



# Emerald Ash Borer

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[mda.state.mn.us/eab](http://mda.state.mn.us/eab)

# Agenda

## Emerald Ash Borer

Life Cycle

Host Trees

Recognizing EAB

Signs & Symptoms

Distribution

Regulations

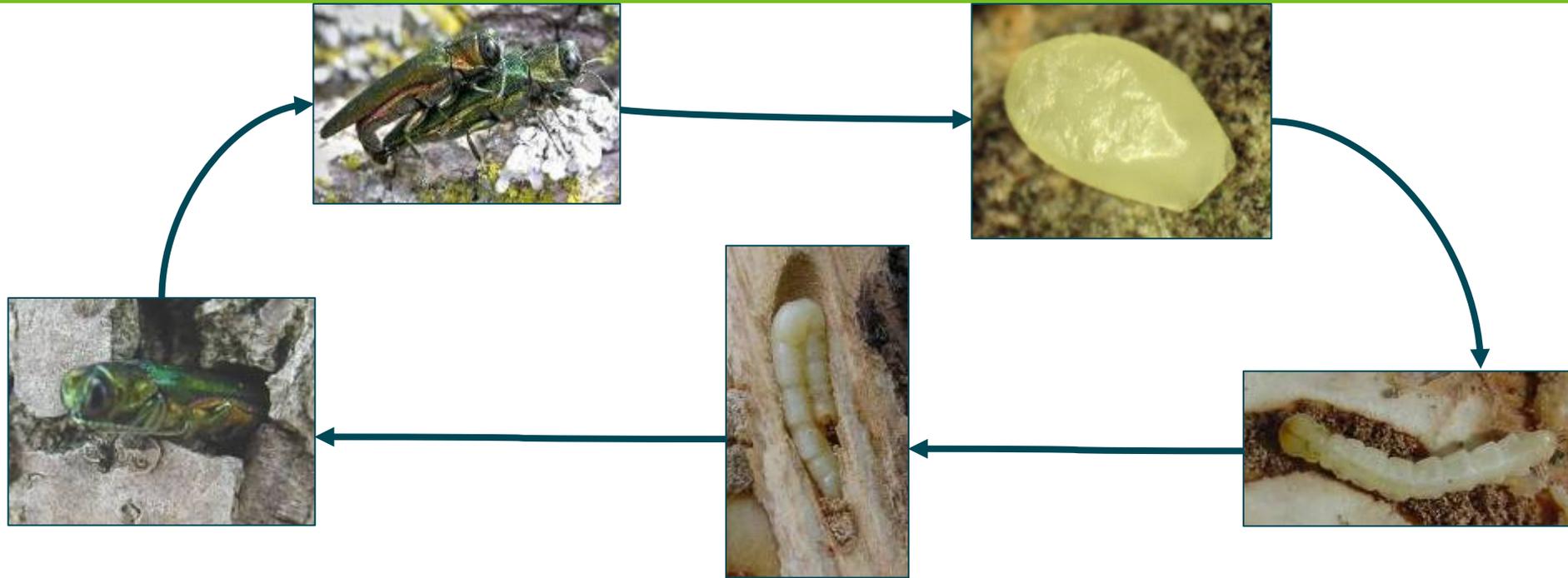
Management

Reporting



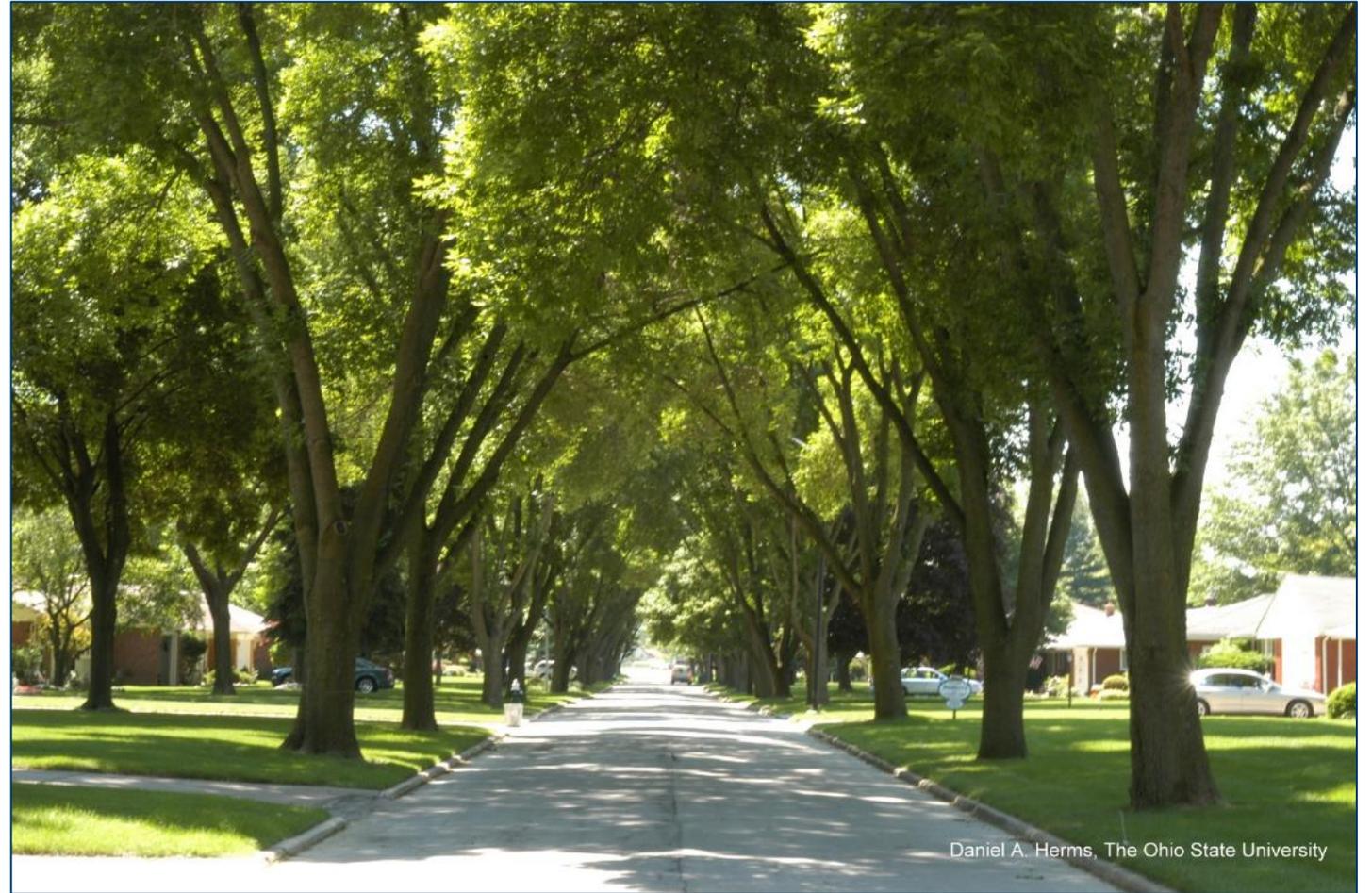
## Life Cycle

# Life Cycle

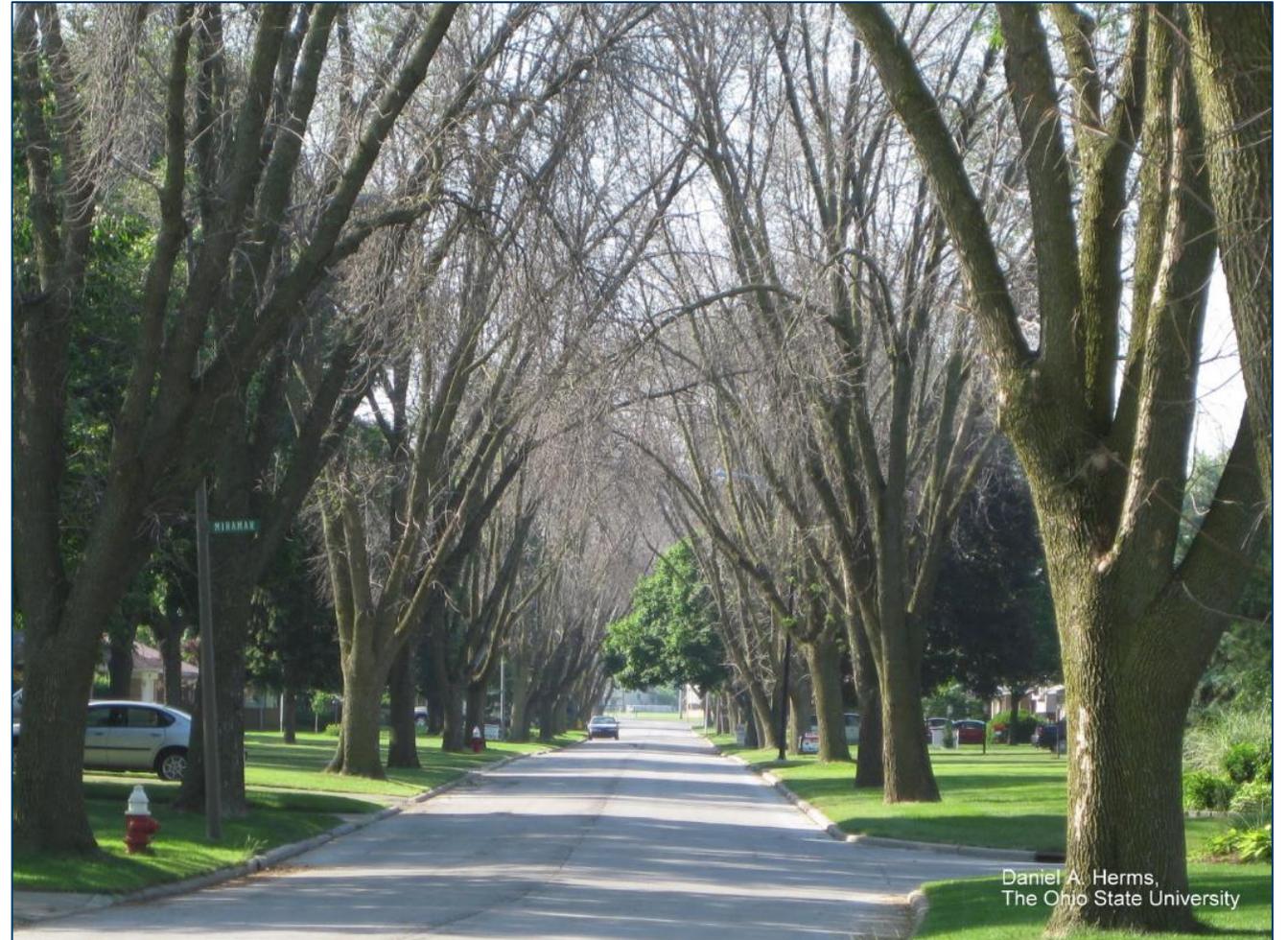


	J	F	M	A	M	J	J	A	S	O	N	D
	a	e	a	p	a	u	u	u	e	c	o	e
	n	b	r	r	y	n	l	g	p	t	v	c
Immature (under bark)												
Adult (free living)												

# How Does EAB Kill Trees?



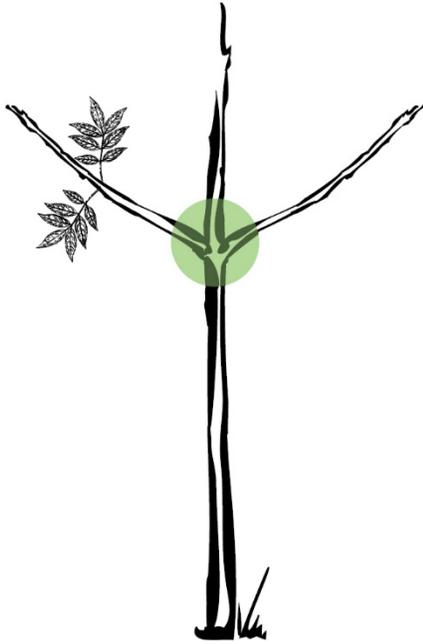
# How Does EAB Kill Trees?





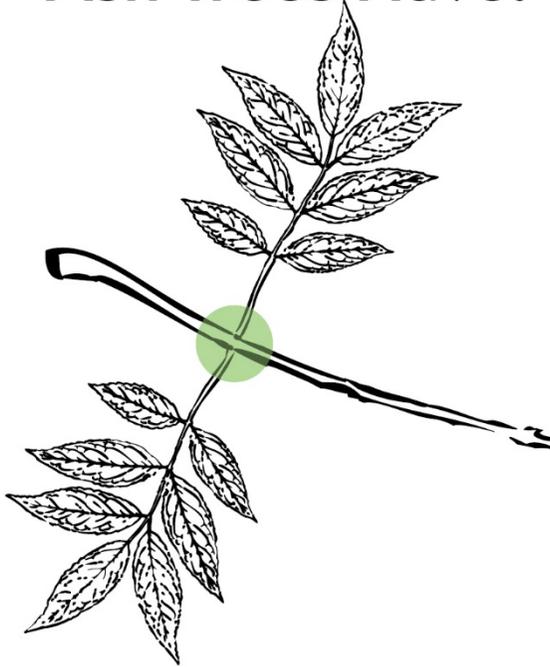
# Host Trees

**Ash Trees Have:**



**Opposite Branching**

**Ash Trees Have:**



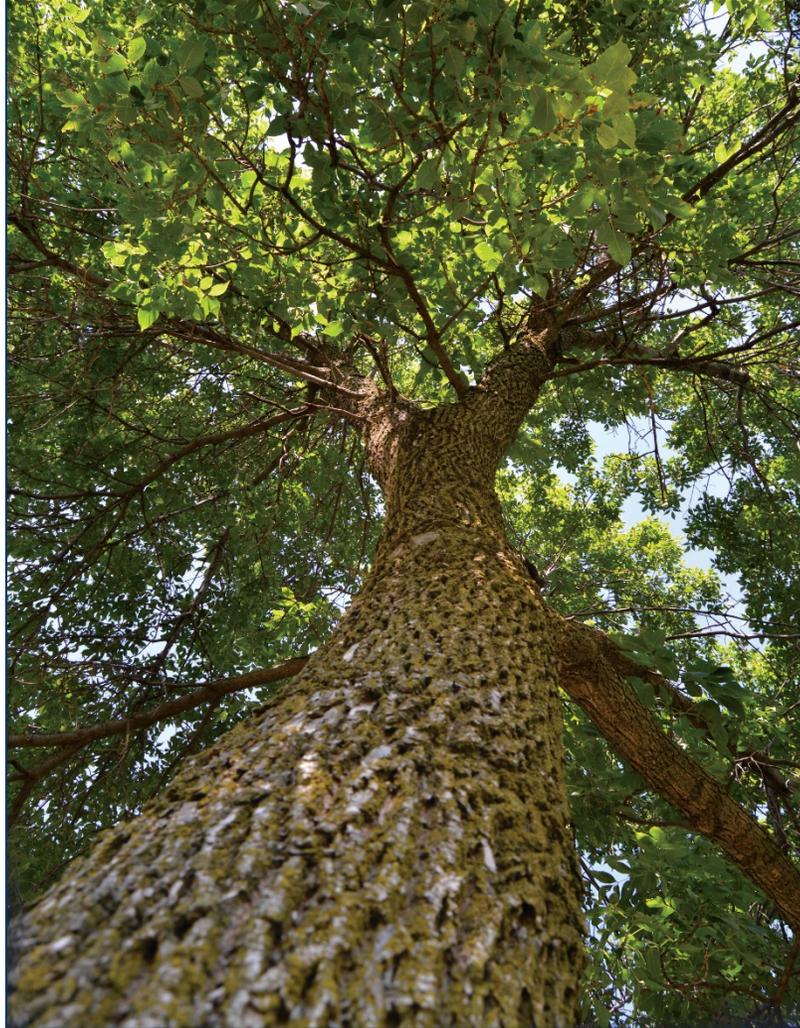
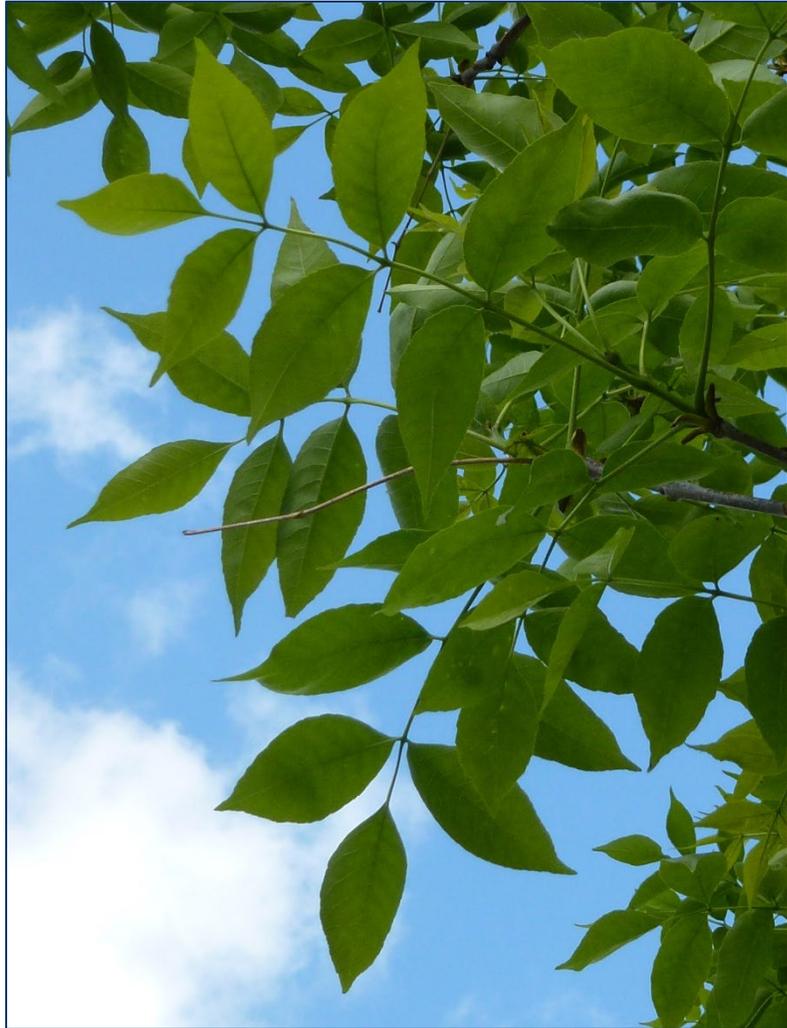
**Compound Leaves**

**Ash Trees Have:**



**5 to Many Leaflets**

# Ash Tree ID



# Host Trees



## Susceptibility

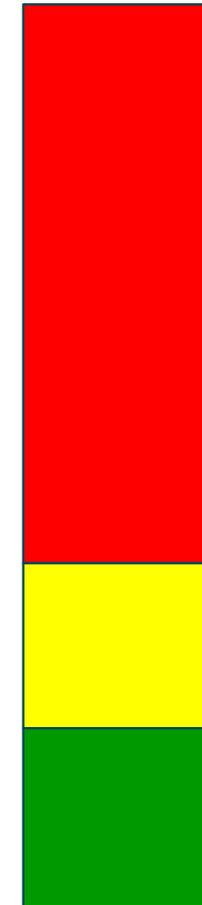
Black ash

Green ash

White ash

Blue ash

Manchurian ash



high

low

- Black Ash Cultivars**
- Fallgold

- Green Ash Cultivars**
- Bergeson
  - Cimmaron
  - Marshall
  - Patmore
  - Summit

- White Ash Cultivars**
- Autumn Applause
  - Autumn Blaze
  - Autumn Purple
  - Baltimore
  - Greenspire
  - Northern Blaze
  - Rosehill
  - Skyline

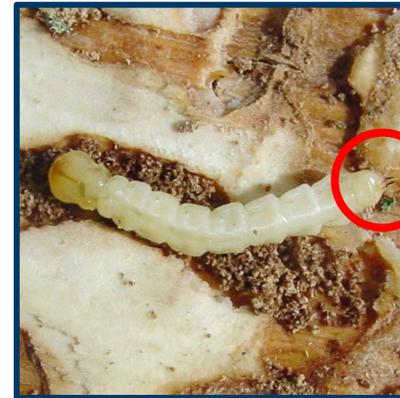


## Recognizing EAB

# Confirmation



“S” shaped feeding gallery



EAB Larva



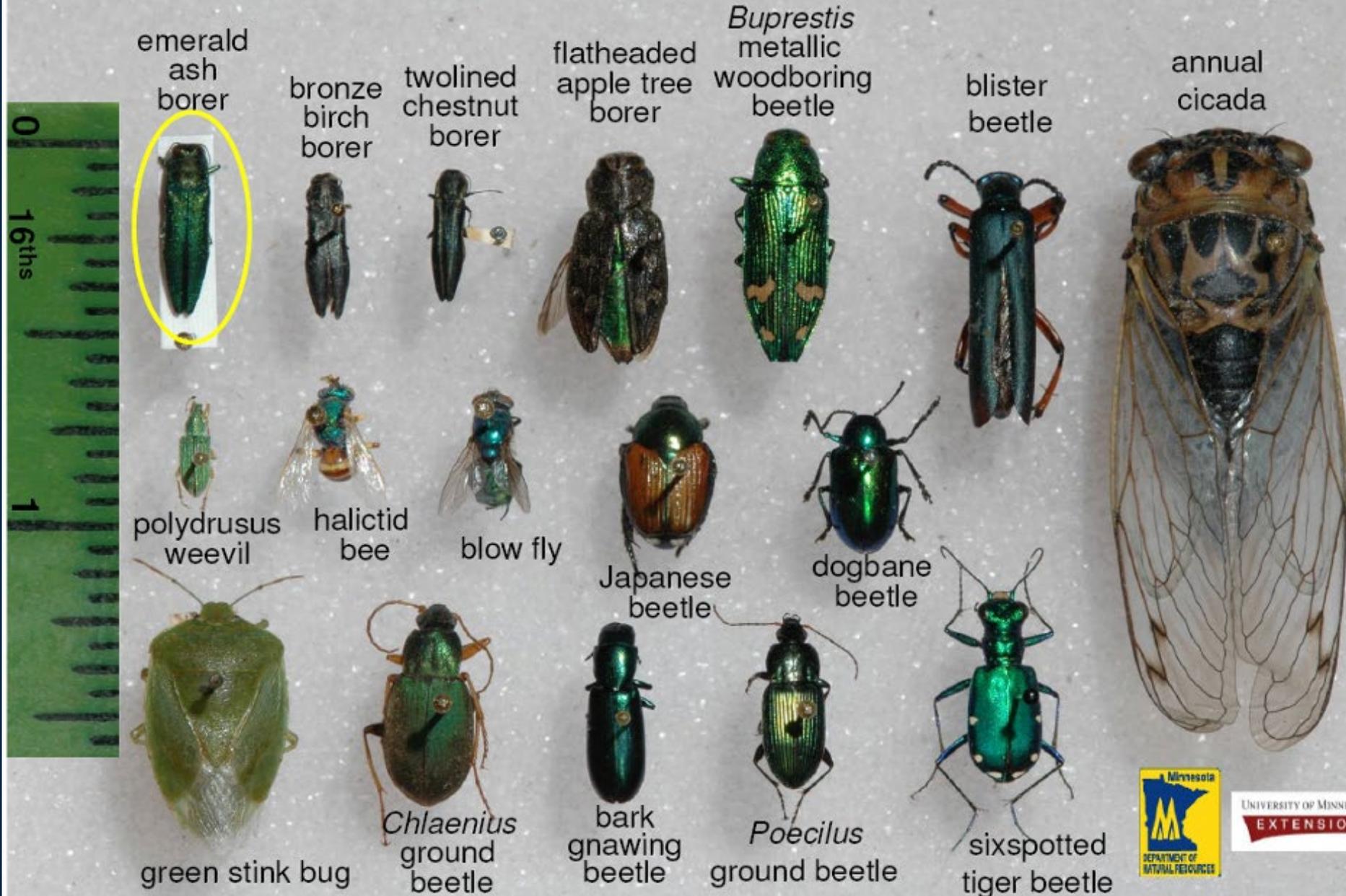
EAB adult beetle



“D” shaped exit hole

# Insects in Minnesota That May Be Confused with Emerald Ash Borer

Jeff Hahn, University of Minnesota Extension  
Val Cervenka Minnesota Dept. of Natural Resources

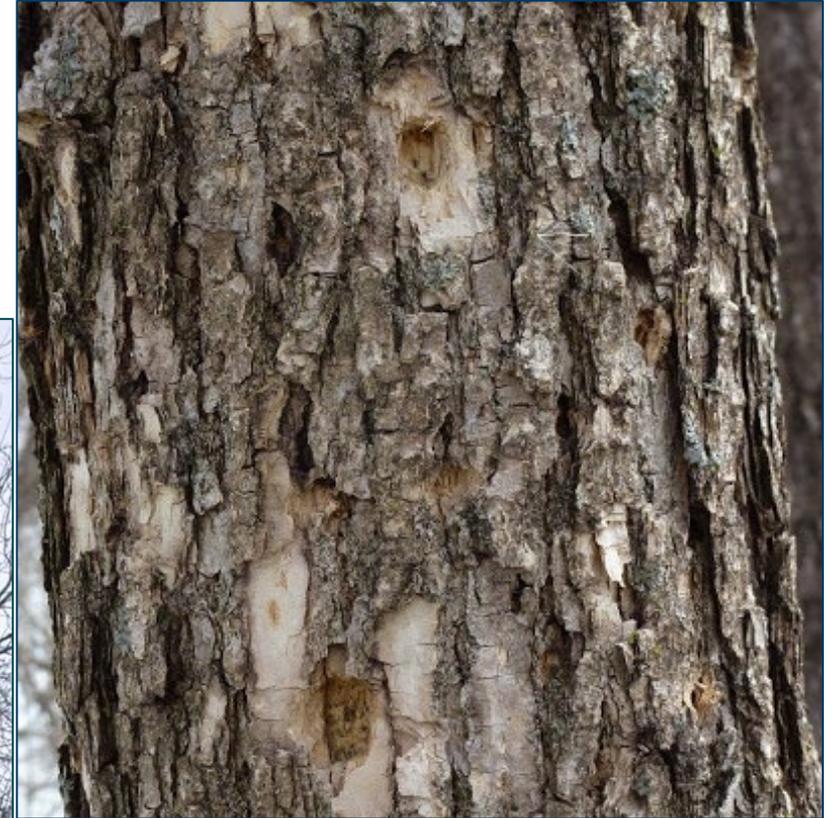




## Signs & Symptoms

# Woodpecker Damage

- Branches 3-6" in diameter
- Bark blinding / flaking
- Woodpecker holes
  - Dime sized
  - Light colored
  - Oval shaped



# Bark Splits



# Canopy Thinning



[mda.state.mn.us/eab](http://mda.state.mn.us/eab)



# Symptom Progression

EAB Status	Symptoms	Years Infested
Small larvae present	None	1
Large larvae present / Emerging adults	Woodpecking possible	2
Increasing larvae numbers 	Woodpecking likely Bark splits possible	3
	Canopy impacts visible	4
	Dead trees present	5-6



# Distribution



# Emerald Ash Borer (EAB) Known Infested Counties

APHIS Plant Protection and Quarantine (PPQ)

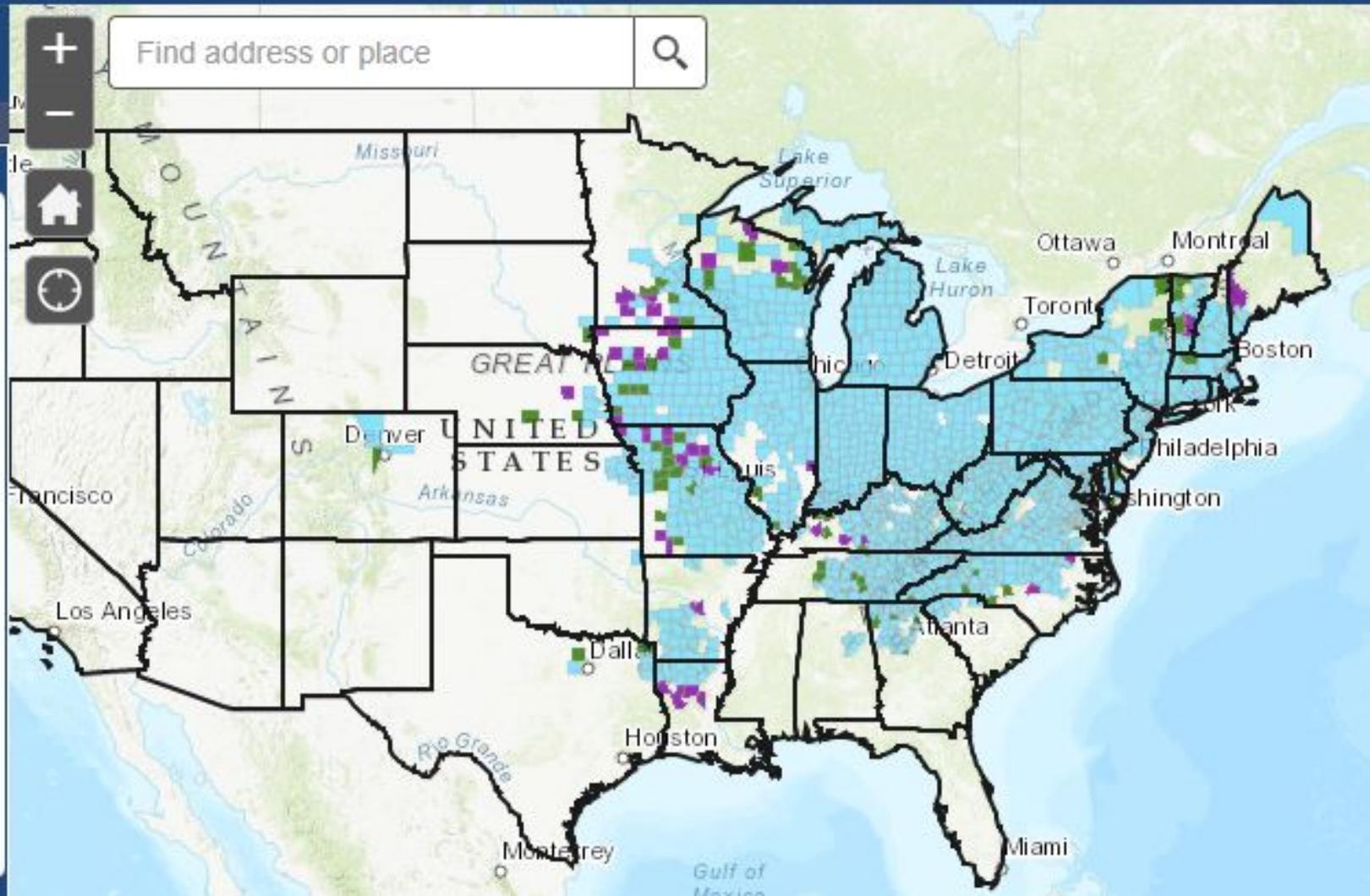


Data Interaction Tab

Legend

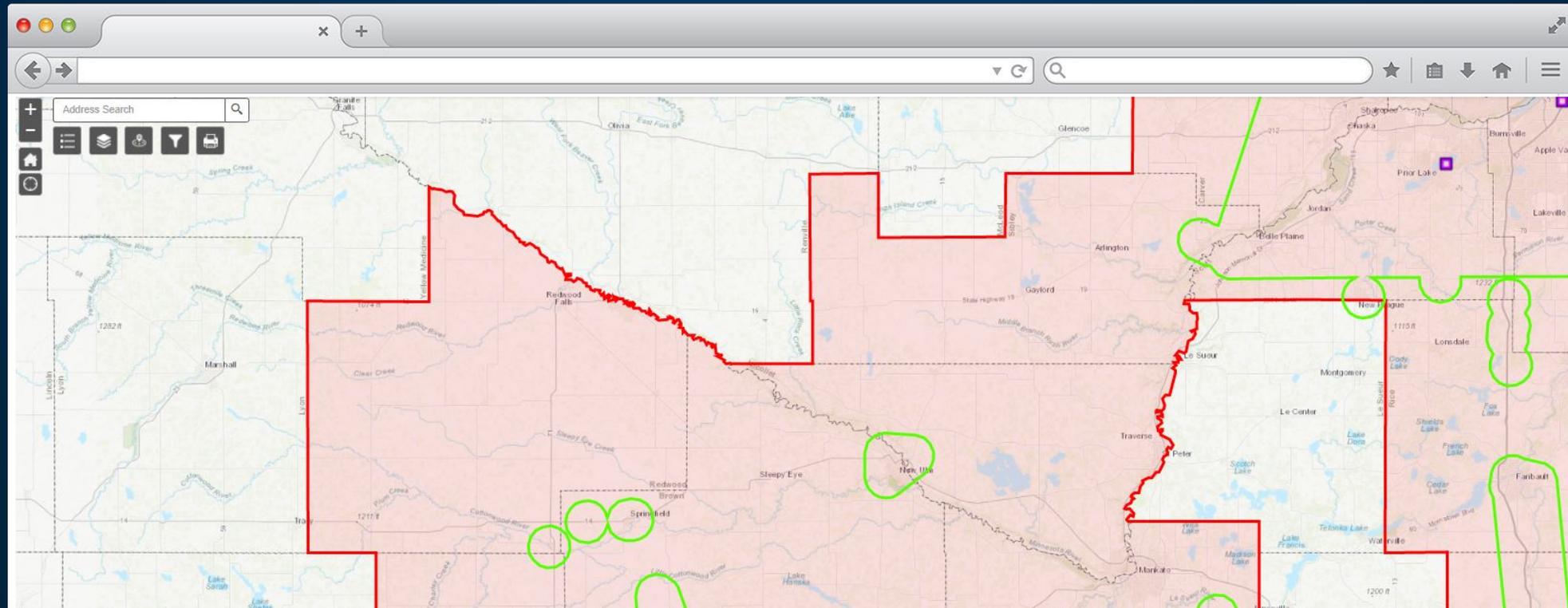
## EAB Known Infested Counties

-  2021
-  2020
-  2002 - 2019

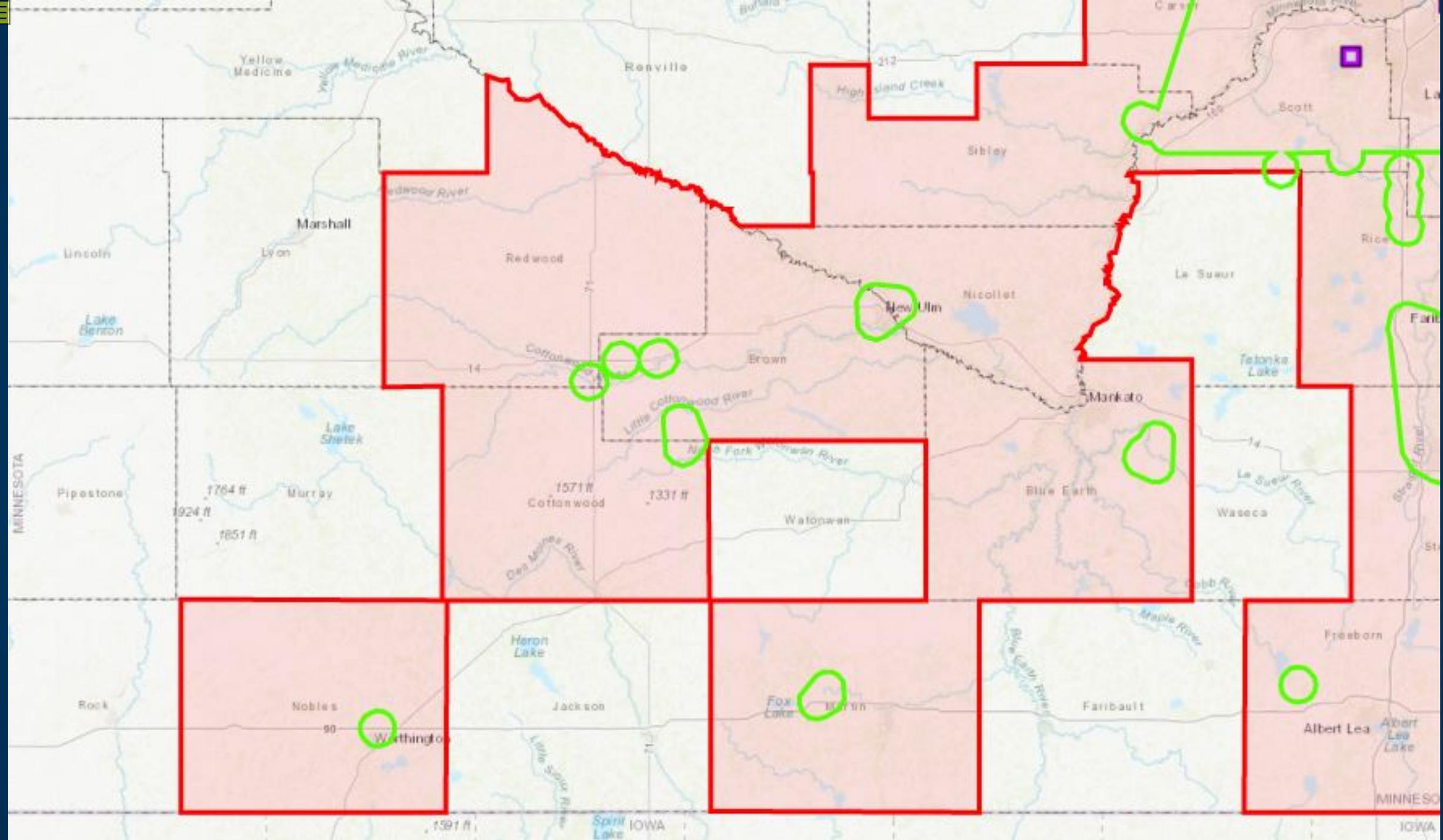


# Interactive Map

- [mda.state.mn.us/eabstatus](http://mda.state.mn.us/eabstatus)
- Closest known infested ash tree

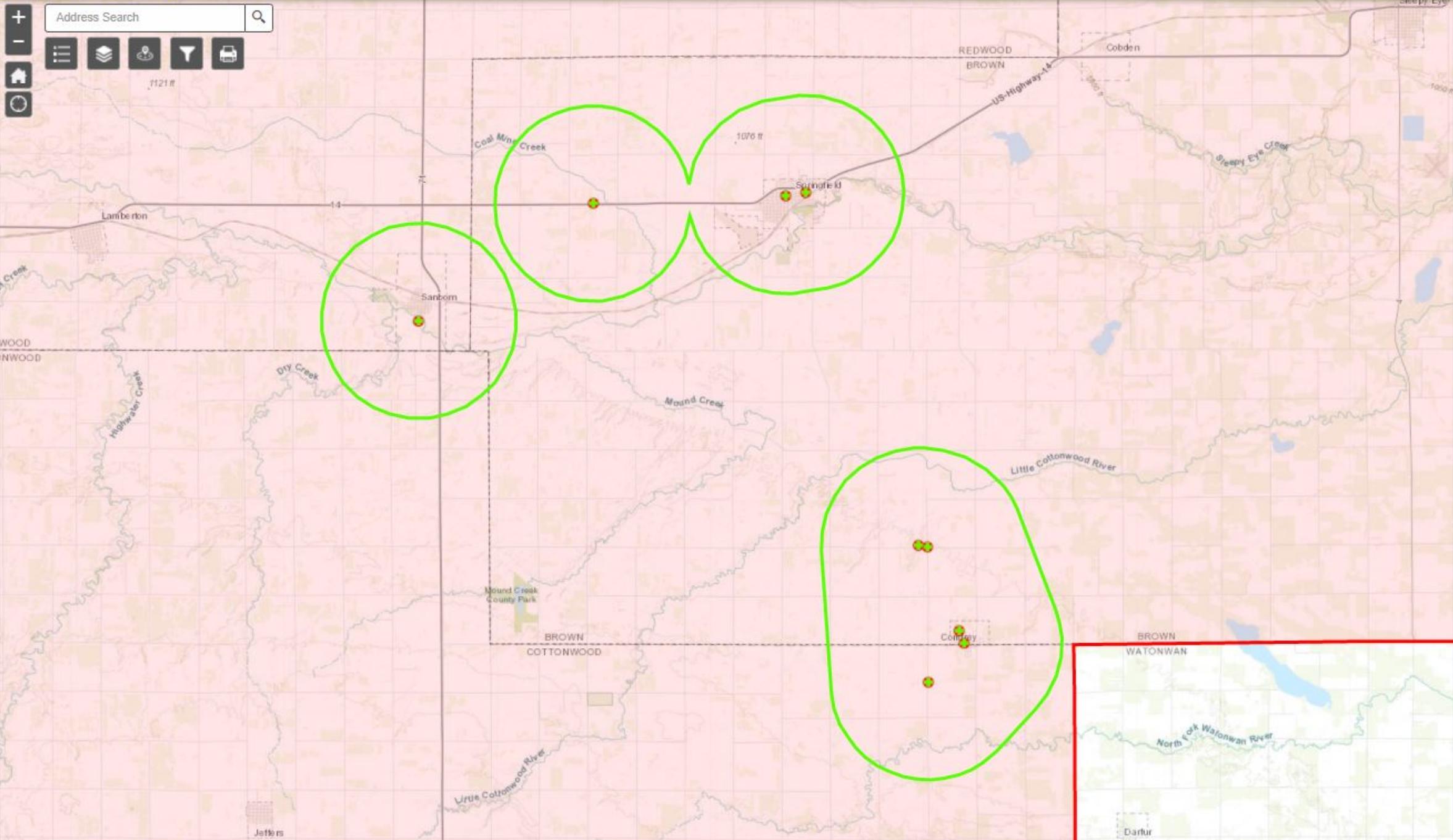




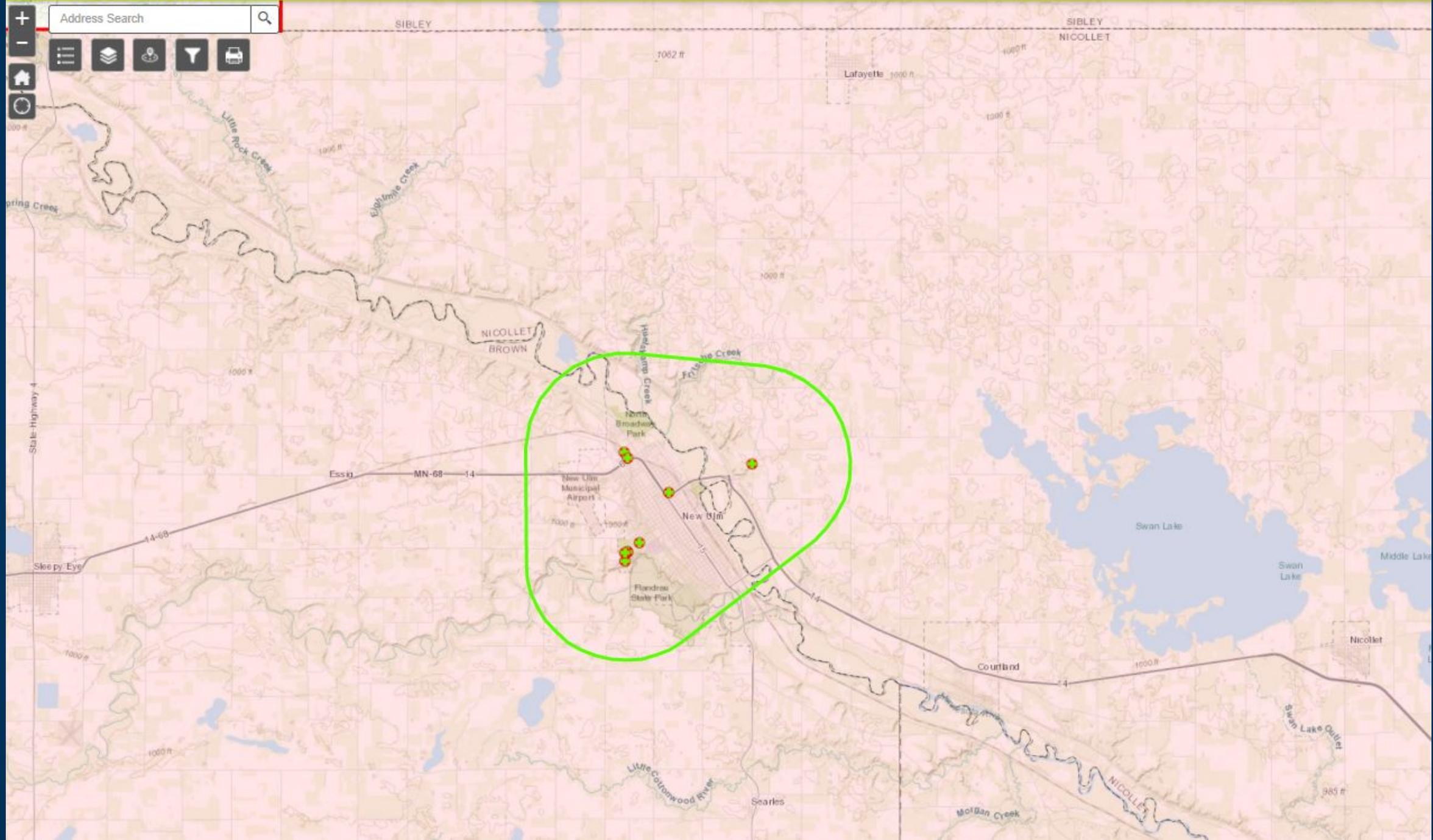


Address Search

Map navigation controls: Home, Layers, Location, Filter, Print, Refresh, Zoom In (+), Zoom Out (-).



Address Search

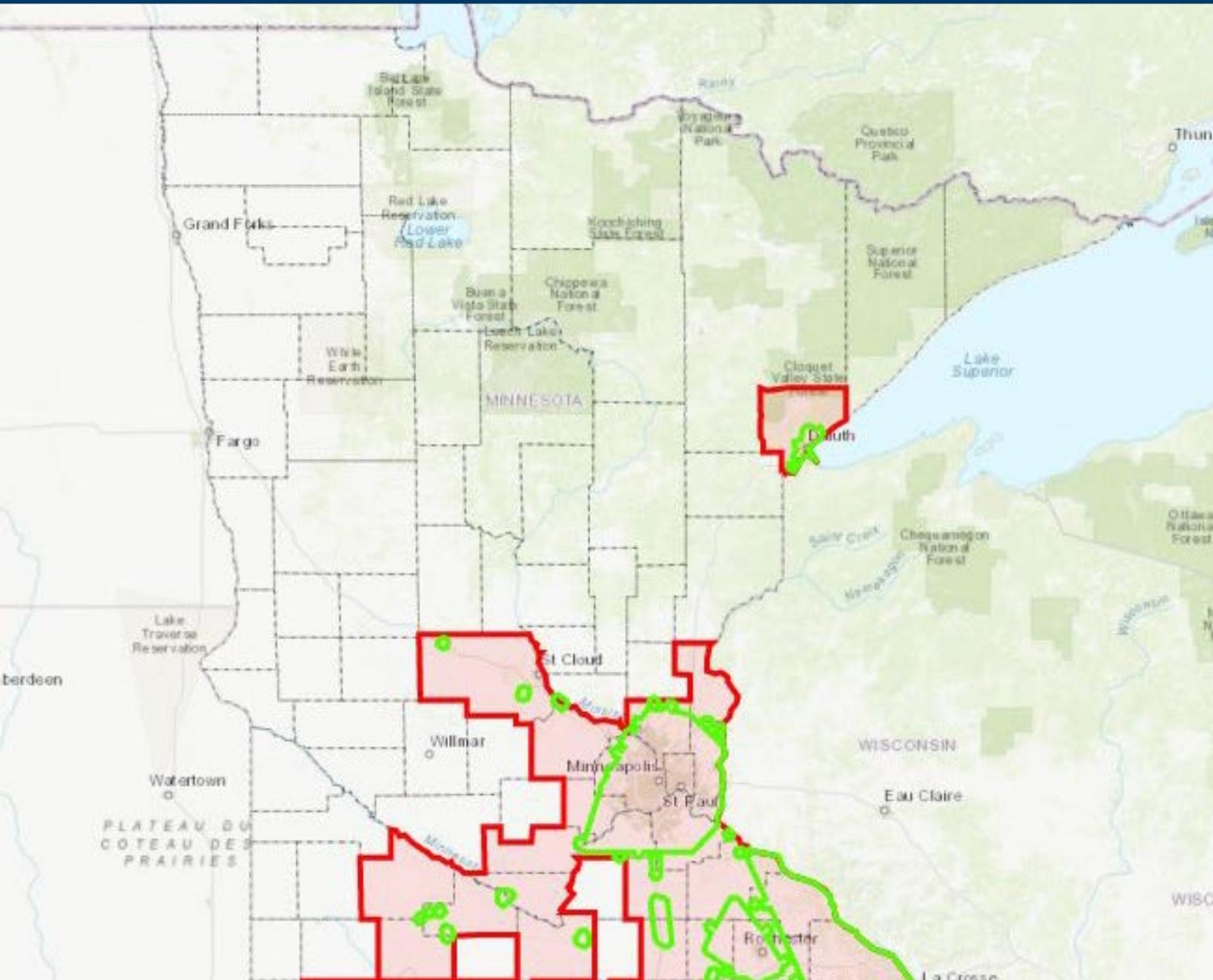




# Regulations

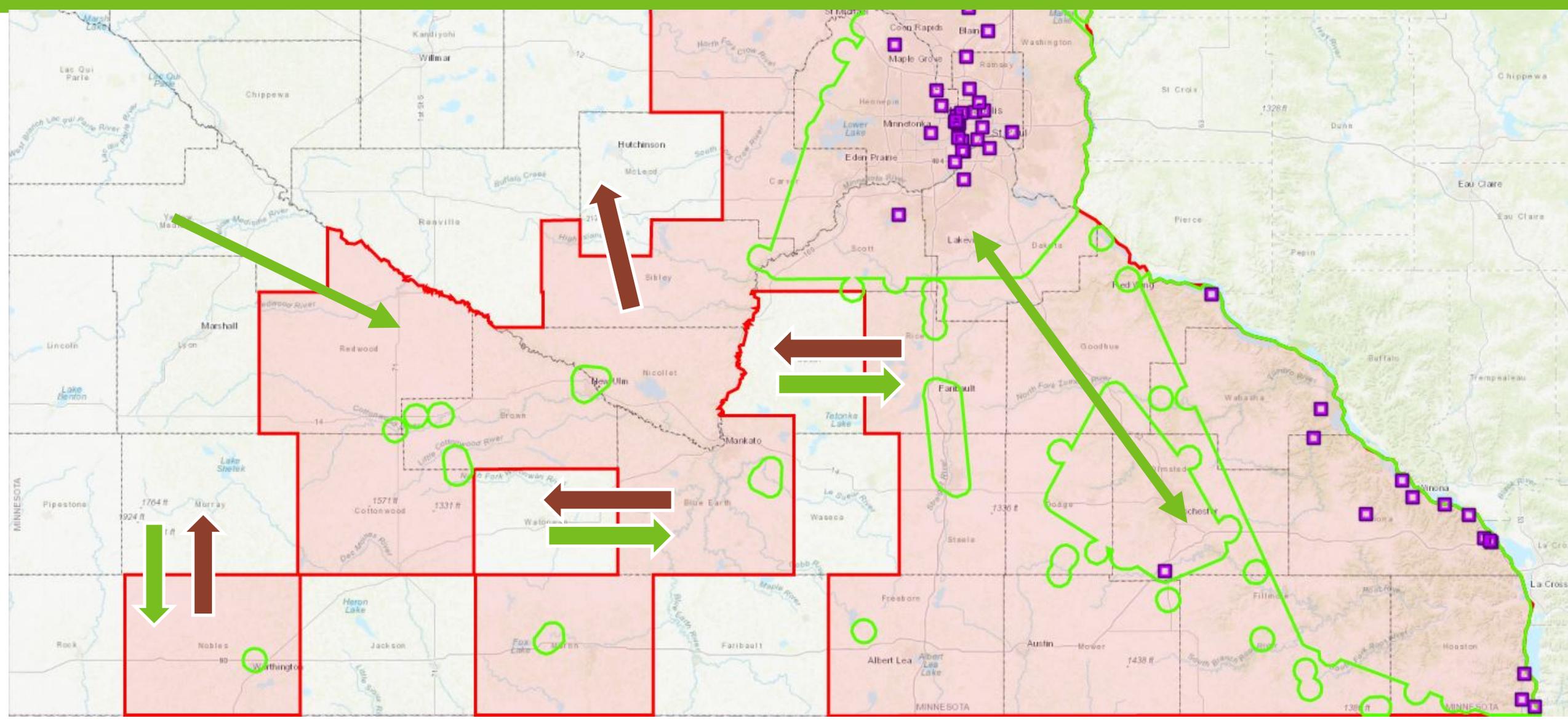
<https://www.mda.state.mn.us/plants-insects/emerald-ash-borer-quarantine>

# Minnesota Quarantines



- Generally infested area in green within red EAB quarantined counties
- Regulated Articles
  - Ash
  - EAB
  - Mulch
  - All Hardwood Firewood (<4 feet in length)

# Movement of Regulated Articles



# Firewood

- Definition of Firewood
  - Wood cut to lengths less than four feet long
  - Split or not
  - Commercial or private use
  - All Species



# Firewood Movement

- Firewood Cannot

- Enter from Canada or other states
- Leave EAB quarantine
- Leave GM Quarantine (Lake and Cook County)

- Firewood Can

- Move around inside of pest quarantine
- Move around outside of quarantine
- Move freely if MDA Certified



# EAB Quarantine Questions

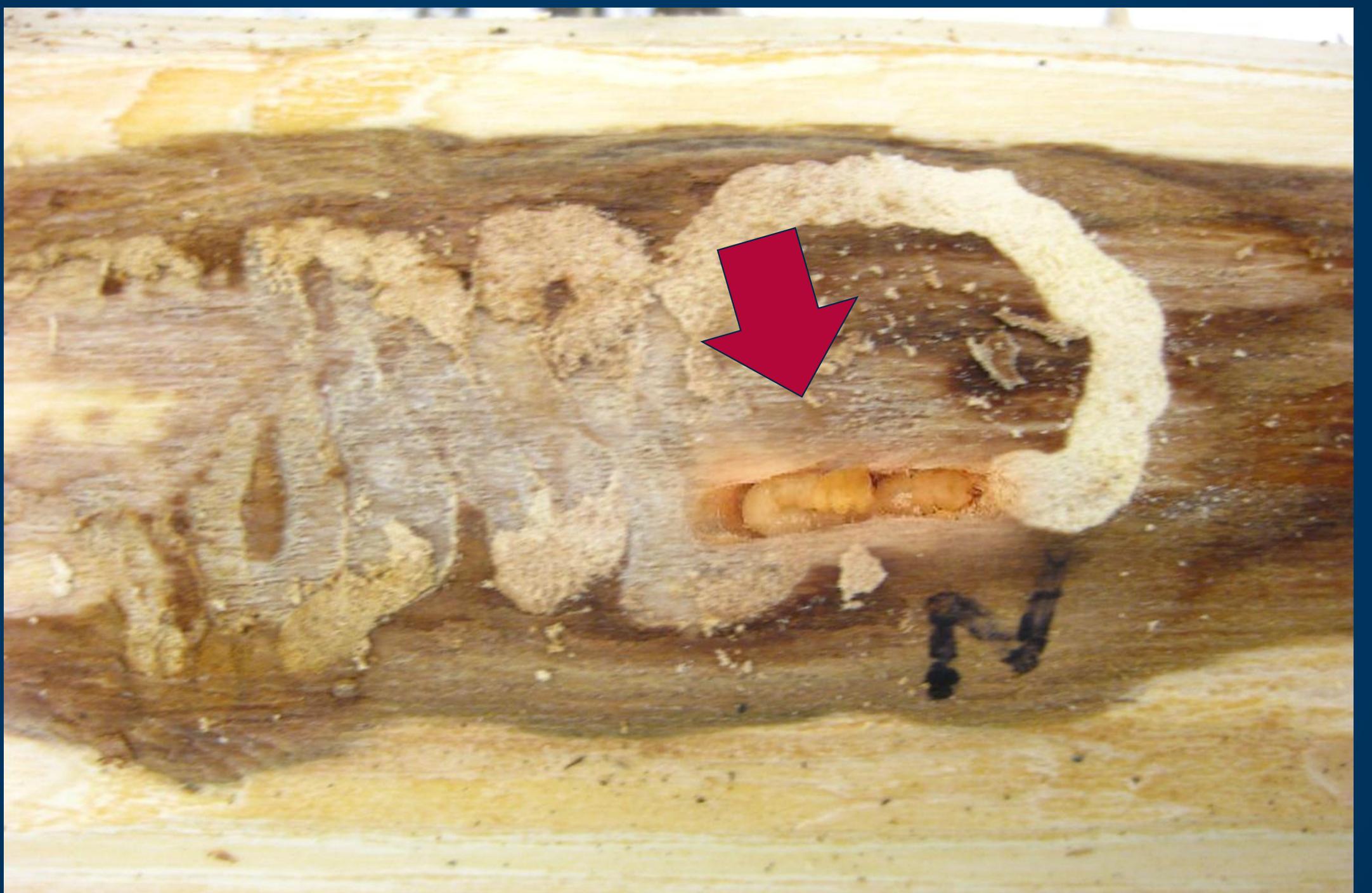
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507-384-1129



Use Caution









# DON'T MOVE FIREWOOD!

Emerald Ash Borer is in Minnesota





# Management

# Best Management Practices



## **EAB Active Period**

May 1 – September 30

Avoid removal of ash branches, trees and stumps



## **EAB Dormant Period**

October 1 – April 30

Conduct pruning and removal of ash as desired

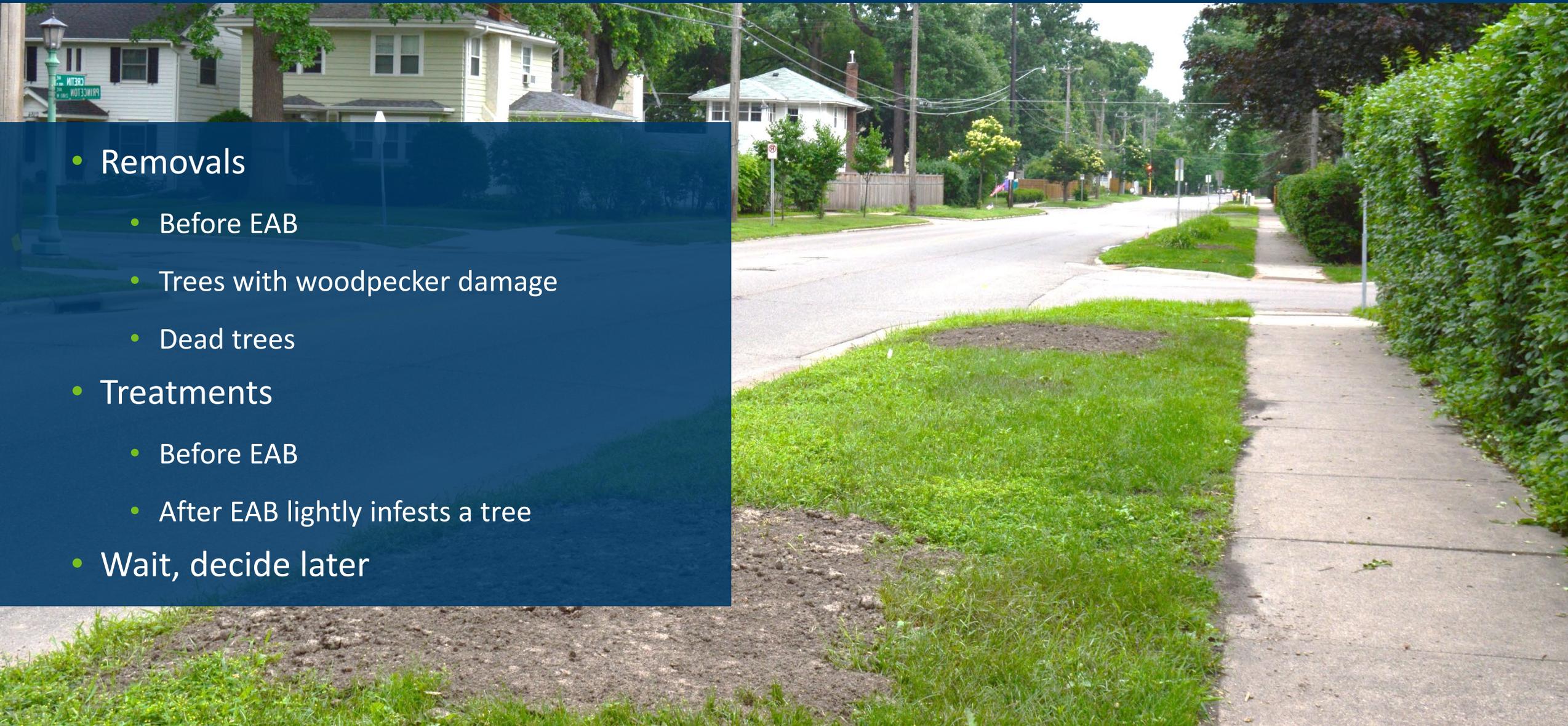
# Removals & Treatments

- Removals

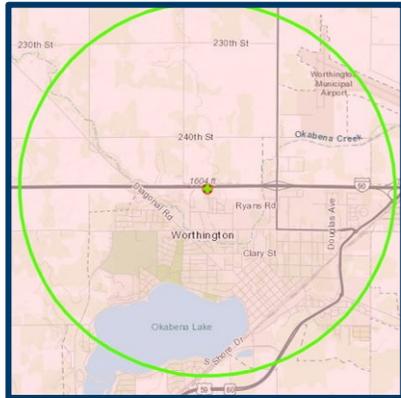
- Before EAB
- Trees with woodpecker damage
- Dead trees

- Treatments

- Before EAB
- After EAB lightly infests a tree
- Wait, decide later



# Removal or Treatment?



How close is EAB?



How healthy is the tree?



How large is the tree?



How many trees are there?



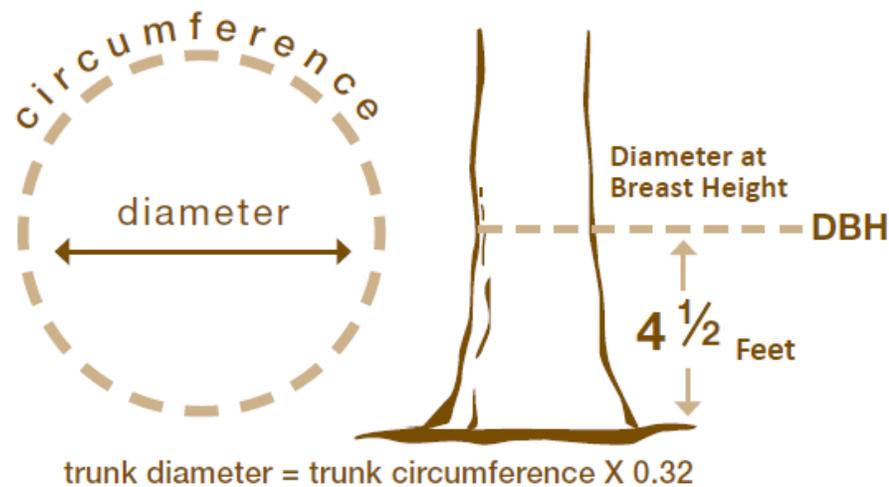
# Systemic Insecticides

Affects  
adult  
beetles

Can also  
affect larvae  
under bark

# Insecticide Treatments

- Measure your ash tree
- Treatments need to be repeated



CONVERSION TABLE	
Tree Measurements at 4½ Feet Above Ground Level	
Circumference – Inches	Diameter at Breast Height (DBH) – Inches
15	5
20	6
25	8
30	9.5
35	11
40	13
45	14
> 48 inches	> 15 inches

In general, large trees are best treated by a professional. For exceptions, check specific pesticide product labels.



## Reporting

# Arrest the Pest

- Take pictures and notes
- Capture the insect or take a sample of the plant
- Report
  - City forester or designated staff
  - GLEDN app (Great Lakes Early Detection Network)
  - [mda.state.mn.us/arrestthepest](http://mda.state.mn.us/arrestthepest)
  - [Arrest.the.pest@state.mn.us](mailto:Arrest.the.pest@state.mn.us)
  - Call 888-545-6684 and leave a detailed message



# Thank you!

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