TIME TO EXPLORE
Cleveland Metroparks

Long Term Recovery Lessons from Ohio: Restoration Intervention vs. Natural Selection

Constance Hausman

Plant and Restoration Ecologist

Cleveland Metroparks

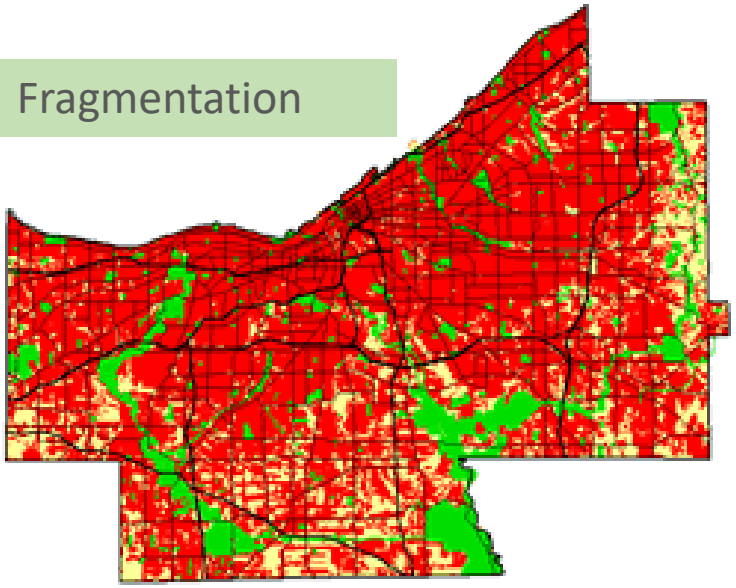
Original design plans

102 years
18 Reservations
~24,000 acres

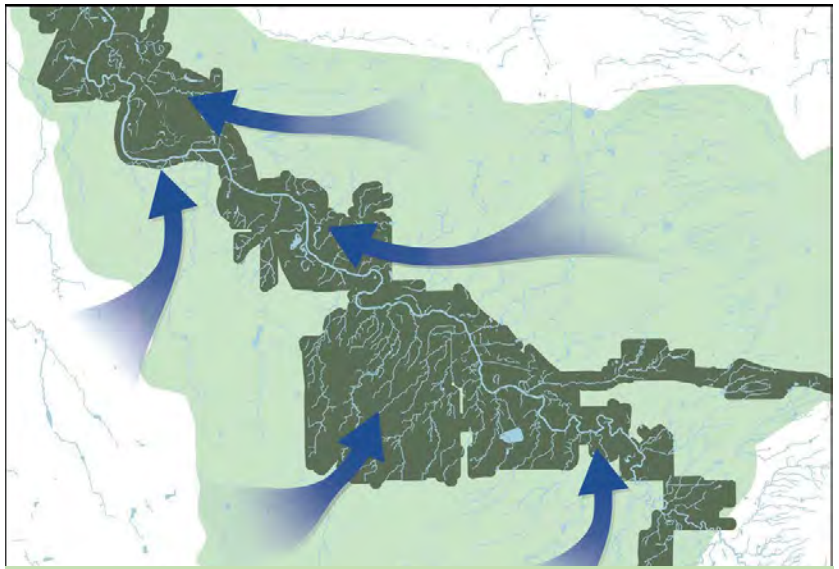
Stressors

Invasive species

Fragmentation



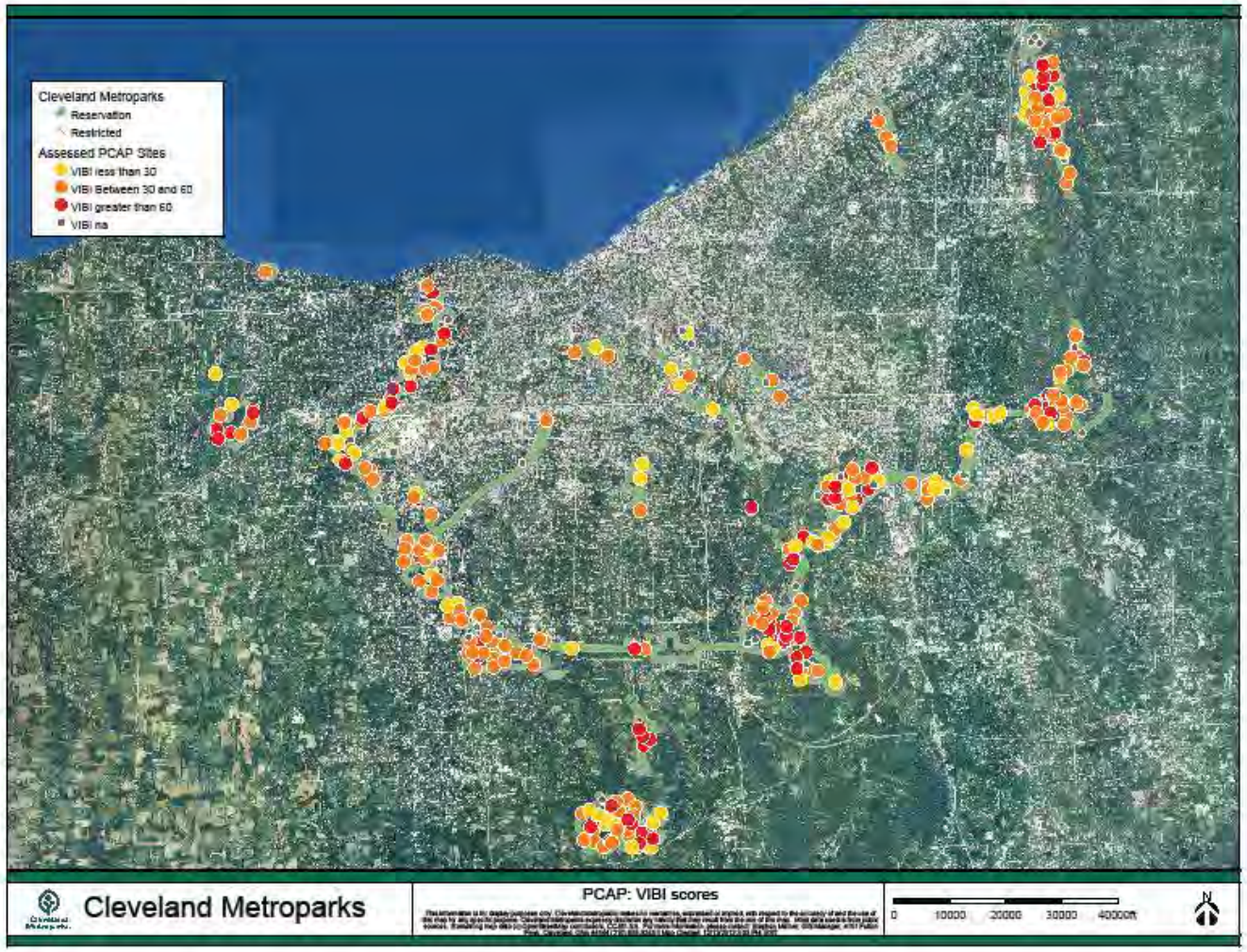
New pests / pathogens



Stormwater

Urban wildlife

Restoration Intervention: determined by data



- Plant Community Assessment Program

- 405 total vegetation plots
  - 2010 (2015)
  - 2011 (2016)
  - 2012 (2017)
  - 2013 (2018)

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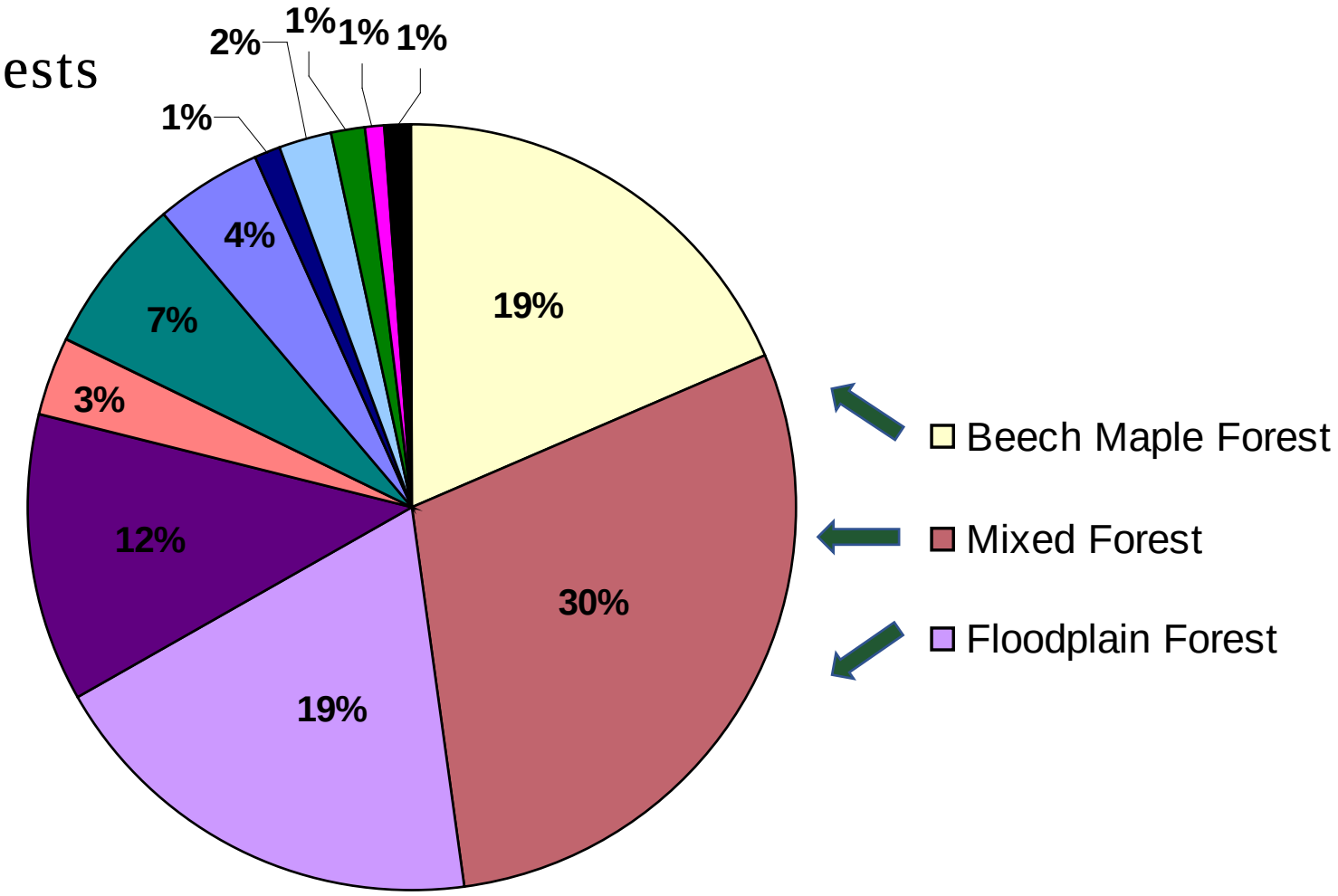
Forests

77% of our acreage covered by forests



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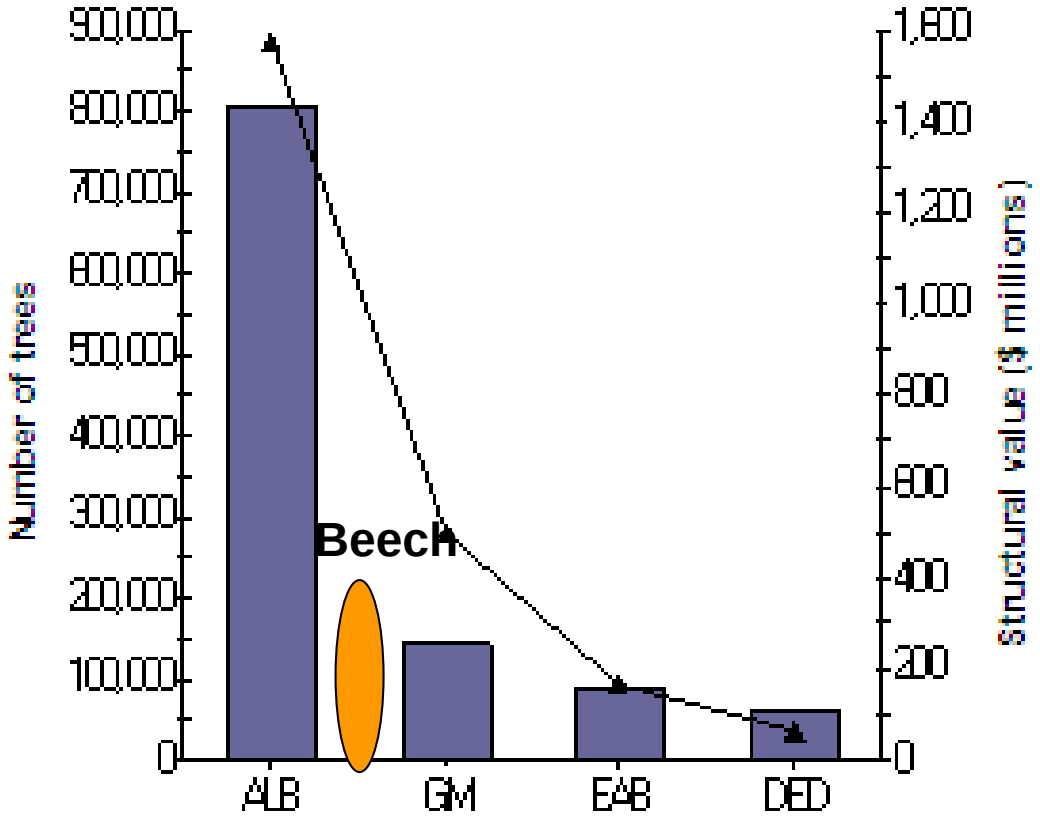
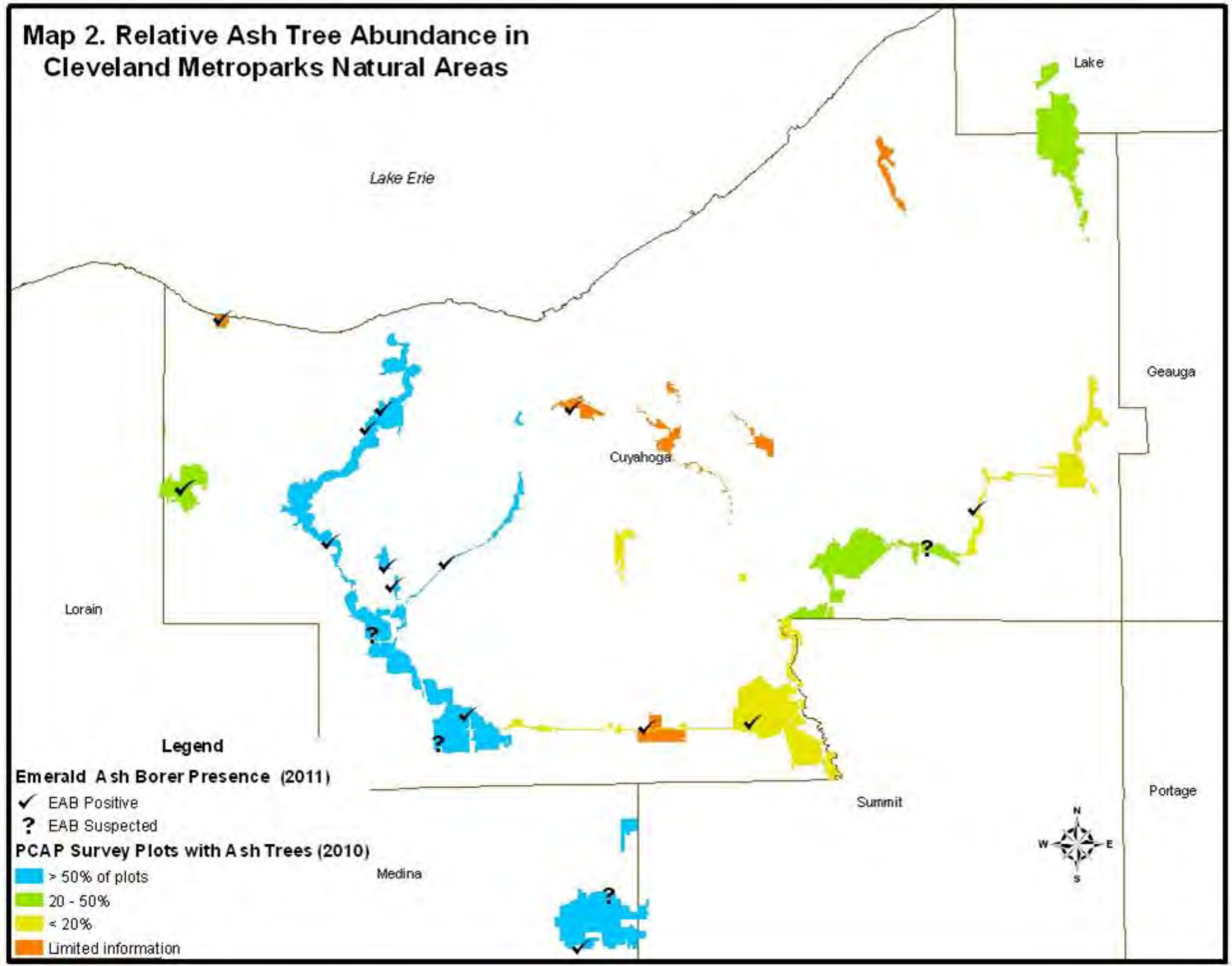
Forest and Tree Threats (iTree)



Percent Population	Percent Leaf area
• 38 % Maple species	28 %
• 8 % Oak species	6 %
• 7 % American Beech	21 %
• 7 % Ash species	6 %
• 4 % Tulip tree	8 %

ALB –Asian longhorned beetle (**maples**, willows, elm)
GM – Gypsy moth (oaks, poplars, willows, beech)
EAB – Emerald ash borer (all ashes)
DED – Dutch elm disease (American elm)



Spatial distribution of ash

Department of Planning Design and Natural Resources
Division of Natural Resources

Mapping Ash in High Public Use Areas – A Citizen Science Approach

Cleveland Metroparks Technical Report 2012/NR-

Bruce G. Rinker, Daniel T. Moore, Debra K. Berry
Board of Park Commissioners

Brian M. Zimmerman
Executive Director-Secretary

Cleveland Metroparks 4101 Fulton Parkway, Cleveland, Ohio 44114

1) Size of ash trees (3 DBH categories)

Ruler: 4-12”

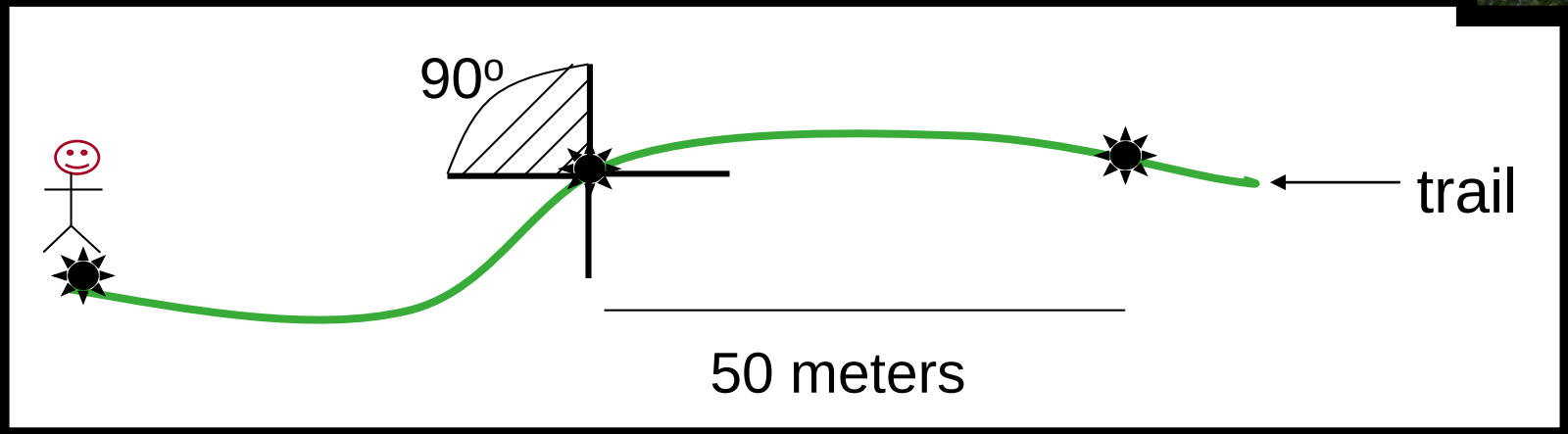
Hugger: 13-20”

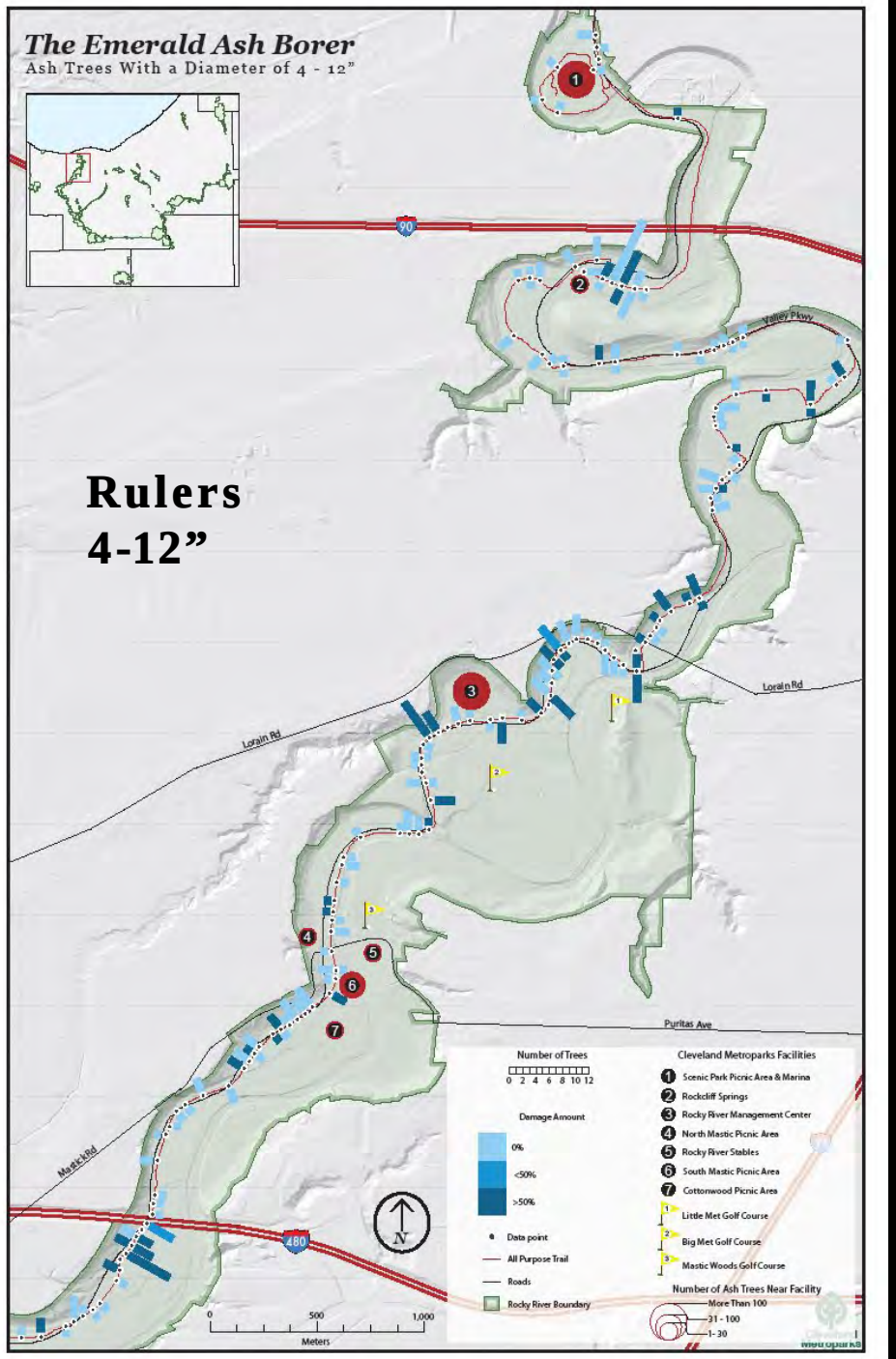
Tower: >20”

2) # of ash trees

3) Damage/EAB activity

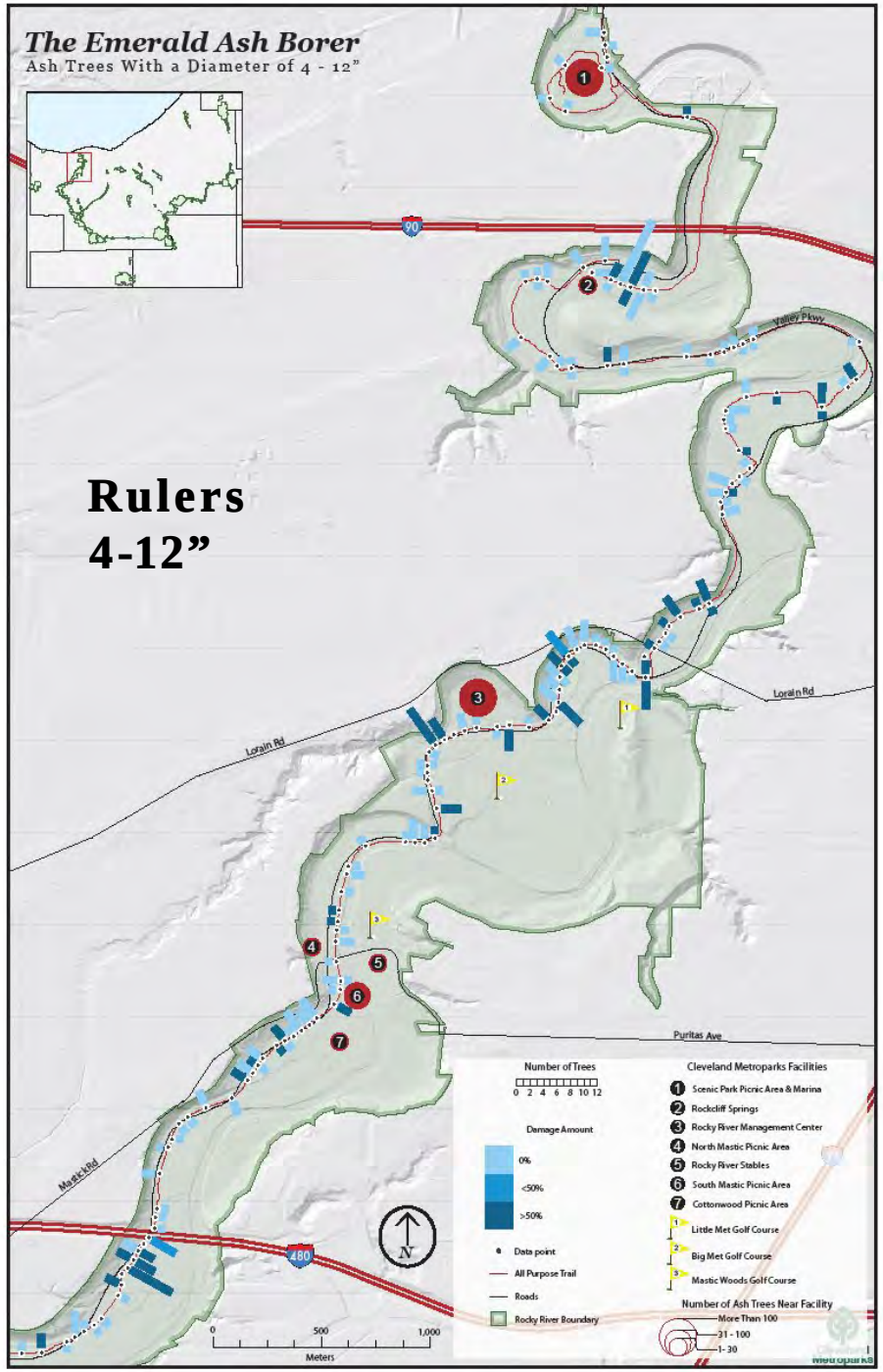
Woodpecker Damage

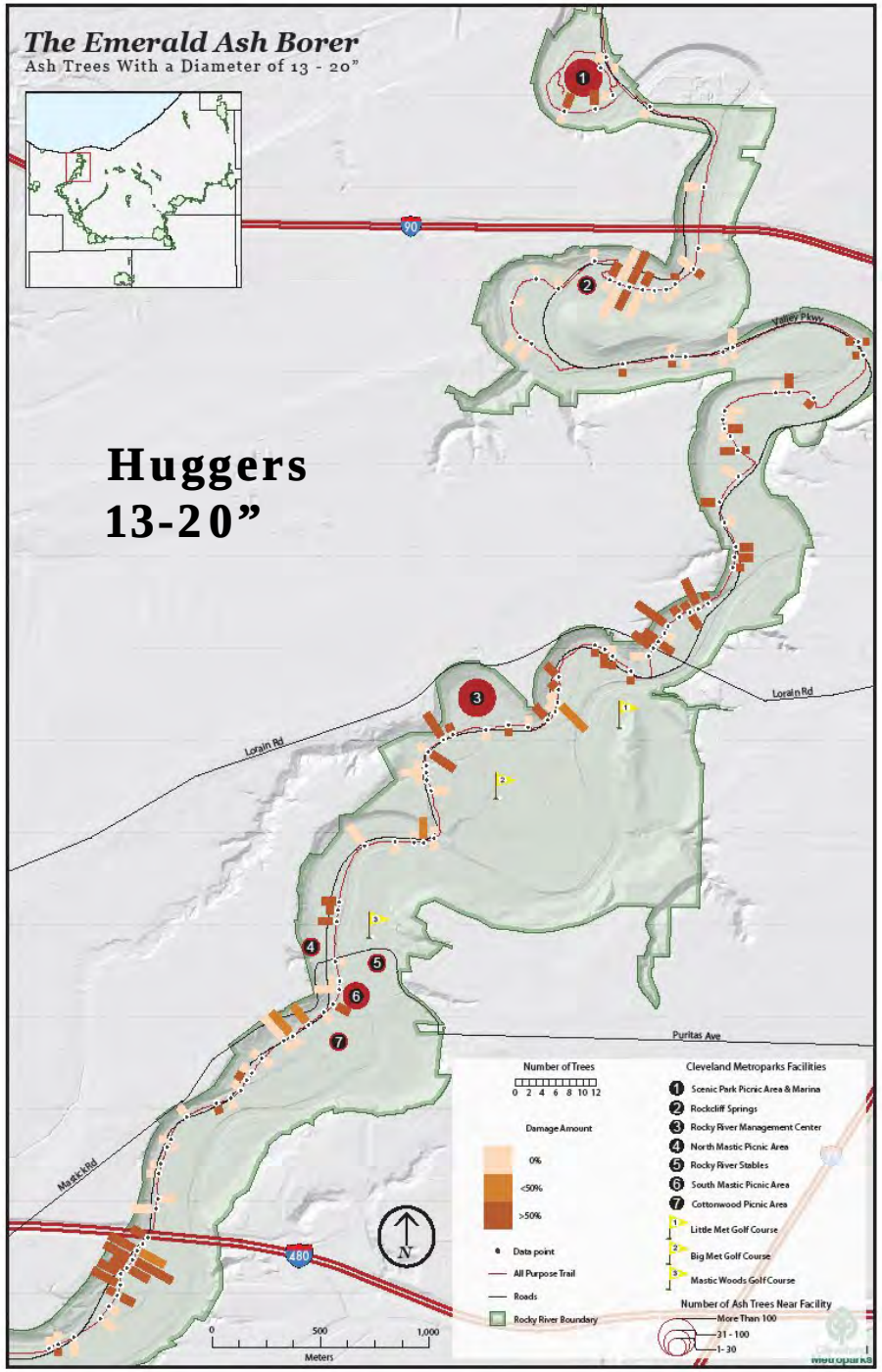




Bar length = # trees

Bar color = damage
(light, med, dark)


The Emerald Ash Borer
Ash Trees With a Diameter of 4 - 12”
Rulers
4-12”
Valley Pkwy
Lorain Rd
Lorain Rd
Puritas Ave
Mastic Rd
480
90
Number of Trees
0 2 4 6 8 10 12
Damage Amount
0%
<50%
>50%
Data point
All Purpose Trail
Roads
Rocky River Boundary
Cleveland Metroparks Facilities
1 Scenic Park Picnic Area & Marina
2 Rockcliff Springs
3 Rocky River Management Center
4 North Mastic Picnic Area
5 Rocky River Stables
6 South Mastic Picnic Area
7 Cottonwood Picnic Area
1 Little Met Golf Course
2 Big Met Golf Course
3 Mastic Woods Golf Course
Number of Ash Trees Near Facility
More Than 100
31 - 100
1- 30
0 500 1,000
Meters
N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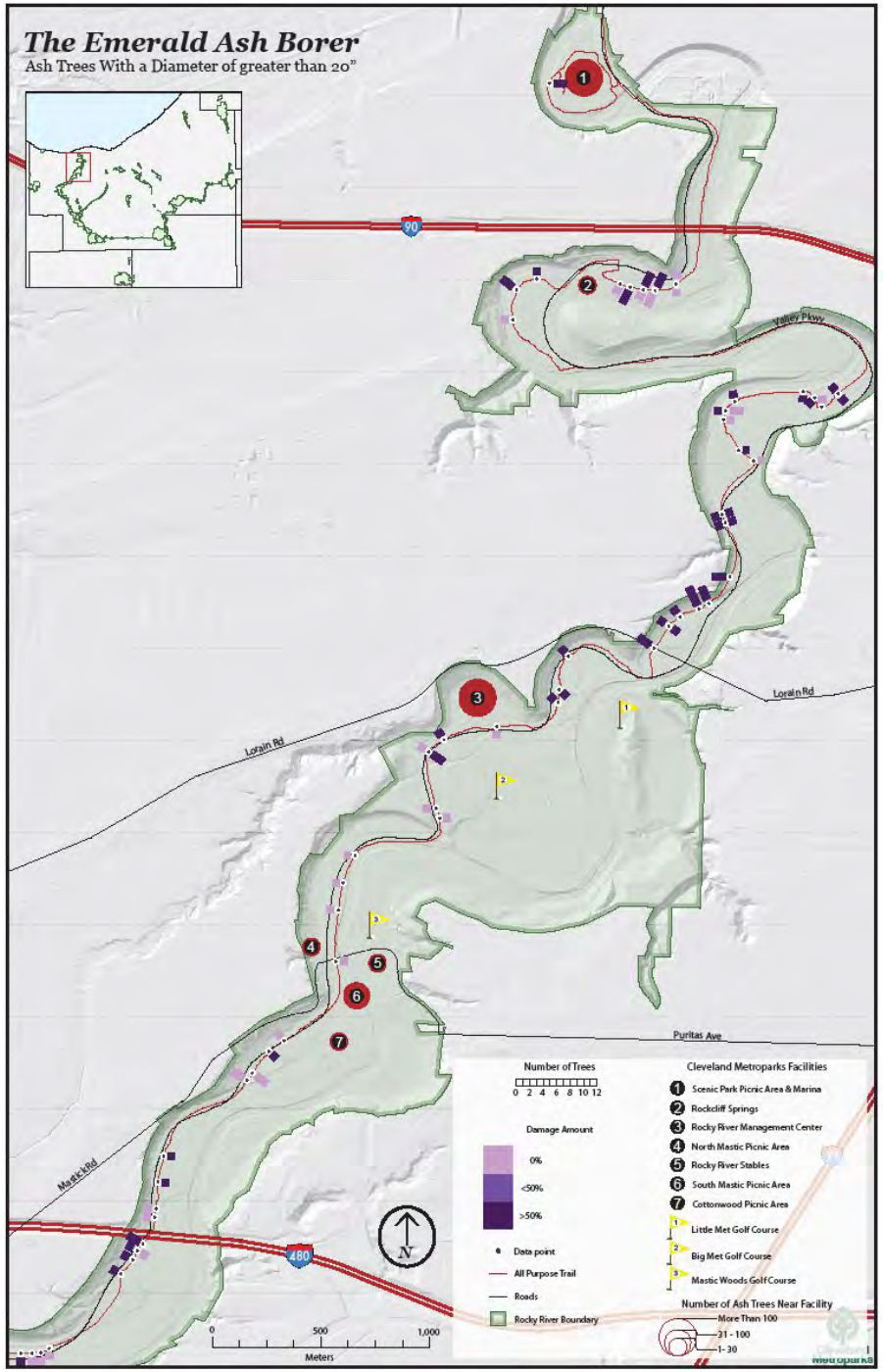
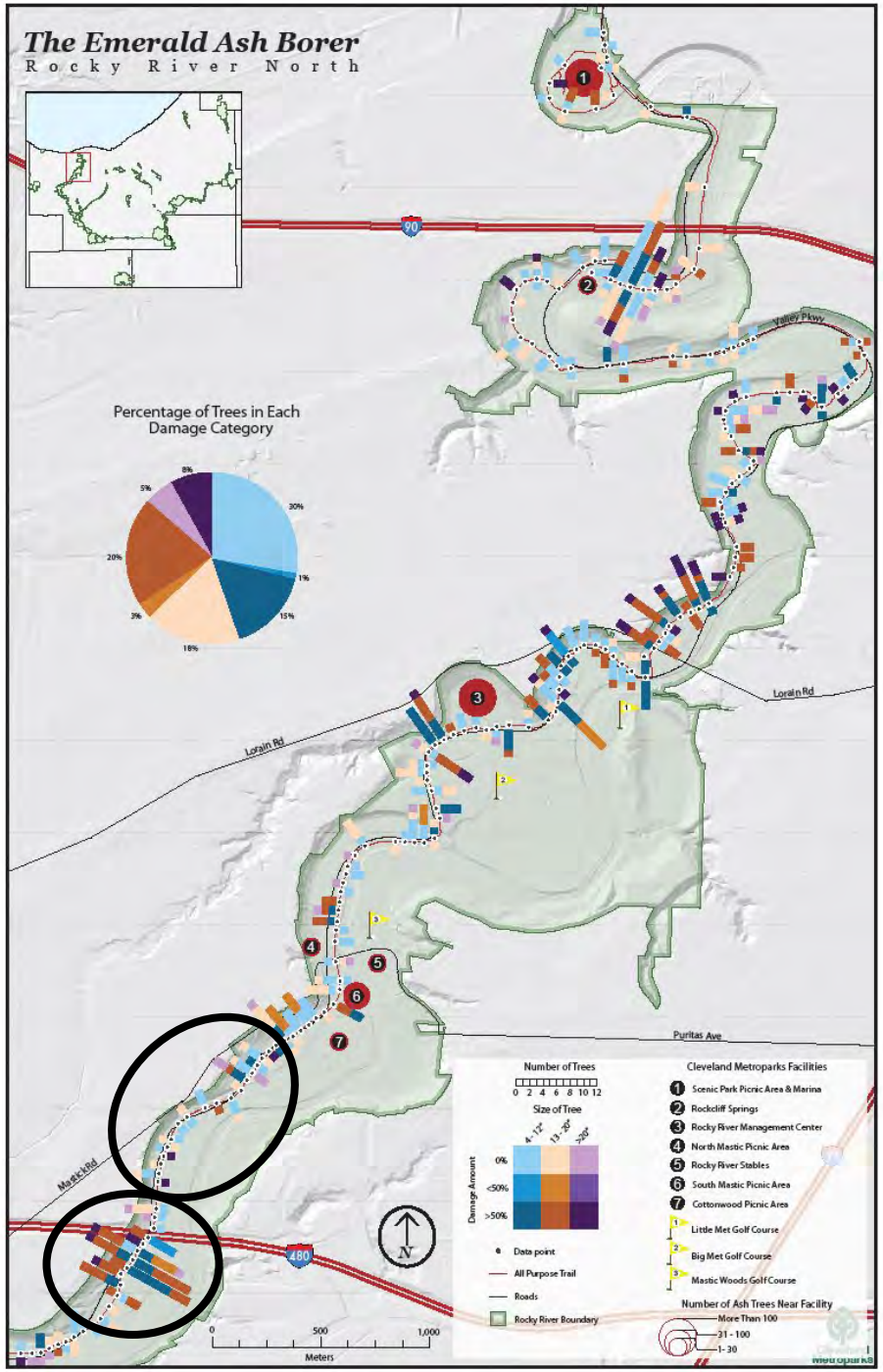
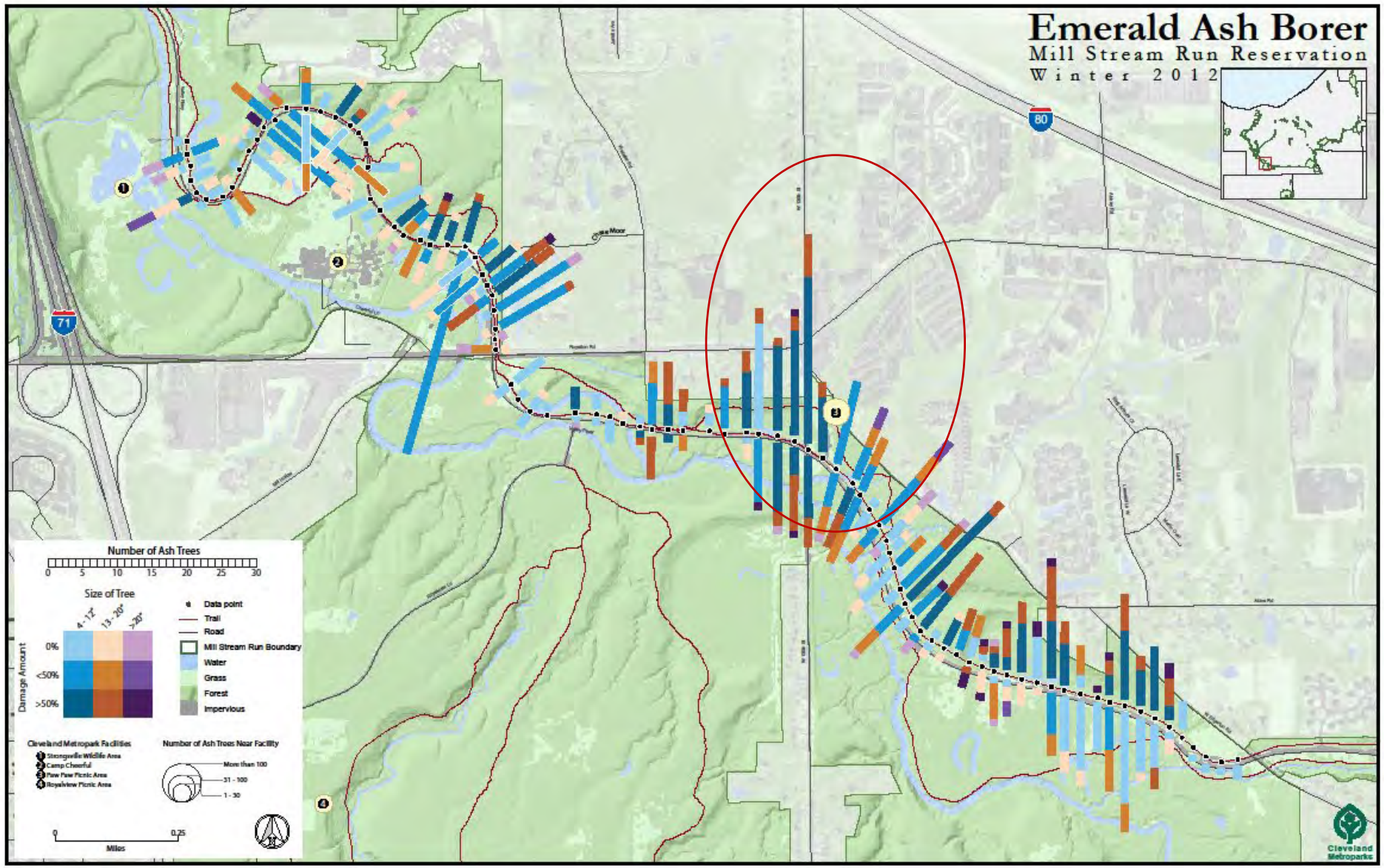


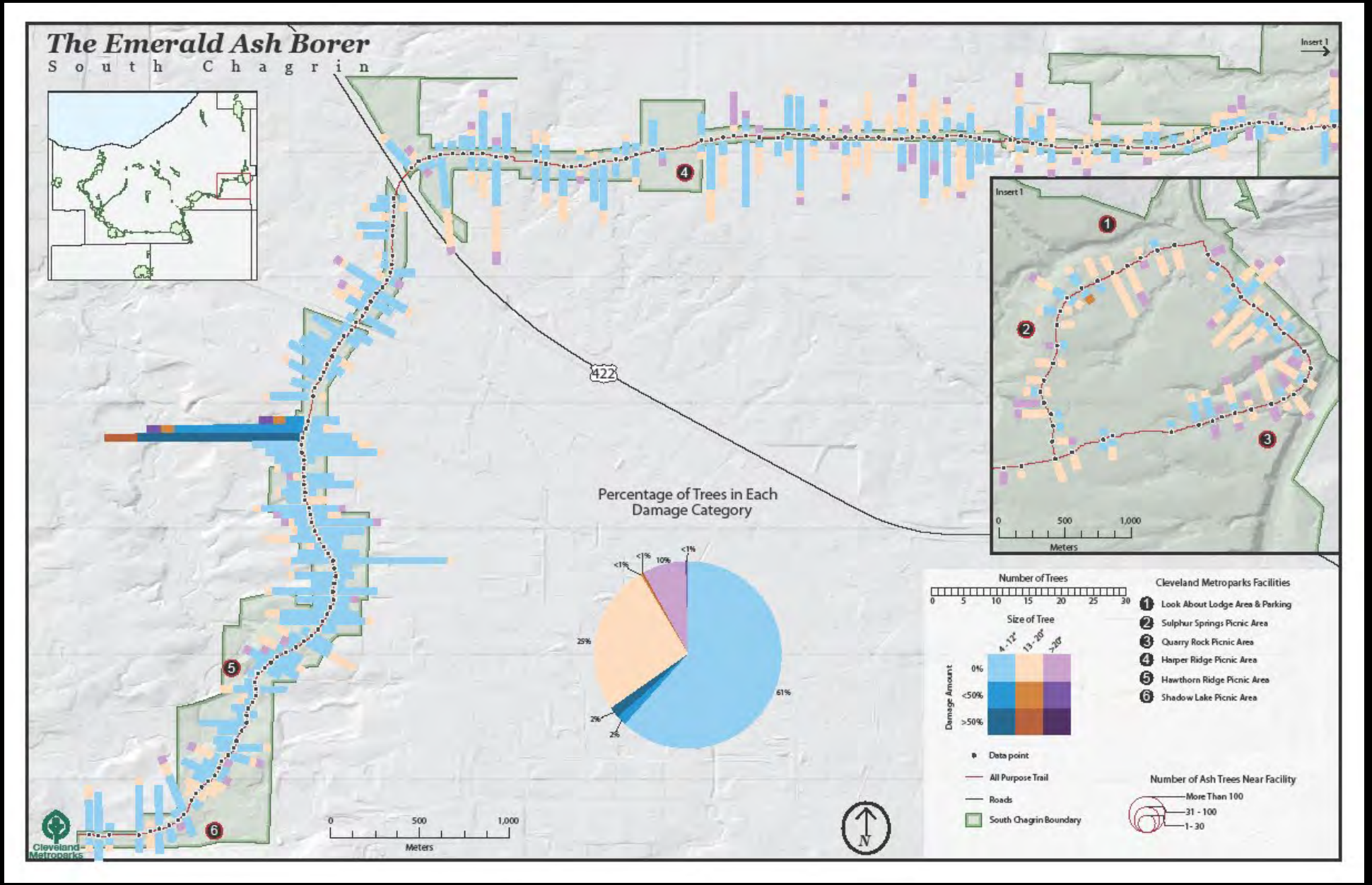
All 3 size classes

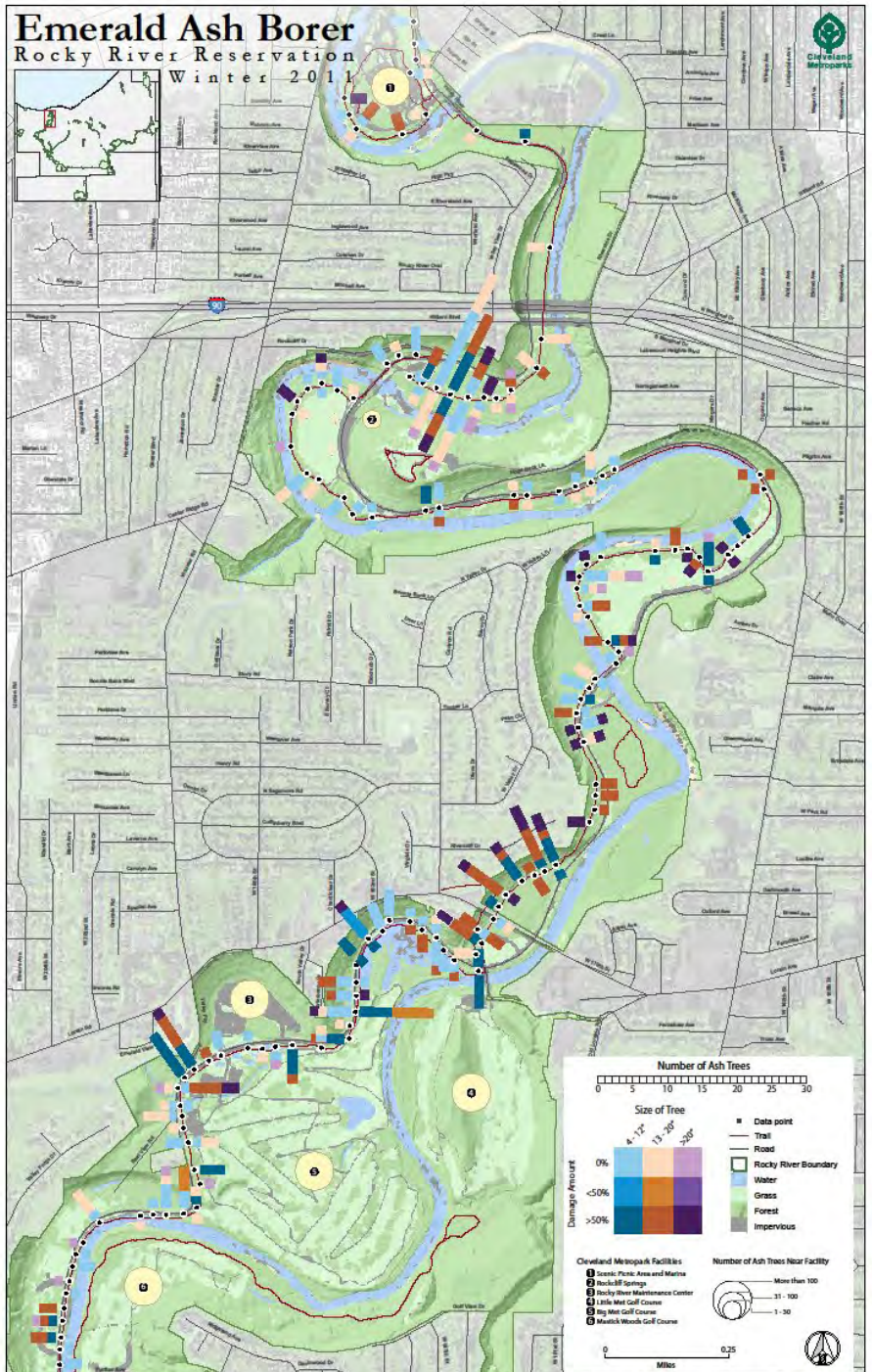


West Side: Mill Stream Run



East Side: South Chagrin

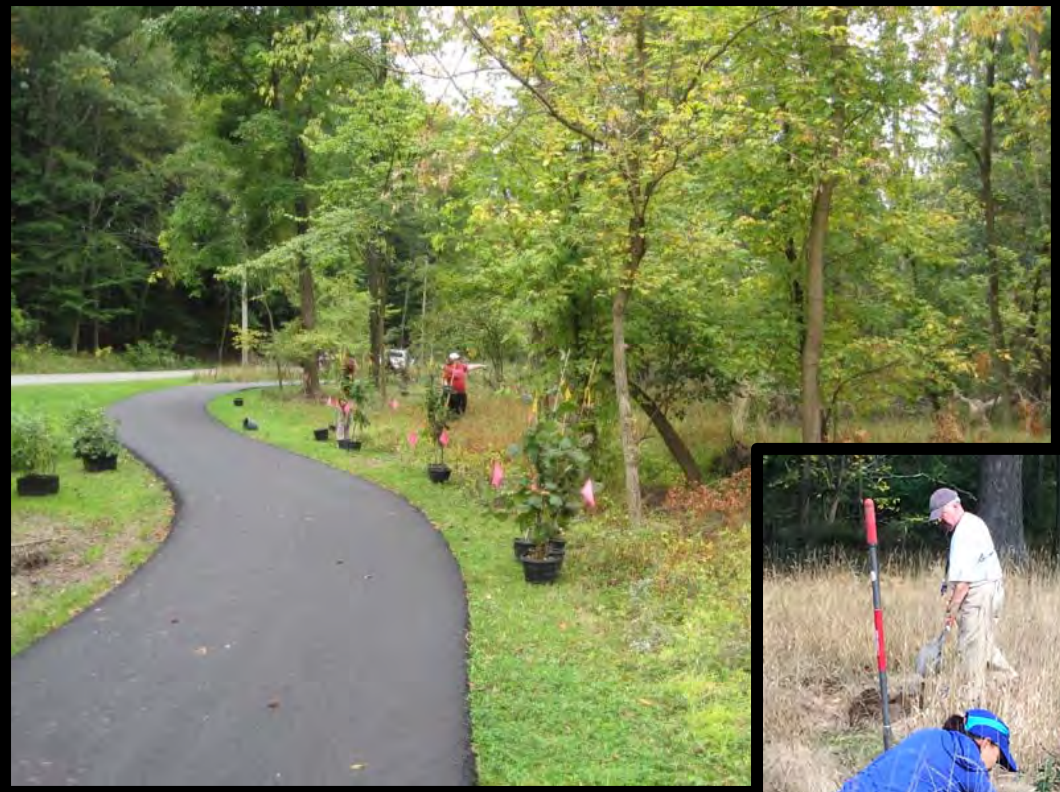




US Forest Service State and Private Forestry Great Lakes Restoration Initiative

(Emerald Ash Borer Mitigation)

- **Priorities**
  - Public Areas
  - Natural Habitats
    - invasive species control
    - plant light gaps
    - create young forest
    - expand forested buffers
    - stabilize stream corridors



- Large caliper (UTC)
- Small caliper (young forest establishment)
- Volunteer vs. Contractor

Forest Rehabilitation – Reforestation - Stream Restoration
Ash Utilization

Stream restoration using dead ash logs as grade control structures

Stream Bank Stabilization: Live stake installation

Forest Rehabilitation: invasive shrub control
Reforestation: tree plantings

“Planted” dead ash snags: raptor/bird perch

Biol Invasions (2010) 12:2013–2023
DOI 10.1007/s10530-009-9604-3

ORIGINAL PAPER

Impacts of the emerald ash borer (EAB) eradication and tree mortality: potential for a secondary spread of invasive plant sp[illegible]

Constance E. Hausman · John [illegible]
Oscar J. Rocha

Biol Invasions
https://doi.org/10.1007/s10530-019-02080-z

Check for updates

ORIGINAL PAPER

Fourteen years of swamp forest change from the onset, during, and after invasion of emerald ash borer

Scott R. Abella · Constance E. Hausman · John F. Jaeger · Karen S. Menard · Timothy A. Schetter · Oscar J. Rocha

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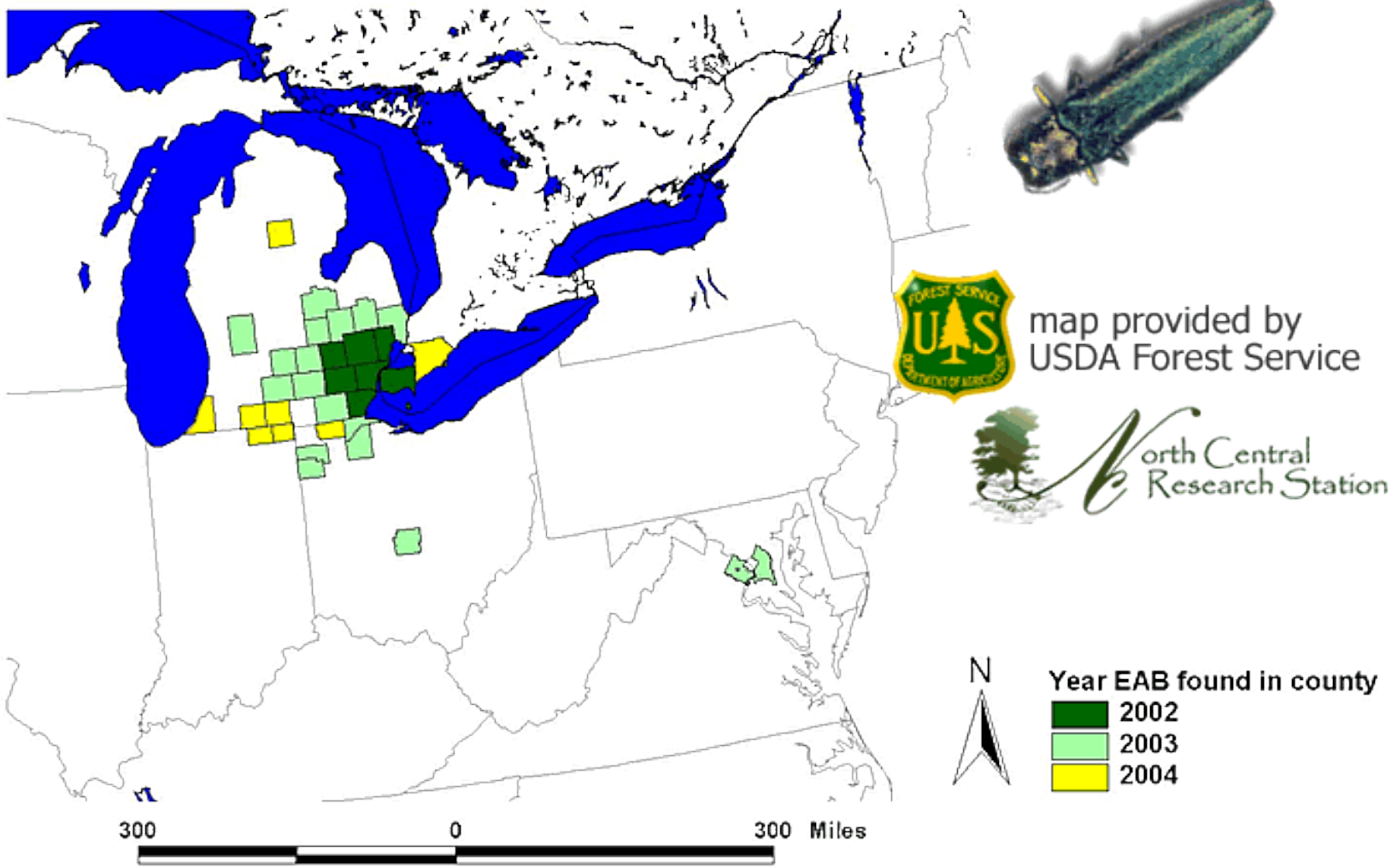
Natural Selection...

Emerald Ash Borer in North America, 2004.



Data sources (as of 7/7/2004):
http://www.michigan.gov/images/MDA_EAB_outlier_map_temp_84565_7.jpg
http://www.ohioagriculture.gov/pubs/divs/plnt/curr/eab/images/eabfindings.pdf
http://www.ceris.purdue.edu/napis/pests/barkb/imap/eabmd.html
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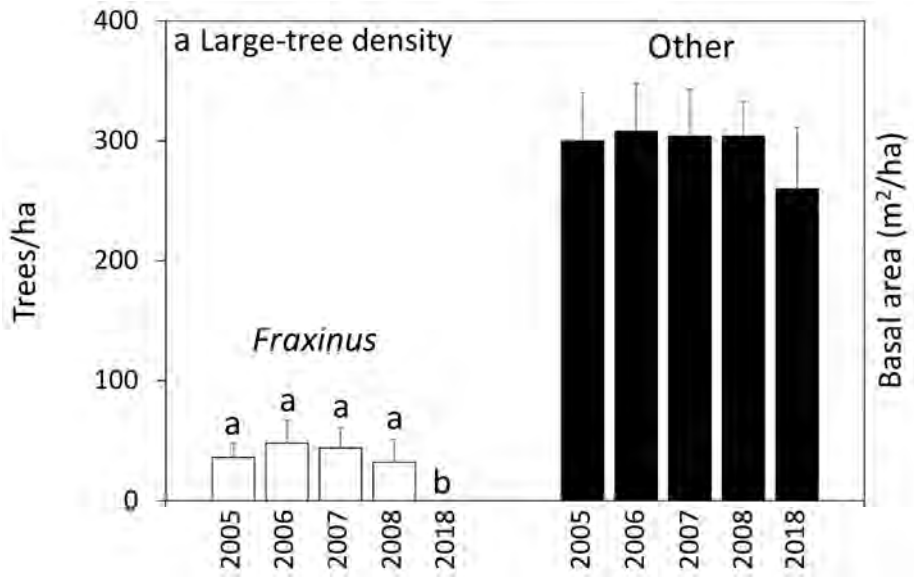

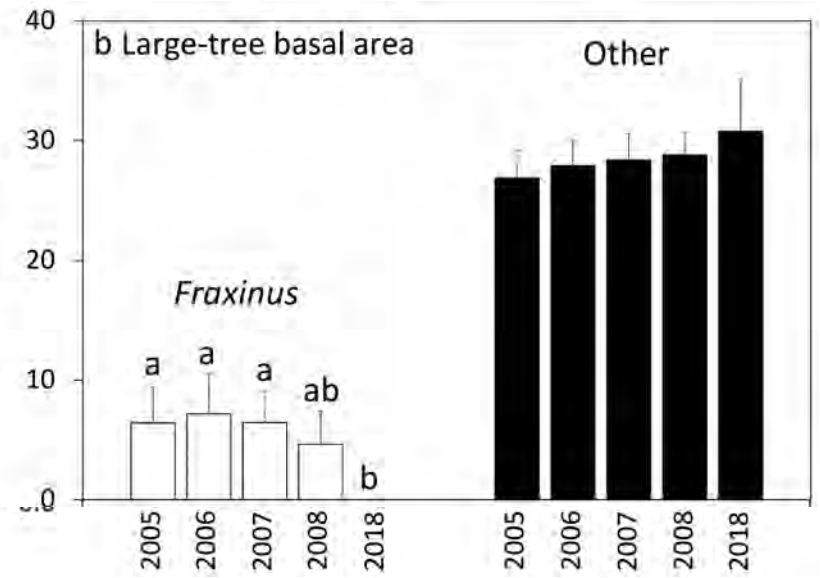

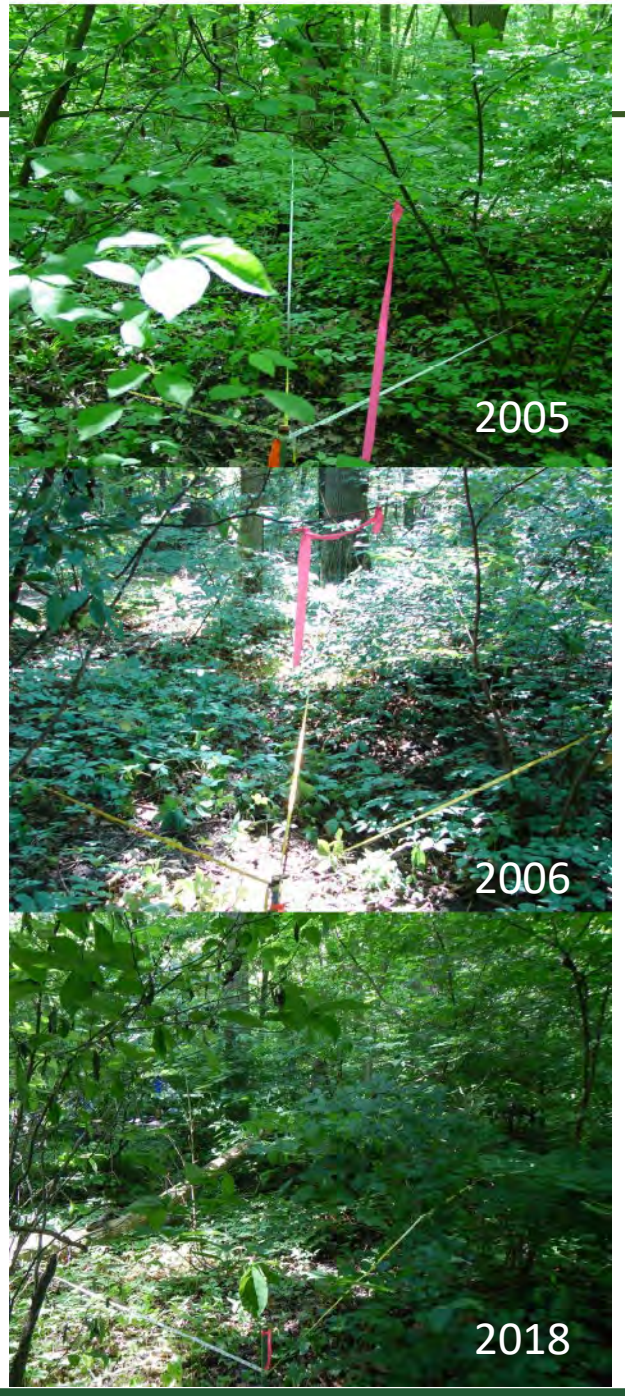

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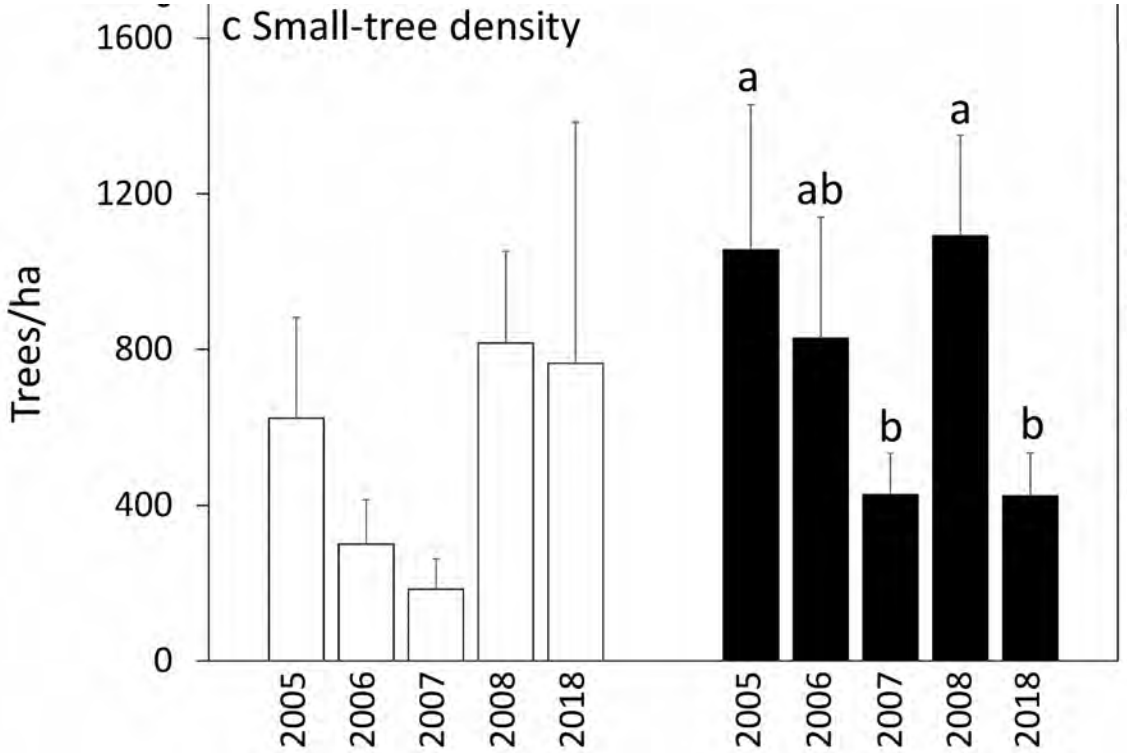

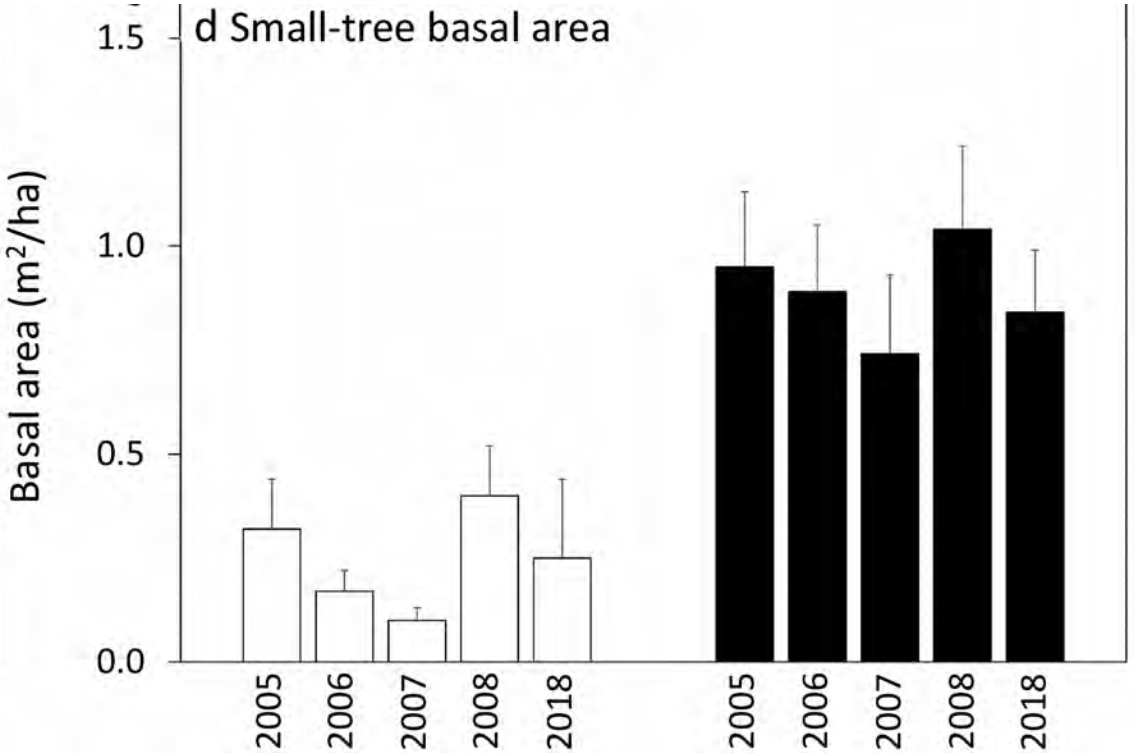

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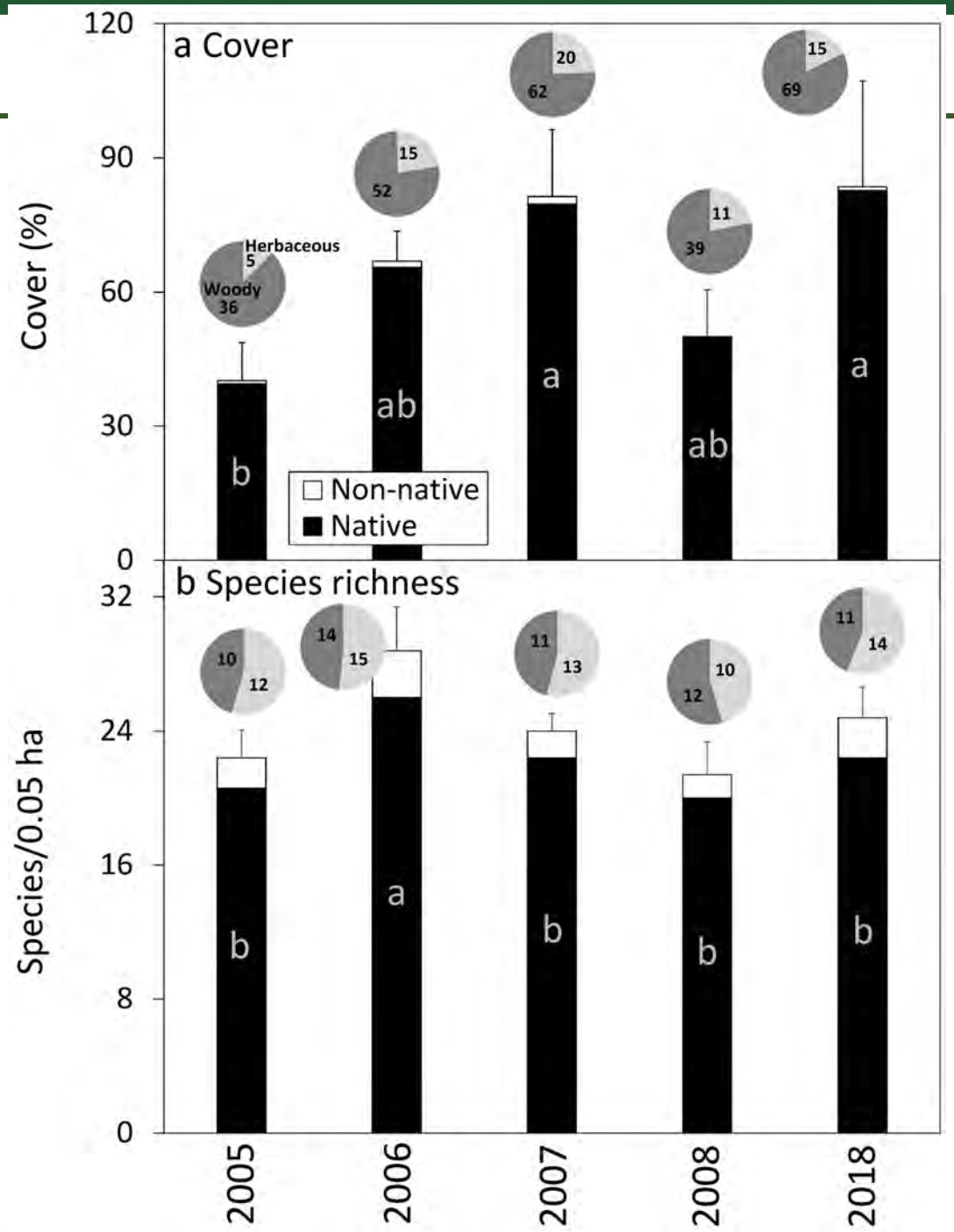
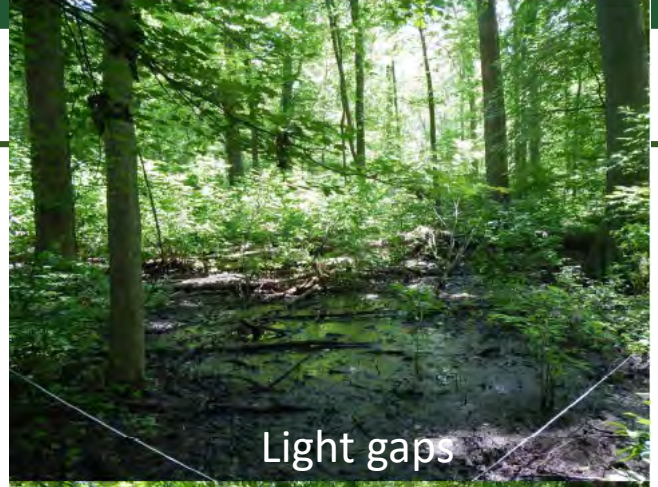
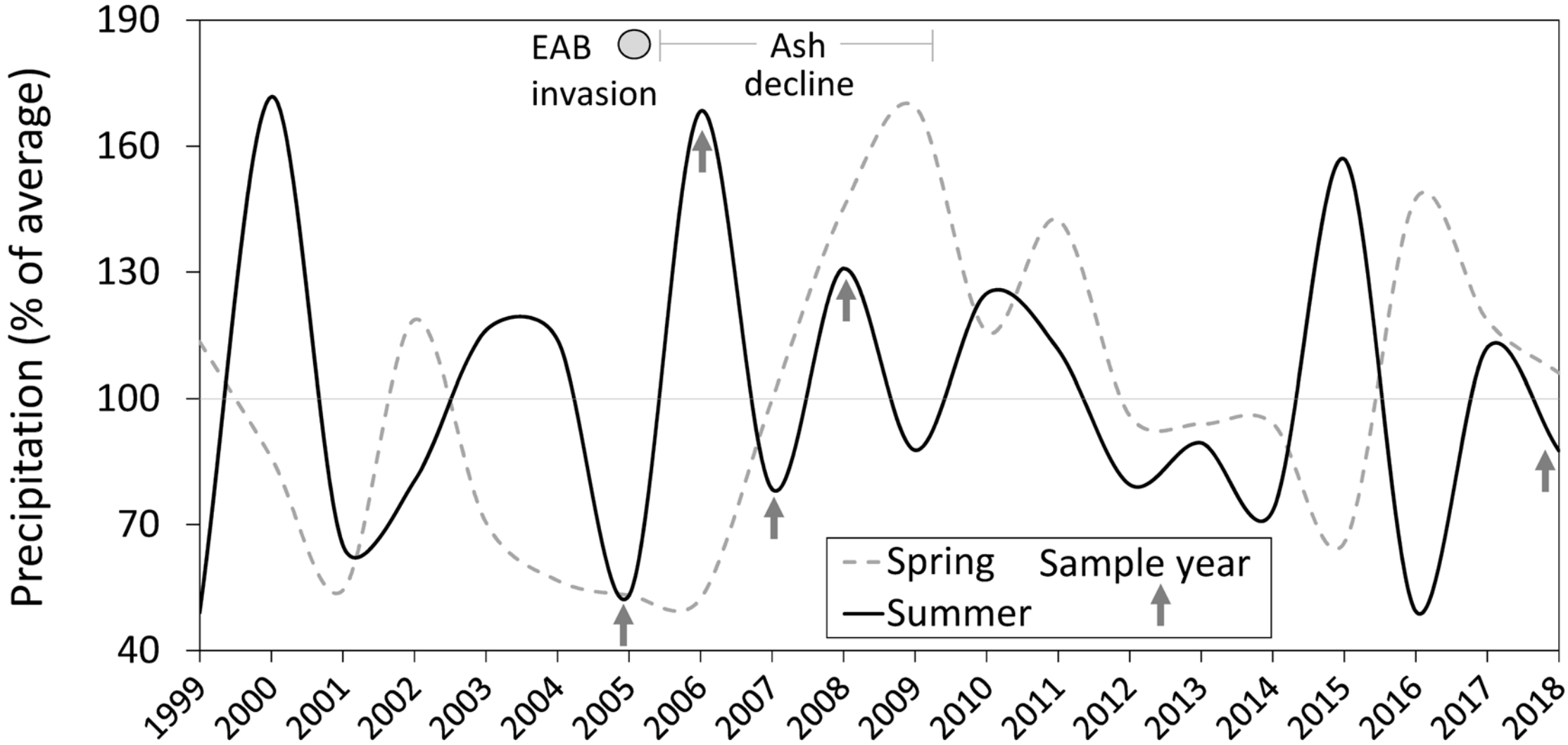

a Cover
Cover (%)
120
90
60
30
0
Herbaceous
5
Woody
36
15
52
20
62
11
39
15
69
b
ab
a
ab
a
Non-native
Native
b Species richness
Species/0.05 ha
32
24
16
8
0
10
12
14
15
11
13
10
12
11
14
b
a
b
b
b
2005
2006
2007
2008
2018


Light gaps


Downed ash


Native understory



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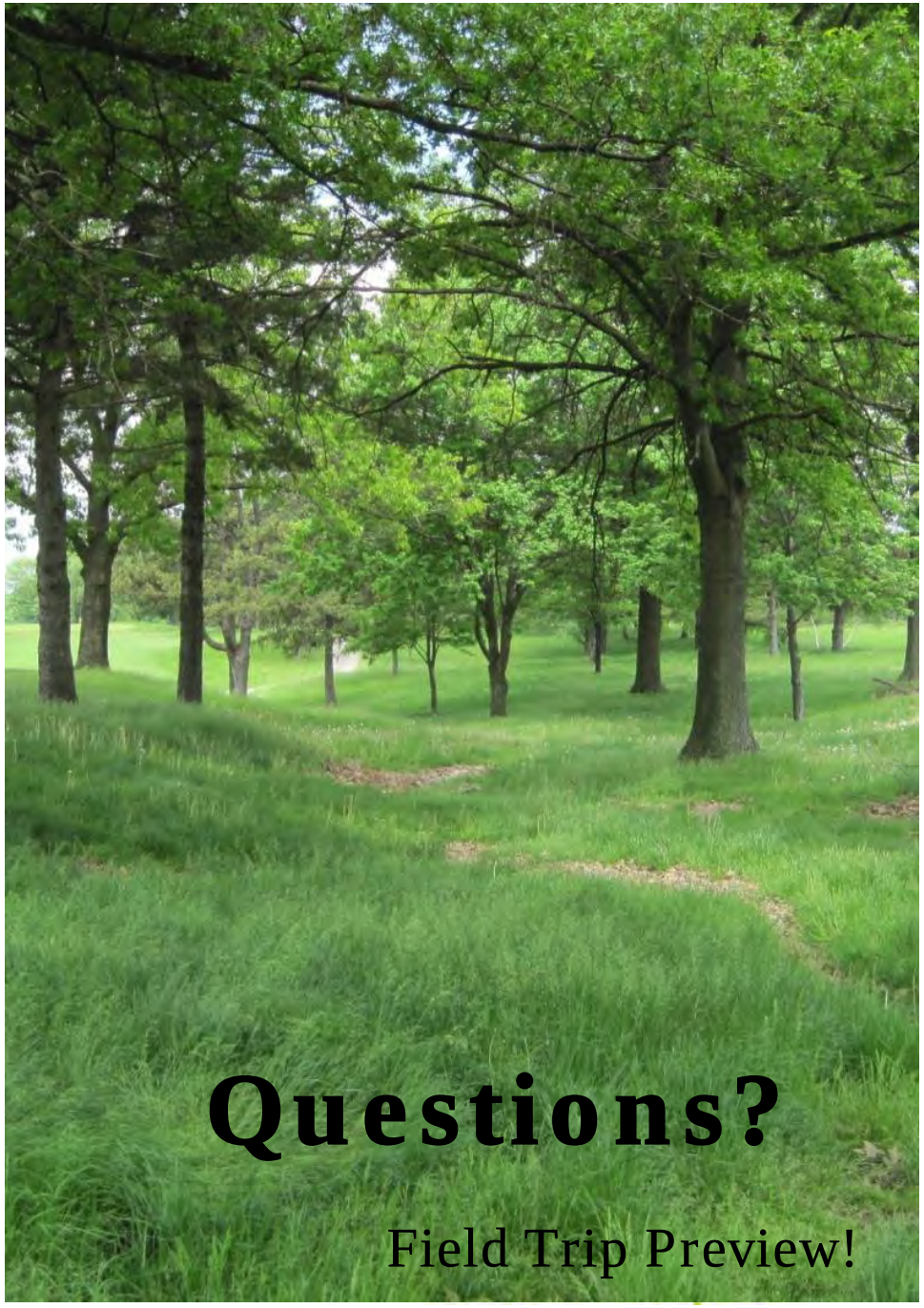
EAB Eradication Cut Zones – Vegetation Response

Cut Plot 2005

Cut Plot 2009



Questions?

Field Trip Preview!