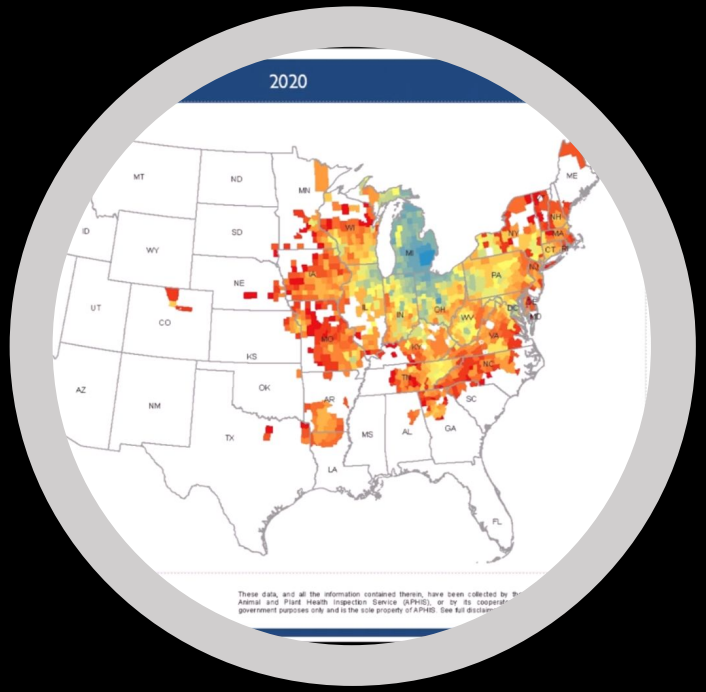
Emerald Ash Borer

(*Agrilus planipennis*)

Stefenie Shenoy



History

Biology / Ecology

Mitigation

Native Range

Bronze Birch Borer

Sweat Bee

Common green bottle fly

Green June beetle

Japanese beetle

Six spotted tiger beetle

Native Range


2010
Emerald Ash Borer
USDA APHIS

Impact in Maryland

- The greenhouse and nursery industry is the second largest agricultural sector in Maryland - $1.96 billion in gross
- Ash is the most common tree in Baltimore - 293,000 trees or 10.4% of trees total population
- Facilitate secondary invasions by opening forest canopy (Flower et. al. 2013)

Report EAB and Ash Tree Damage

Last Modified: Jun 2, 2020

Print

If you think you've seen the emerald ash borer (EAB) or ash tree da… plea… complete the form below. Or if you prefer to make a report by phone, please call 1-866-322-4512. If yo… have a digital camera, take pictures of the insect and the damage to your ash trees. If possible, place a… adult in a container and freeze it, and any larvae in a container with rubbing alcohol, to help with identification.

Need help identifying symptoms? Click here to view pictures of damage and the insect.

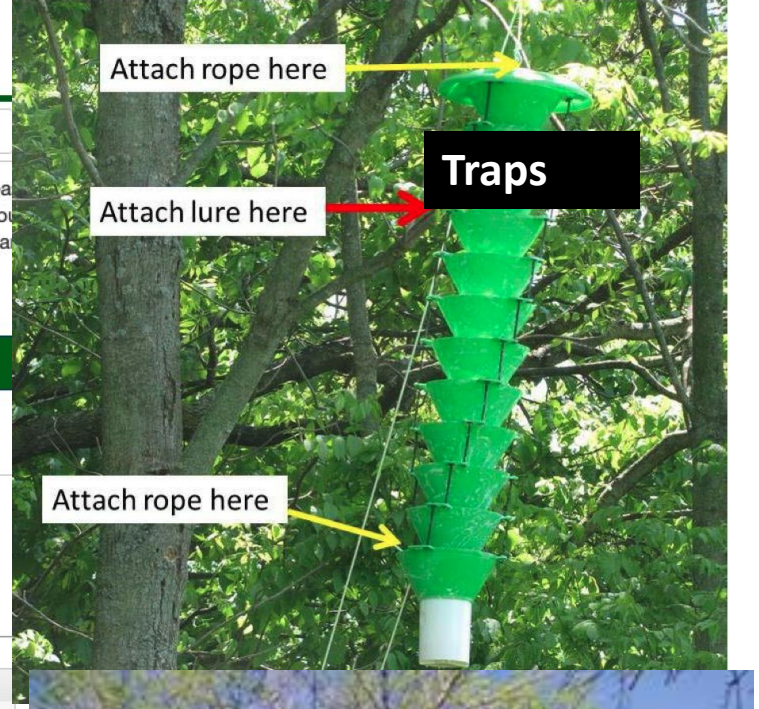
Reporting

Plant Protection and Quarantine Pest Reporting Form
(PPQ Form 10)

Contact Information

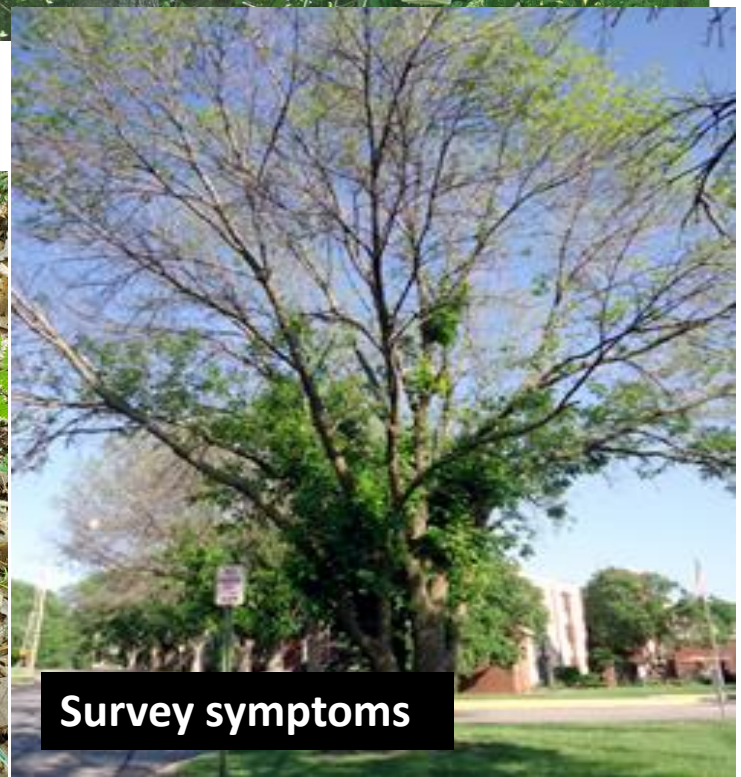
* First Name

Last Name



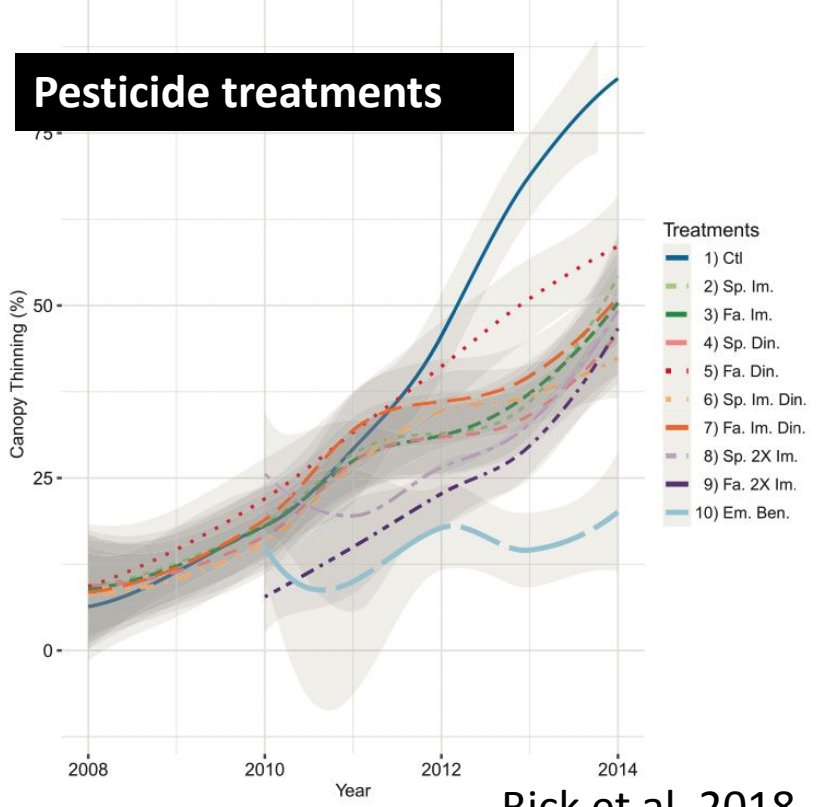
Traps

Injection



Survey symptoms

Pesticide treatments



Bick et al. 2018

Insecticide Formulation	Active Ingredient	Application Method	Recommended Timing
Professional Use Products			
Merit® (75WP, 75WSP, 2F)	Imidacloprid	Soil injection or drench	Mid-fall and/or mid- to late spring
Xytect™ (2F, 75WSP)	Imidacloprid	Soil injection or drench	Mid-fall and/or mid- to late spring
IMA-jet®	Imidacloprid	Trunk injection	Early May to mid-June
Imicide®	Imidacloprid	Trunk injection	Early May to mid-June
TREE-äge™	Emamectin benzoate	Trunk injection	Early May to mid-June
Inject-A-Cide B®	Bidrin®	Trunk injection	Early May to mid-June
Safari™ (20 SG)	Dinotefuran	Systemic bark spray	Early May to mid-June
Astro®	Permethrin	Preventive bark and foliage cover sprays	2 applications at 4-week intervals; first spray should occur when black locust is blooming (early May in southern Ohio to early June in mid-Michigan)
Onyx™	Bifenthrin		
Tempo®	Cyfluthrin		
Sevin® SL	Carbaryl		
Homeow…			
Bayer Advanced™ Tree & Shrub Insect Control	Imidacloprid	Soil drench	Mid-fall or mid- to late spring

MD gov resources

Biological control

SPATHIUS AGRILI

SPATHIUS GALINAE

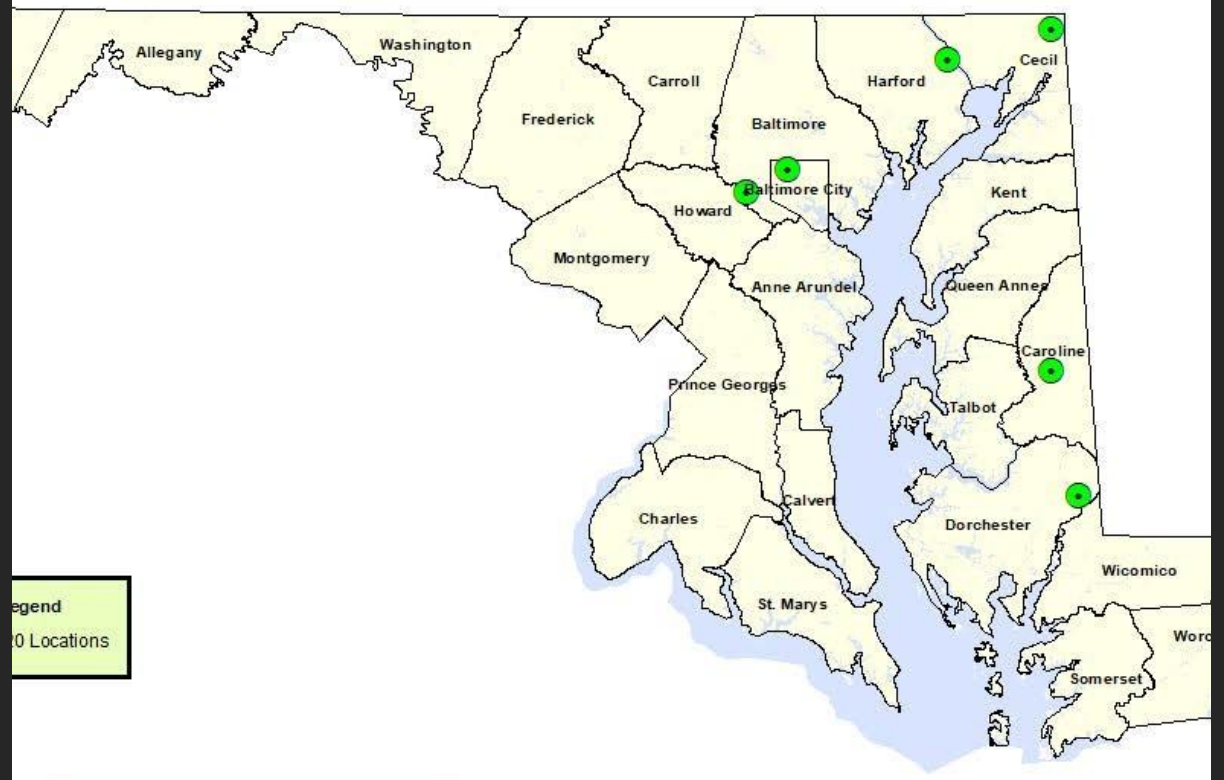
SPATHIUS GALINAE

SPATHIUS AGRILI

OOBIUS AGRILI

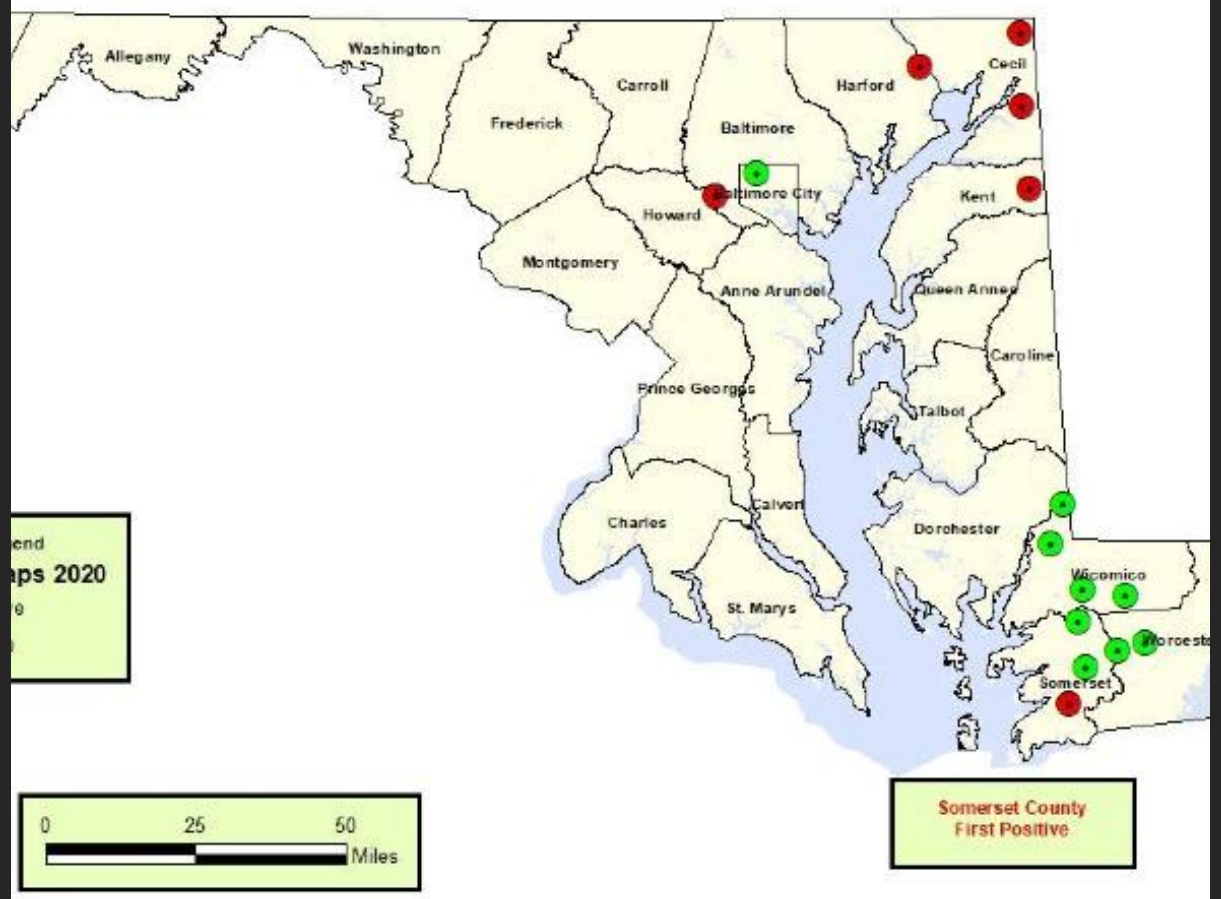
TETRASTICHUS PLANIPENNISI

Maryland Department of Agriculture
2020 Emerald Ash Borer Parasitoid Release Locations
Forest Pest Management Section



Map Prepared By H. Disque

Maryland Department of Agriculture
2020 Emerald Ash Borer Trap Results
Forest Pest Management Section



Map Prepared By H. Disque

The Emerald Ash Borer

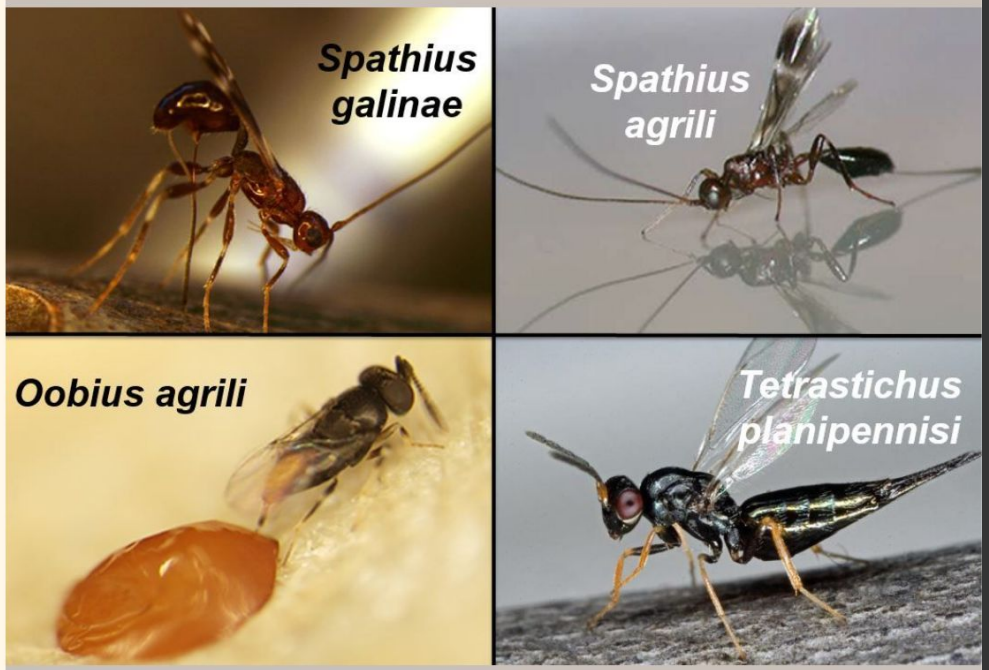
Biological control

There are four known stingless wasps that will attack either EAB larva or eggs. USDA's Agricultural Research Service is currently evaluating a fifth wasp.

For several years now, APHIS has been turning EAB's natural enemies—these tiny stingless wasps—into biological control agents. The wasps are already showing promise in a number of states, especially in terms of protecting young saplings from EAB.

So far, at least 1 of the 4 wasps have been released in 30 States and their offspring have been recovered in 20 States, which means the wasps are establishing, reproducing, and, more importantly, attacking and killing EAB.

APHIS wants to expand the

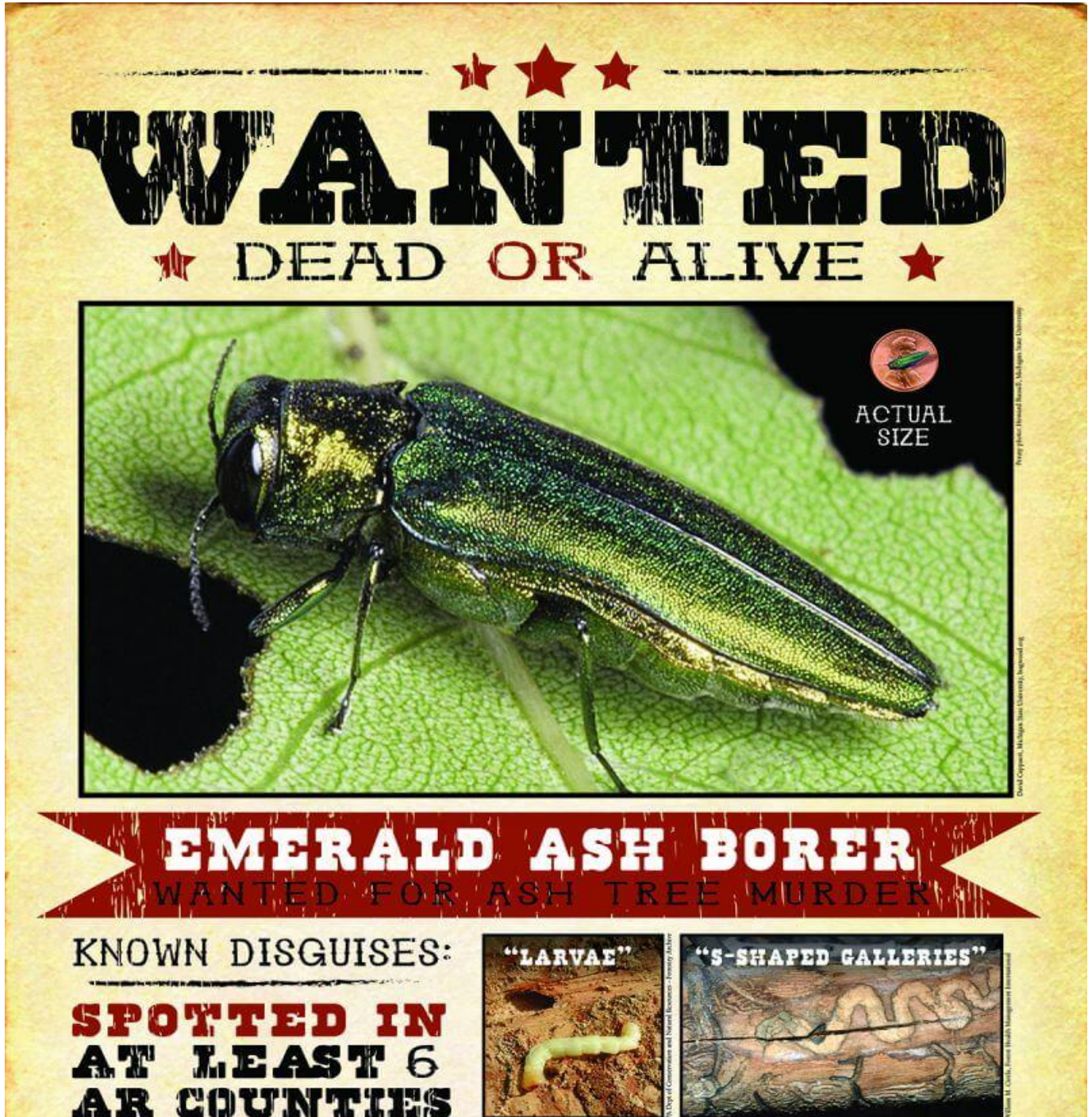


Messaging

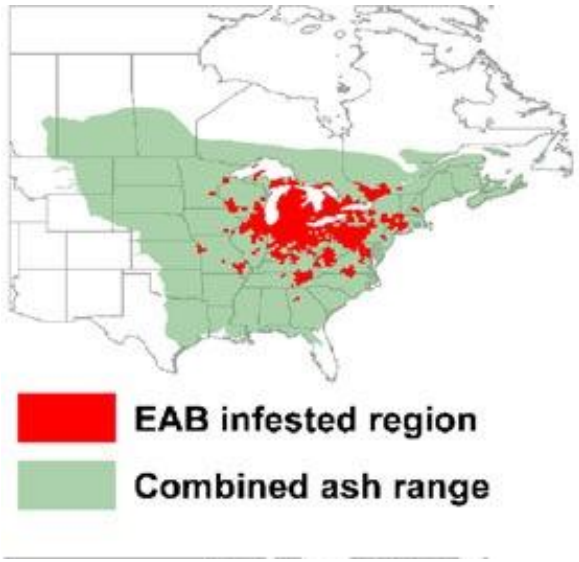
"The wasps are already showing promise in a number of states, especially in terms of protecting young saplings from EAB."

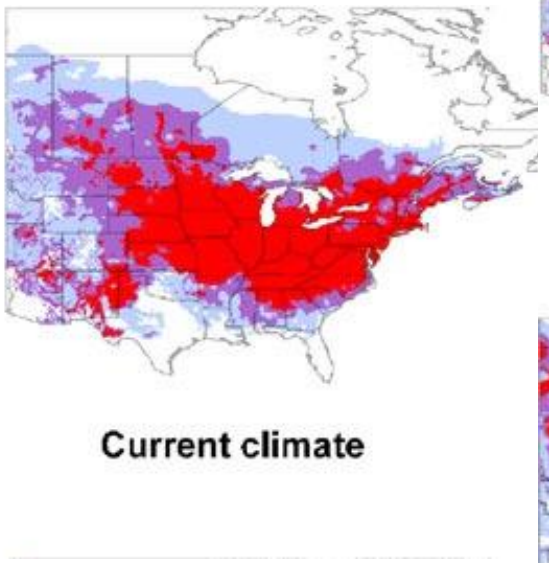
"...wasps are establishing, reproducing, and... killing EAB."

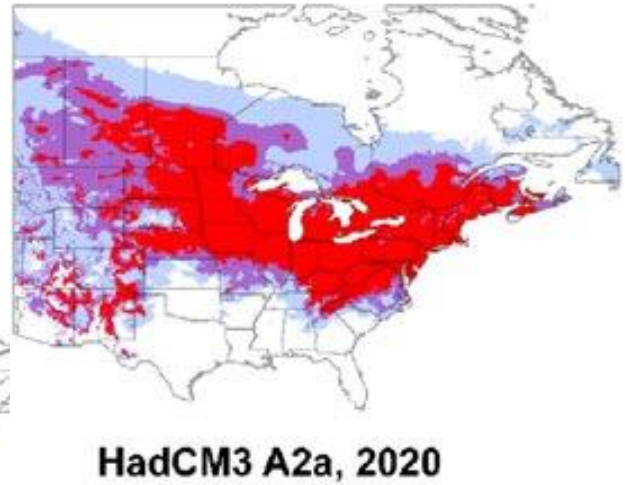
Manager Perspective

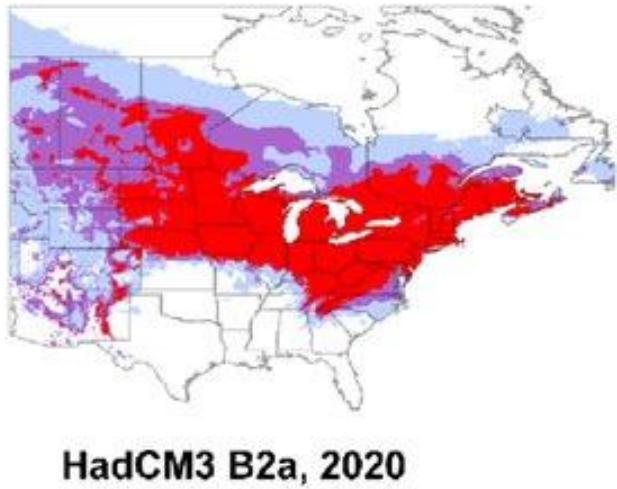


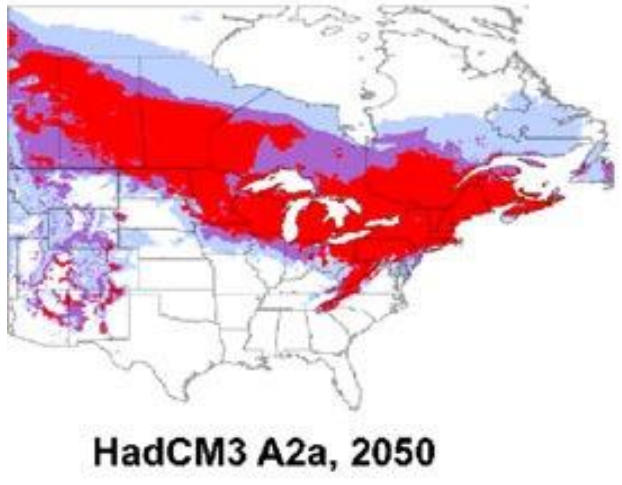
Future spread

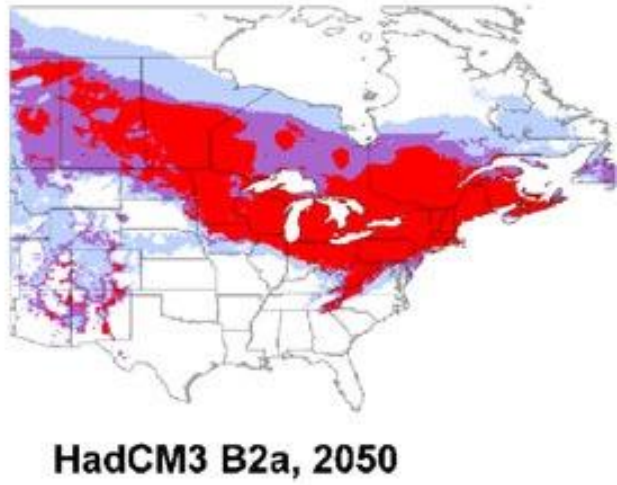












Liang and Liang 2013

References

Bick EN, Forbes NJ, Haugen C, Jones G, Bernick S, Miller F. Seven-Year Evaluation of Insecticide Tools for Emerald Ash Borer in Fraxinus pennsylvanica (Lamiales: Oleaceae) Trees. J Econ Entomol. 2018 Apr 2;111(2):732-740. doi: 10.1093/jee/toy018. PMID: 29474690.

Flower, Charles E.; Knight, Kathleen S.; Gonzalez-Meler, Miquel. 2013. Impacts of the emerald ash borer (Agrilus planipennis Fairmaire) induced ash (Fraxinus spp.) mortality on forest carbon cycling and successional dynamics in the eastern United States. Biological Invasions. 15(4): 931-944.

Liang, Liang & Fei, Songlin. (2013). Divergence of the potential invasion range of emerald ash borer and its host distribution in North America under climate change. Climatic Change. 122. 10.1007/s10584-013-1024-9.

Wang XY, Yang ZQ, Gould JR, Zhang YN, Liu GJ, Liu ES. The biology and ecology of the emerald ash borer, Agrilus planipennis, in China. J Insect Sci. 2010;10:128. doi:10.1673/031.010.12801