

Emerald Ash Borer in Montgomery Parks

www.emeraldashborer.info

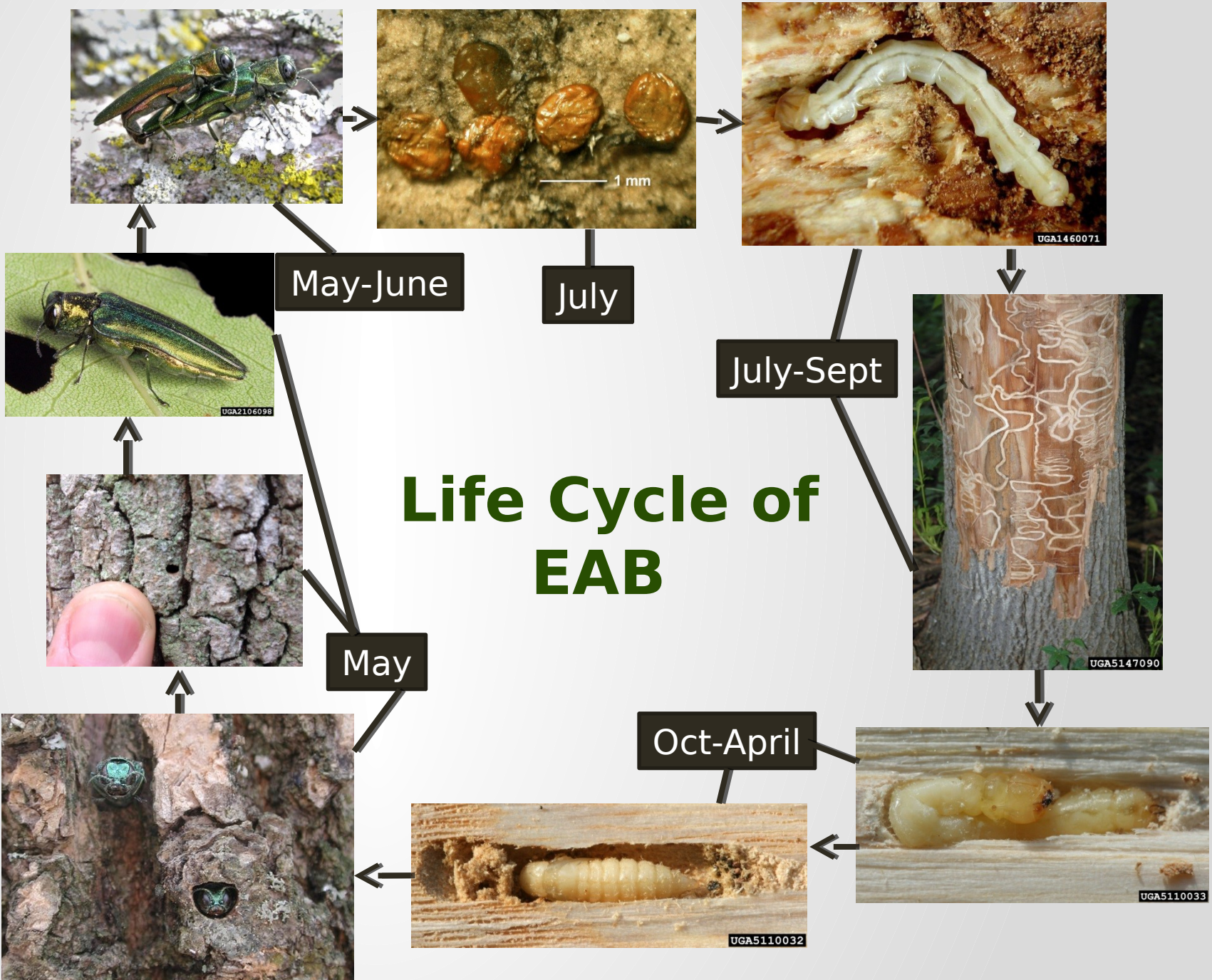


“Little bug, big problem”

Emerald Ash Borer, *Agrillus planipennis*

- Invasive insect from Asia (identified in 2002, Detroit)
- Infests all species of ash, *Fraxinus spp.* (Green, White, and Black) (Rebek, Herms and Smitley 2007)
- 99% mortality of ash trees (Knight, Brown and Long 2007)
- Signs of infestation include crown dieback and canopy thinning





Life Cycle of EAB

May-June

July

July-Sept

May

Oct-April



UGA1460071

UGA2106098

UGA5147090

UGA5110033

UGA5110032

Serpentine Galleries



Woodpecker Damage



D-shaped exit holes

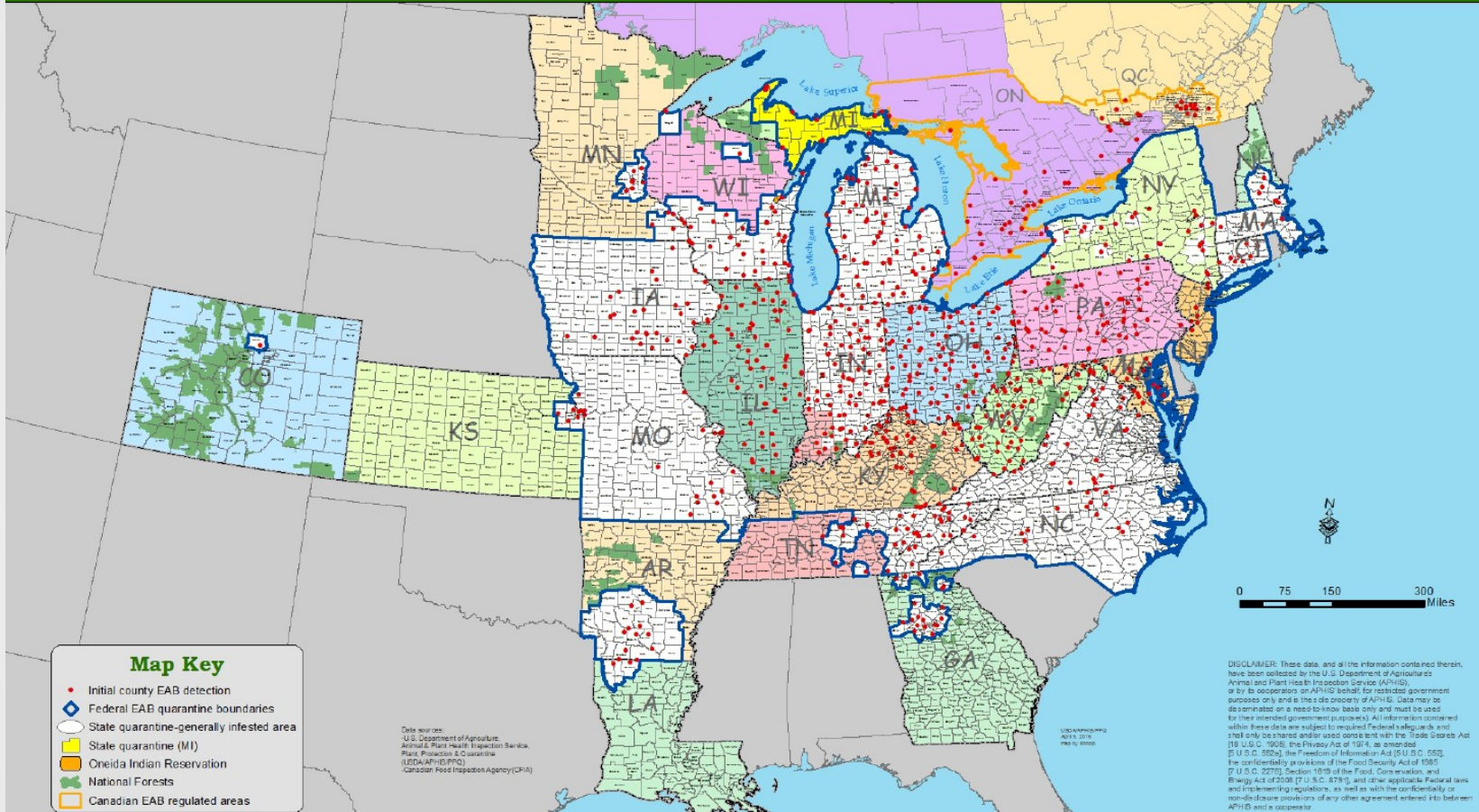




Cooperative Emerald Ash Borer Project

Initial county EAB detections in North America

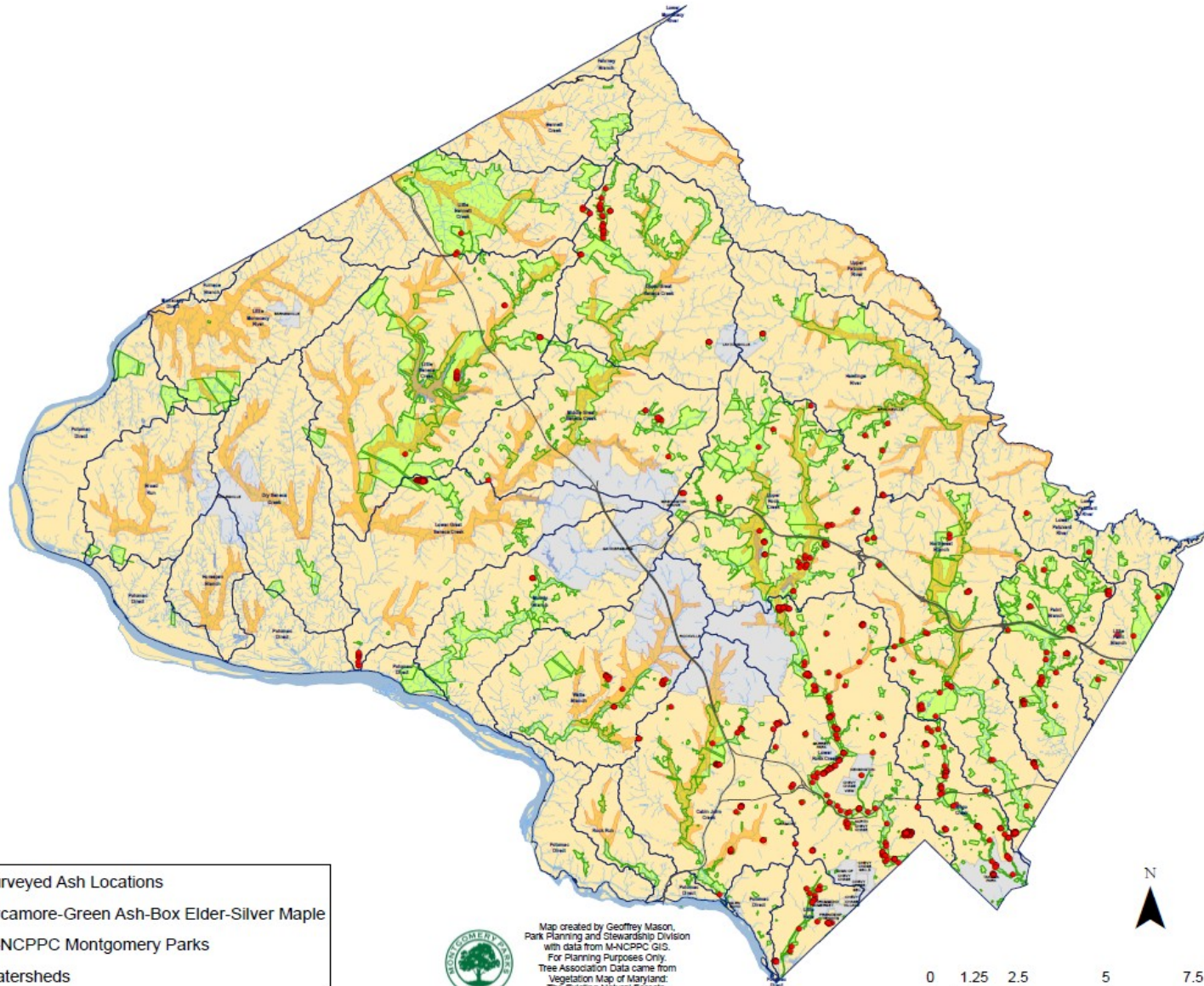
April 5, 2016



Where in Montgomery County?

- Ash comprise ~2-4% of forest trees concentrated in stream valleys (USFS EVAILDator tool)
 - Could be up to 20% of some stream valleys
- First found in MD, August 2003
- First found in Montgomery County, June 2012
- EAB found countywide (APHIS Federal Order DA-2015-39)

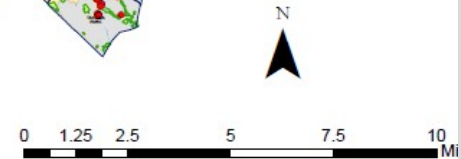
Surveyed Ash Locations in



- Surveyed Ash Locations
- Sycamore-Green Ash-Box Elder-Silver Maple
- M-NCPPC Montgomery Parks
- Watersheds



Map created by Geoffrey Mason,
Park Planning and Stewardship Division
with data from M-NCPPC GIS.
For Planning Purposes Only.
Tree Association Data came from
Vegetation Map of Maryland:
The Existing Natural Forests,
Grace Bruhn, et al, 1976.



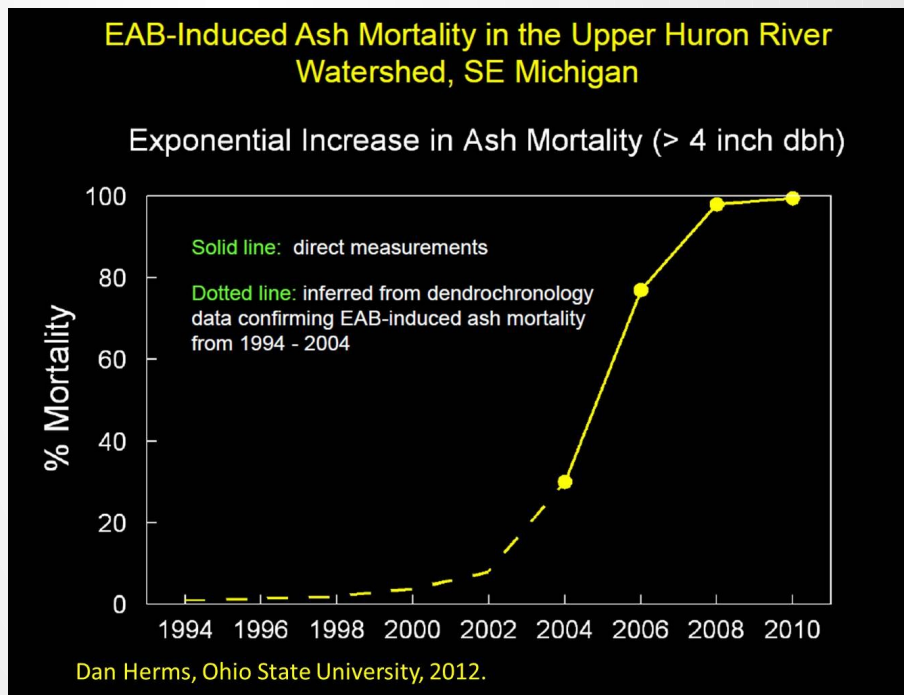
Rock Creek Trail (18.6 miles)

- Cedar Ln to Connecticut Ave (0.7 miles)
 - (73) 15" and greater DBH trees
 - (57) 6-15" DBH trees
 - ~\$86,220 to remove



When?

- EAB death curve (Knight et. Al. 2008)
 - Following model, 50%- 98% mortality within 1-3 years in areas where we currently see signs of infestation





Dead Ash trees in August 2015, PG County,
MD



Dead Ash trees in August 2015, PG County,
MD



Dead Ash trees in August 2015, PG County,
MD

Why?

- Safety for park patrons and staff
 - Significant loss of structural strength with decline of tree health (Persad et. Al. 2013)
 - Trees at greater risk of windthrow
 - More dangerous and expensive to
- Damage to water resources
- Loss of tree canopy
- Invasion of Non-native invasive p



How?

- Inventory
- Monitor
- Remove
- Treat
- Reforestation
- Biological Controls



Parkland in PG county

Ash Tree marked for removal



EAB Reforestation in Sligo Creek Stream Valley Park



Resources

www.emeraldashborerinfo.com

Or

<http://mda.maryland.gov/plants-pests/Pages/eab.aspx>

Or

Maryland Department of Agriculture: search EAB
Look at the hot links on the right side of the page

http://www.emeraldashborer.info/documents/Potential_Side_Effects_of_EAB_Insecticides_FAQ.pdf

Bibliography

- Cipollini, Don. 2015. White Fringetree as a Novel Larval Host for Emerald Ash Borer. *Journal of Economic Entomology*. Volume 108(1): pp370-375
- Federal Order: Domestic Quarantine of Entire State of Maryland for Emerald Ash Borer, APHIS Federal Order DA-2015-39
- Knight, Kathleen S., Brown, John P., and Long, Robert P. 2013. Factors affecting the survival of ash (*Fraxinus* spp.) trees infested by emerald ash borer (*Agrilus planipennis*). *Biological Invasions*. Volume 15(2): pp371-383
- Knight, Kathleen S.; Long, Robert P.; Rebbeck, Joanne; Smith, Annemarie; Gandhi, Kamal; Herms, Daniel A. 2008. How fast will trees die? A transition matrix model of ash decline in forest stands infested by emerald ash borer. In: Mastro, Victor; Lance, David; Reardon, Richard; Parra, Gregory, comps. Emerald ash borer research and development meeting; 2007 October 23- 24; Pittsburgh, PA. FHTET 2008-07. Morgantown, WV: U.S. Department of Agriculture, Forest Service, Forest Health Technology Enterprise Team: 28-29.
- Persad, Anand B., Siefer, John, Montan, Roy, Kirby, Scott, Rocha, Oscar J., Redding, Michael E., Ranger, Christopher M. and Jones, Andrew W. 2013. Effects of Emerald Ash Borer Infestation on the Structure and Material Properties of Ash Trees. *Arboriculture & Urban Forestry* 2013. 39(1): 11- 16
- Rebek, Eric J., Herms, Daniel A., and Smitley, David R., 2008. Interspecific Variation in Resistance to Emerald Ash Borer (Coleoptera: Buprestidae) Among North American and Asian Ash (*Fraxinus* spp.). *Environmental Entomology*. 37(1):242-246
- United States Forest Service EVALIDator tool, <http://www.fia.fs.fed.us/tools-data/>