



Emerald Ash Borer

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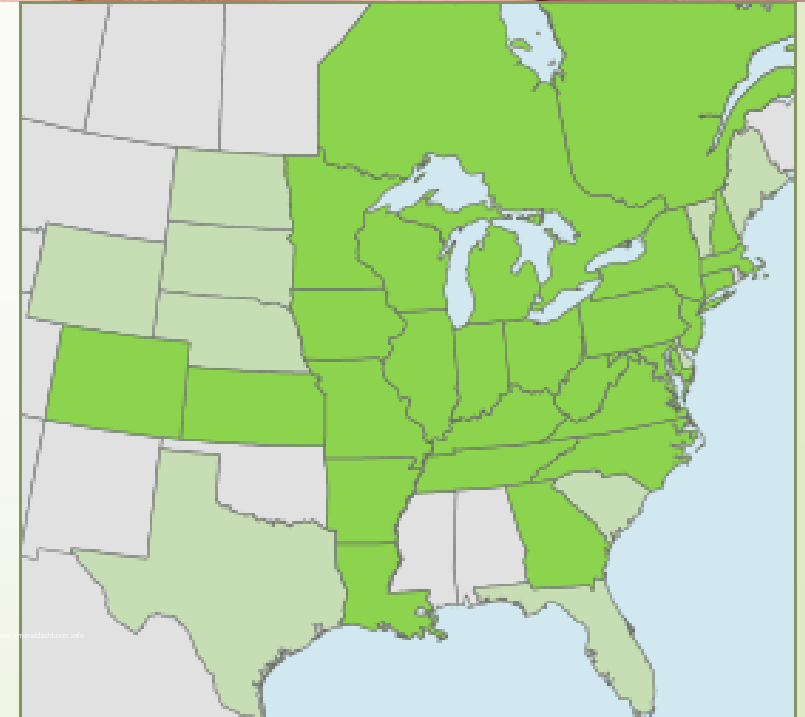
MSU Extension, Schutter Diagnostic Lab

Introduction

- Most economically damaging pest in North America
- Asian origin
 - Natural range=eastern Russia, northern China, Japan, and Korea
 - Discovered in Detroit, MI in 2002
 - Likely arrived from cargo in ships or for packing/crating
- Established in **25 states** and two Canadian provinces
- Cannot be eradicated once it has become established
 - Difficulty of detecting and delineating infestations



Marianne Prue



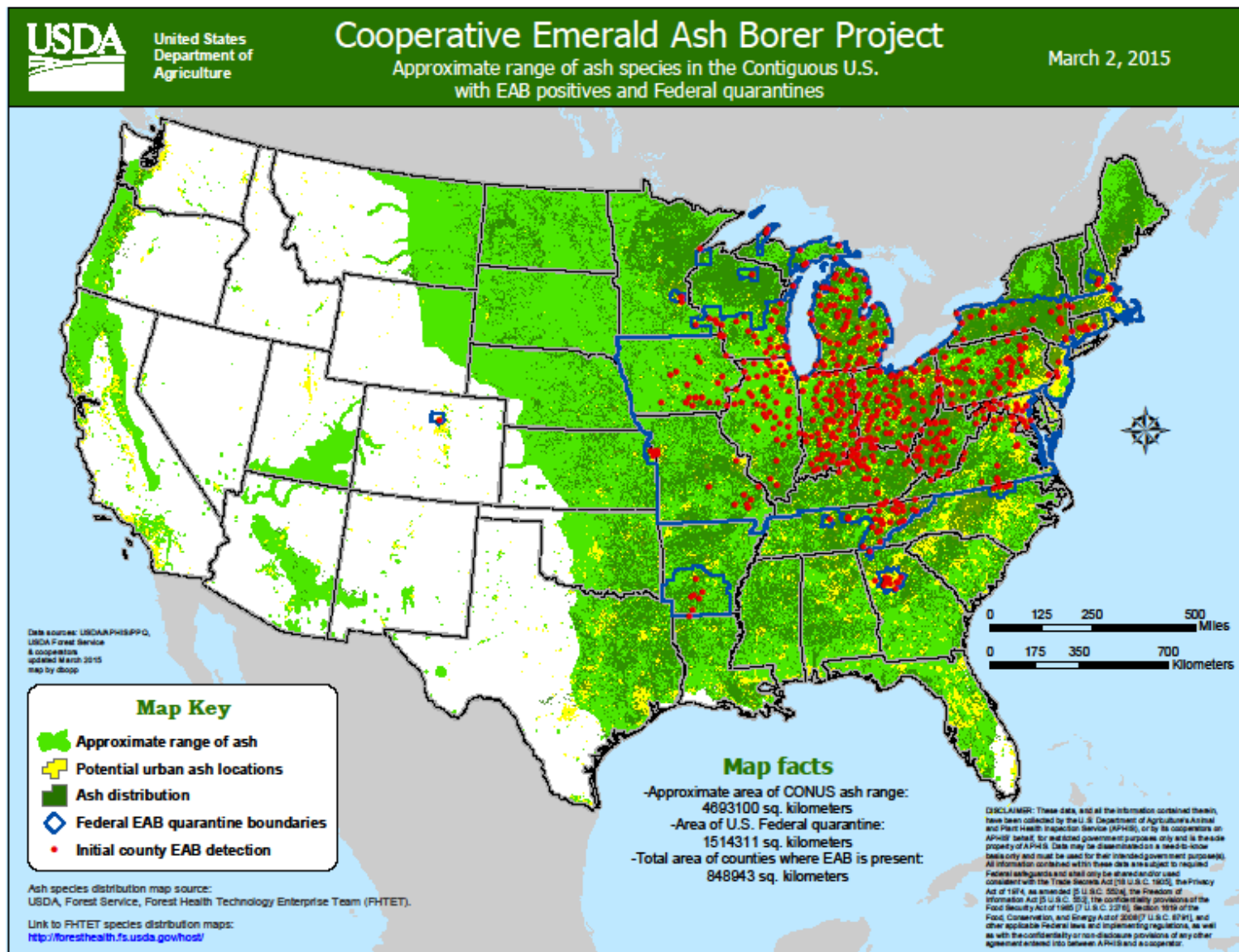
Distribution of EAB across N. America

Damage symptoms

- Canopy dieback visible when 25-35 adults present
- Cracks in the bark
- Epicormic sprouting
- D-shaped exit holes
- Woodpecker damage



Native Green Ash



Urban Green Ash in Montana

- Planted extensively in urban settings in Montana
- Increased in importance as elm died from Dutch elm disease
- Major component of urban forest canopy on public and private property
- Has volunteered on adjacent areas from seed which has increased its urban impacts
- Major provider of environmental services in our cities

Community	# of Ash Trees	%
Bozeman (2010-2013)	4,912	47
Billings (2010)	1,893 parks	23
Missoula (2012-2014)	2,588	12
Helena (2010)	5,551	60
Columbus (2014)	818	68
Conrad (2014)	795	66
Dillon (2011)	494	63
Kalispell (2008-2009)	647	7
Ft. Benton (2012)	575	65
Livingston (2009-2014)	3,546	46
Laurel (2011)	2,292	68
Lewistown (2012)	1,489	56
Total (58 communities)	38,703	29

- As of today, EAB is **NOT KNOWN** to be established in the state of Montana
- The first steps for Montana:
 - Conduct EAB outreach to educate the public
 - Conduct detection survey work in an attempt for early detection



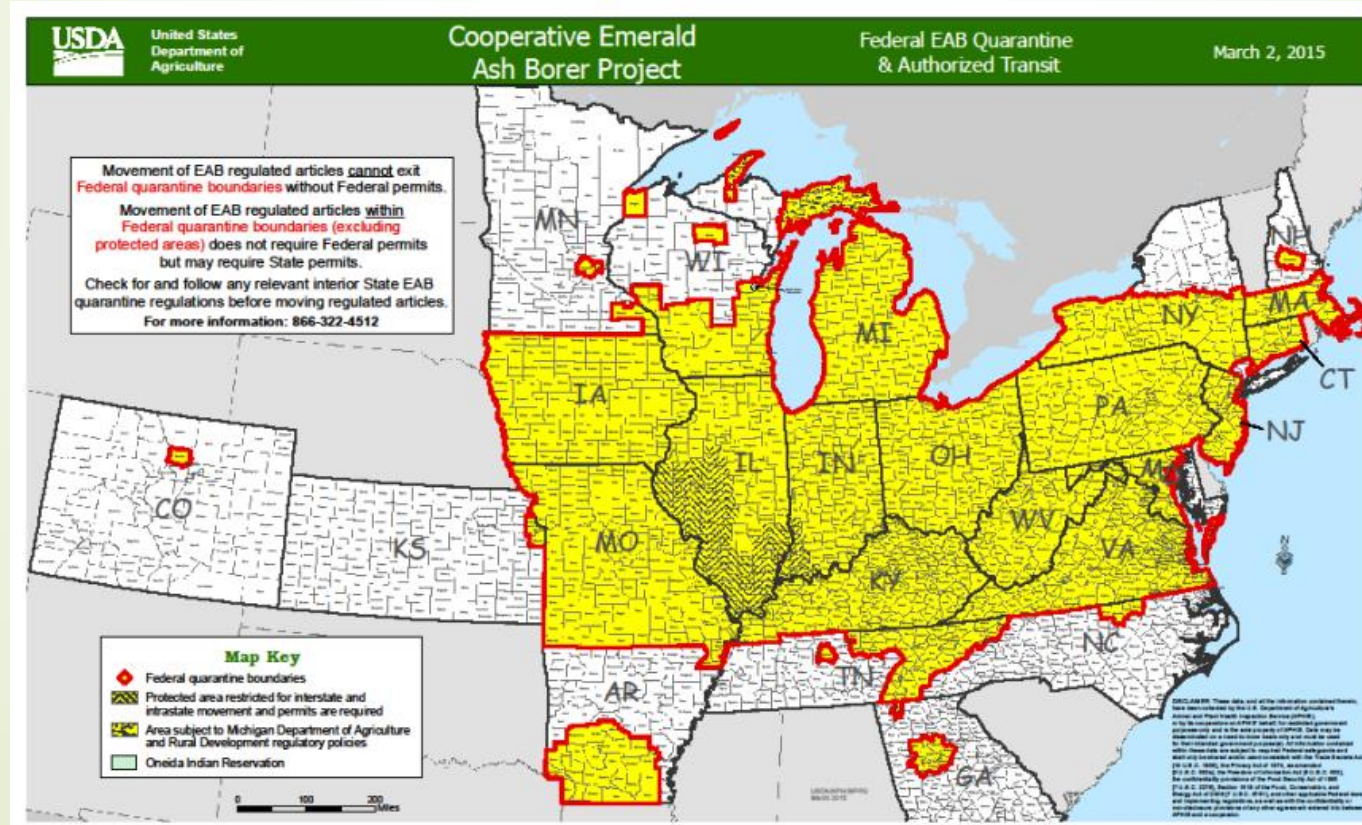
How is EAB spread?

- On it's own, ~ 10 miles/yr
- EAB is very resourceful and actually uses the available trees before they move further out in an area
- Artificial movement by people is the biggest way in which EAB is spread
- How is EAB artificially moved by people?



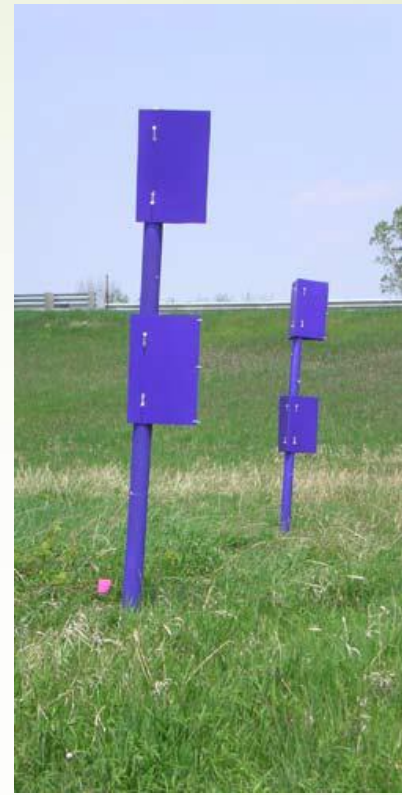
What happens if/when EAB is found in Montana?

- A state quarantine will be put in place for intrastate movement of regulated articles
- A federal quarantine will be put in place for interstate movement of regulated articles



Monitoring/Detection

- Initially establishes in low numbers
- Newly infested trees typically asymptomatic
- EAB adults do not produce long distance pheromones
 - Locate host through volatiles of stressed trees and color
 - Artificial bait traps not highly effective for early detection
- Destructive branch sampling



Management Options

- Education
- Inventory/Assessment
- Management plan
- Removal
- Replacement
- Treatments



Treatments

- Select only healthy trees in appropriate growing sites for treatment
- Treatment options (active ingredients)
 - **Emamectin benzoate (Tree-Age)**
 - Can bring back trees that have been infested for 2+ years
 - In some cases, have brought back trees with greater than 50% canopy loss
 - **At least two years of control**
 - Other control options
 - Permethrin
 - Imidacloprid
 - Dinotefuran
 - Carbaryl
 - Bifenthrin
 - Cyfluthrin
 - Azadirachtin
- *NCP-IPM EAB Insecticide Bulletin_2nd edition



Questions?

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