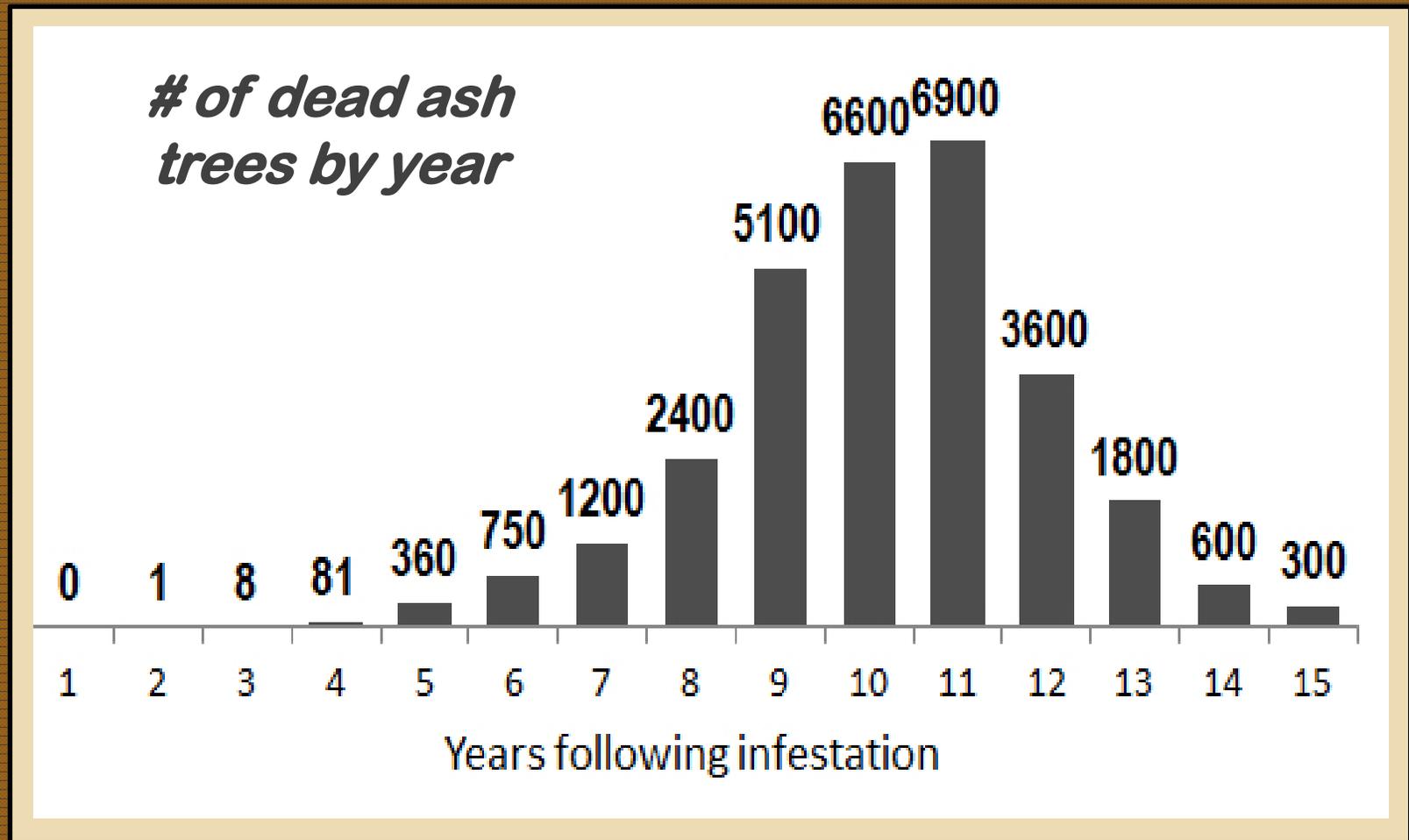
EAB: IMPACTS and OPPORTUNITIES



Lincoln

Public Ash Tree Population: 30,000

EAB: IMPACTS and OPPORTUNITIES



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

Identifying available resources:

EAB: IMPACTS and OPPORTUNITIES



Call upon:

- Extension
- Department of Ag
- State and Federal
- Department of
Natural Resources
- APHIS PPO
- 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:

EAB: IMPACTS and OPPORTUNITIES



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



Copyright: Natural Path Urban Forestry, 2007

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

LIABILITY: LINCOLNWOOD, ILLINOIS

EAB: IMPACTS and OPPORTUNITIES



- Repeated requests to have tree removed
- Reluctance of Village to remove trees
- Poor understanding of structural issues
- Tree marked for removal in June
- All removals scheduled for winter
- Interval too long for high-risk trees

Copyright: Natural Path Urban Forestry, 2007

Pass along the information!

OPPORTUNITIES



- **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

EAB: IMPACTS and OPPORTUNITIES

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

VARIABLES	UNIT	VALUE
Starting Diameter	Mean Size (Inches)	10
Starting Population	Number of Trees	1000
Preemptive Removal	Number of Years	5
Tree Growth Rate	Inches/Year	0.40
Maintenance Cost	\$/Diameter Inch	0.50
Removal Cost	\$/Diameter Inch	31.90
Treatment Cost	\$/Diameter Inch	10
Treatment (Tx) Interval	Years Between Tx	2
Expected Tx Success	Percent	99%
Natural Survival	Percent	98%
Control Survival (EAB)	Percent	80%
Replacement Size	Inches	2
Replacement Cost	Dollars	100
Installation Cost	Dollars	200
Unit Tree Cost	\$/sq. in.	31.83
Species	Percent	70%
Condition	Percent	75%
Location	Percent	70%
Interest Rate + 1	Percent	1.06
Replant Lost Trees?	Yes=1, No=0	0

Richard Hauer and Andrew VanNatta, 2012

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

EAB: IMPACTS and OPPORTUNITIES

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

Diameter Class	Quantity of Ash	Total Inches	Removal Cost (per inch)	Removal Cost by Size Class	
1 - 11"	336	2,659	\$7.50	\$19,443	
12 - 18"	383	5,889	\$7.50	\$44,168	
19 - 24"	466	9,972	\$11.50	\$114,678	
25 - 30"	168	4,443	\$13.50	\$59,981	
31 - 36"	31	1,002	\$17.50	\$17,535	
37 "+	10	415	\$16.50	\$6,848	
Total	1,394	24,380		\$262,653	\$10.77

Treatment Success

EAB: IMPACTS and OPPORTUNITIES

Table 5 -

Condition	Quantity	Expected Treatment Success	Quantity of Expected Treated Success	
Excellent	5	100%	5	
Good	267	100%	267	
Fair	590	50%	295	
Poor	567	0%	0	
Very Poor	150	0%	0	
Dead	19	0%	0	
	1,598		567	35%



Treated trees.

Asking for help

EAB: IMPACTS and OPPORTUNITIES

- **Local**
 - Mutual aid from neighboring municipalities
- **County**
- **State**
- **Federal**
- **Any others?**



Begin training crews ASAP!

EAB: IMPACTS and OPPORTUNITIES



Training

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



Forest replacement:

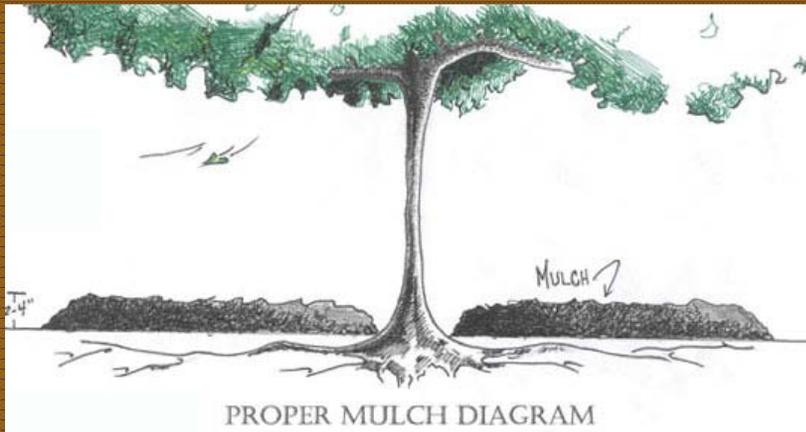
- **Once feasible, Replant!**

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

EAB: IMPACTS and OPPORTUNITIES

Exotic species



David Cappaert
USDA Forest Service, Bugwood.org UGA2106

Aggressive killer



Emerald Tree Care LLC

All native ash susceptible



David Cappaert
USDA Forest Service, Bugwood.org UGA1460071

Easily transported in firewood

Fairbury, NE

- More than 200 ash in park
- Comprises over 40% of the trees

The Ash Trees of Crystal Springs Park

Current Problems:

- ✓ **Structural weakness**
Many trees in the park have decay and insect damage making them prone to breakage.
- ✓ **Drought**
Is killing trees and making them more susceptible to pests.
- ✓ **Over-abundance of ash**
More than 40% of trees in the park are ash.

Future Problem:

- ✓ **Emerald Ash Borer**
This highly aggressive pest will ultimately kill the majority of ash trees in the U.S. Nearly half of the trees in Crystal Springs Park will be lost.

Don't Move Firewood!
Infested firewood is the most common way emerald ash borer is spread long distances.

Fairbury's Strategy:

- ✓ **Inventory trees in park**
Done!
- ✓ **Increase diversity of trees**
Gradually remove affected ash and replace with a variety of trees.
- ✓ **Develop long-term plans**
To budget for the future needs of the park and make it a strong asset to our community.

More Information:
City of Fairbury
Board of Public Works
402-729-3030

Developed in cooperation with the City of Fairbury and the Nebraska Forest Service

An Analysis of EAB Management in the Chicago Metro Area

Great Trees on a Great Lake

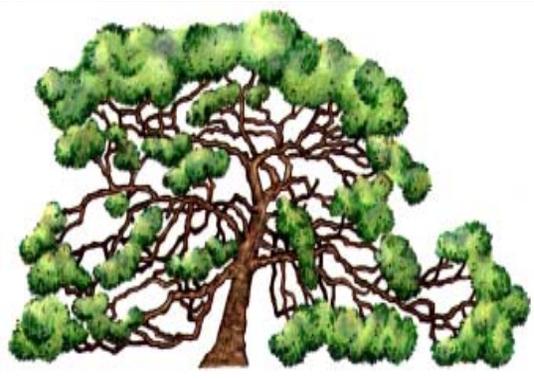
ISA Annual International Conference
and Trade Show

Madison, Wisconsin

2014

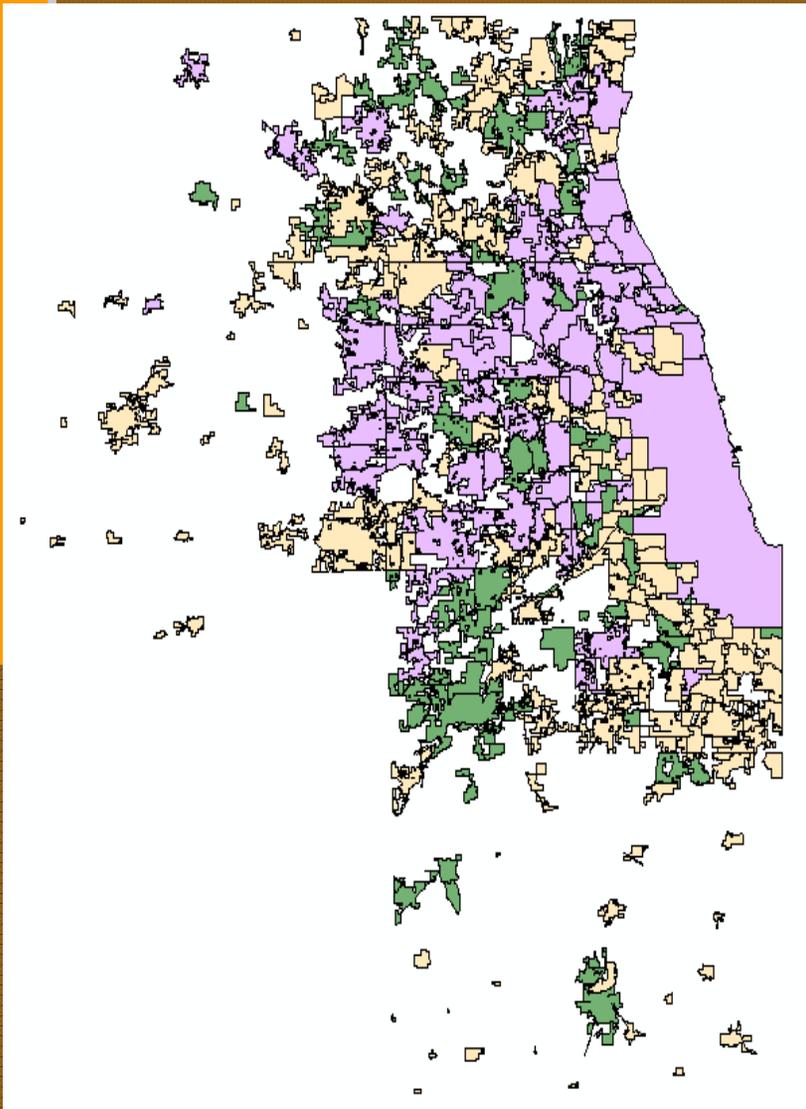
Mark Dantemann

Natural Path Urban Forestry Consultants



Project Area

EAB: IMPACTS and OPPORTUNITIES



**Table 1 -
Chicago Metro
Area
Communities**

County	Communities
Cook	135
DeKalb	14
DuPage	39
Kane	27
Kankakee	19
Lake	61
McHenry	32
Total	414



Ash Distributions

EAB: IMPACTS and OPPORTUNITIES

Great Trees of
ISA Annual In
and Trade Sho
Milwaukee, Wi
August 4, 201

Mark Duntem
Natural Path U
Consultants

Table 2 - Ash Distribution for Select Communities

Communit y	Tree Popula tion	Ash Popula tion	Percent Ash
Barrington	7,360	1,454	19.8%
Berwyn	12,981	1,598	12.3%
Des Plaines	25,000	3,600	14.4%
Glencoe	12,429	1,603	12.3%
Momence	1,296	188	14.5%
Mount Prospect	25,088	4,200	16.7%
Naperville	60,000	17,300	28.8%
Niles	7,459	379	5.1%
Oak Park	18,400	2,400	13.0%
Steward	213	34	16.0%



Decision to Treat by Median Income

EAB: IMPACTS and OPPORTUNITIES

	Chemical Treatment		
	Yes	No	
Forestry Manager on Staff			
Yes	9	5	
No	0	15	

\$200,000
 \$180,000
 \$160,000
 \$140,000
 \$120,000
 \$100,000
 \$80,000
 \$60,000
 \$40,000
 \$20,000
 \$0

NO
YES

Treatment



Treatment Success

EAD. IMPACTS AND OPPORTUNITIES



*To be successful,
the trees being
treated must be
at least in good
or better
condition*



Treatment Success

EAB: IMPACTS and OPPORTUNITIES

Based on the plan

-
-
-



Tree and Large on a specific

maintained

issue

Guide, quality as



Treatment tag.

The trees also have to be ash. Treated callerya pear.



Species Value

EAB: IMPACTS and OPPORTUNITIES

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**
EAB/PLANS 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.
- **Not available in nurseries**



Cost/Benefit Analysis (EABPLANS) – Oak Park

OPPORTUNITIES

Management Alternatives	Retained Tree Analysis		Lost Tree Analysis		Benefit/Cost
	Mean Net Value	Relative Ratio	Mean Net Value	Relative Ratio	
Control	● \$359,944	● 1.00	● \$67,744	● 1.00	● 0.37
Treatment	● \$325,211	● 0.90	● \$72,208	● 0.94	○ 0.22
Preemptive Removal	● \$239,630	● 0.67	● \$60,786	● 1.11	● 0.40
Remove & Replant	○ \$194,569	○ 0.54	○ \$76,816	○ 0.88	○ 0.21
No EAB	\$705,713	1.96	\$22,239	3.05	0.64

Richard Hauer and Andrew VanNatta, 2012

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

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

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

EAB: IMPACTS and OPPORTUNITIES

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.



Opportunities – Species Diversity

EAB: IMPACTS and OPPORTUNITIES

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.*



Observations - Lost Opportunities

EAD. IMPACTS and OPPORTUNITIES

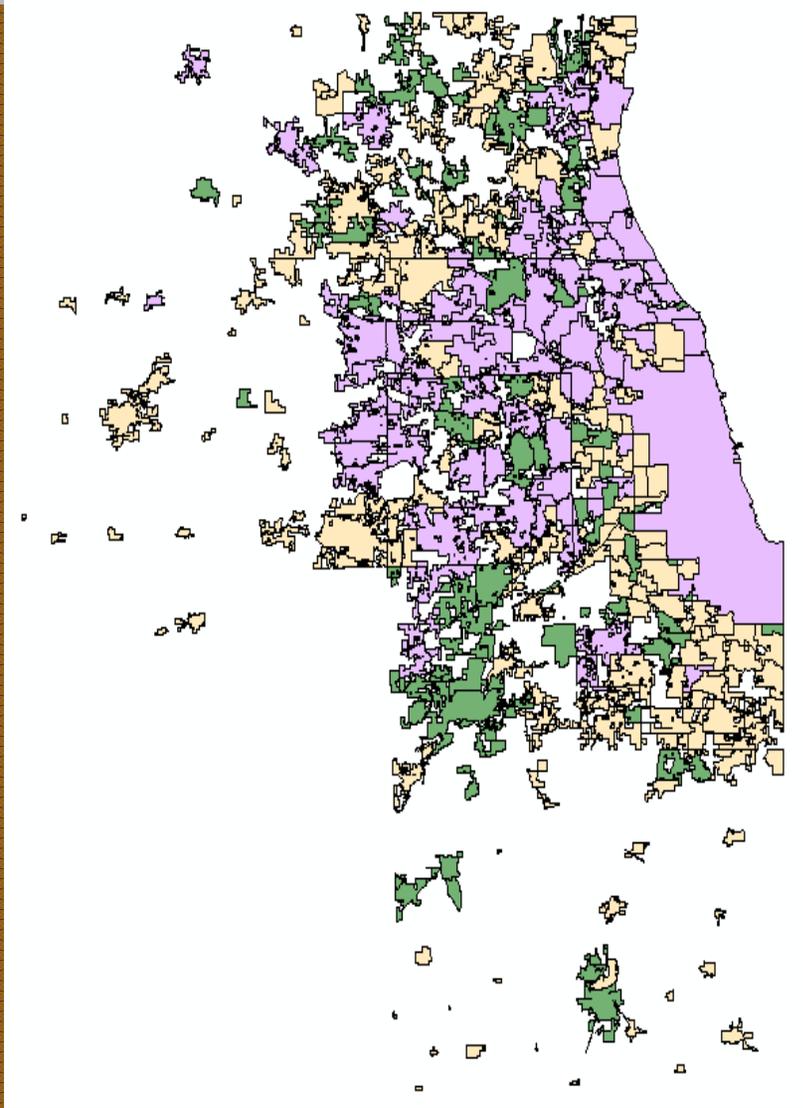
Wood
Utilization



Observations – Lost Opportunities

EAB: IMPACTS and OPPORTUNITIES

Under-
served
Commu-
nities



Observations

EAB: IMPACTS and OPPORTUNITIES

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.



Observations - Chemical Treatments

EAB: IMPACTS and OPPORTUNITIES

Target a sustainable quantity of the ash population to treat. It must meet long-term urban forestry goals.

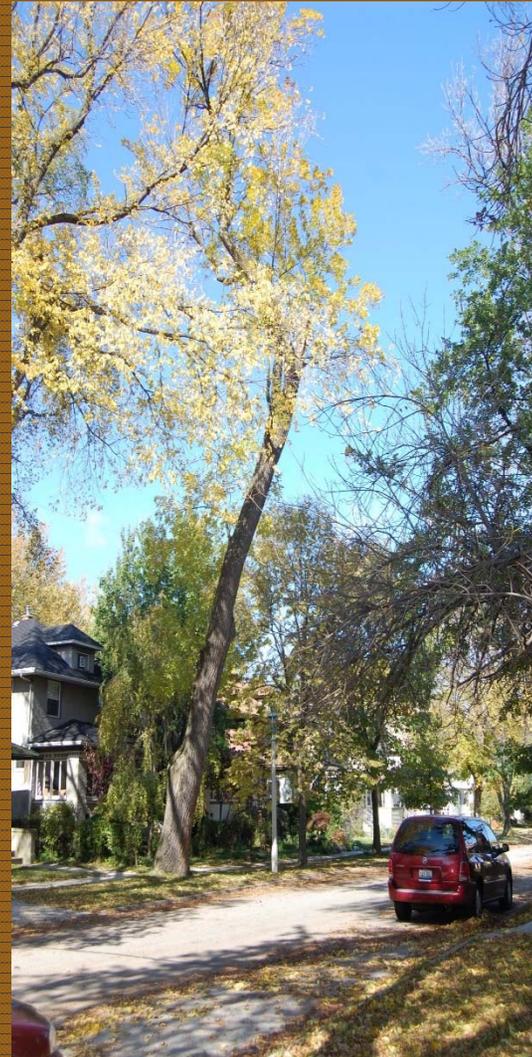
2. Involve the Forestry Manager in the dialogue.



Observations - Chemical Treatments

EAB: IMPACTS and OPPORTUNITIES

4. 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

EAB: IMPACTS and OPPORTUNITIES

THANK YOU

EAB: IMPACTS and OPPORTUNITIES

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



Photo courtesy Dan Herms, OSU

Good and Bad.

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

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.

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

EAB: IMPACTS and OPPORTUNITIES



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.

