

# Emerald ash borer in Oregon

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Program Director  
Plant Protection & Conservation

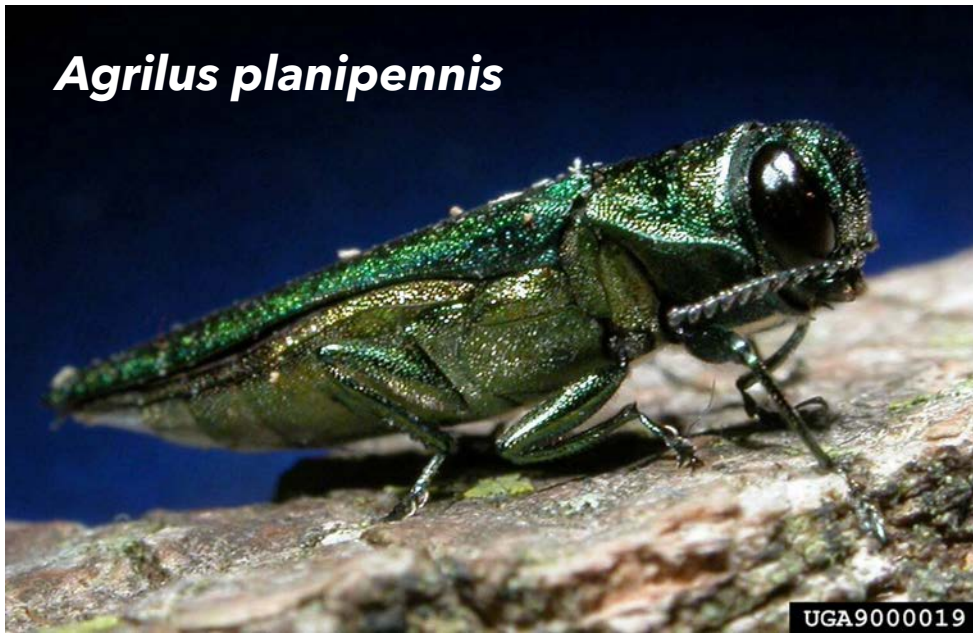
October 18, 2023



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*Agrilus planipennis*



UGA9000019

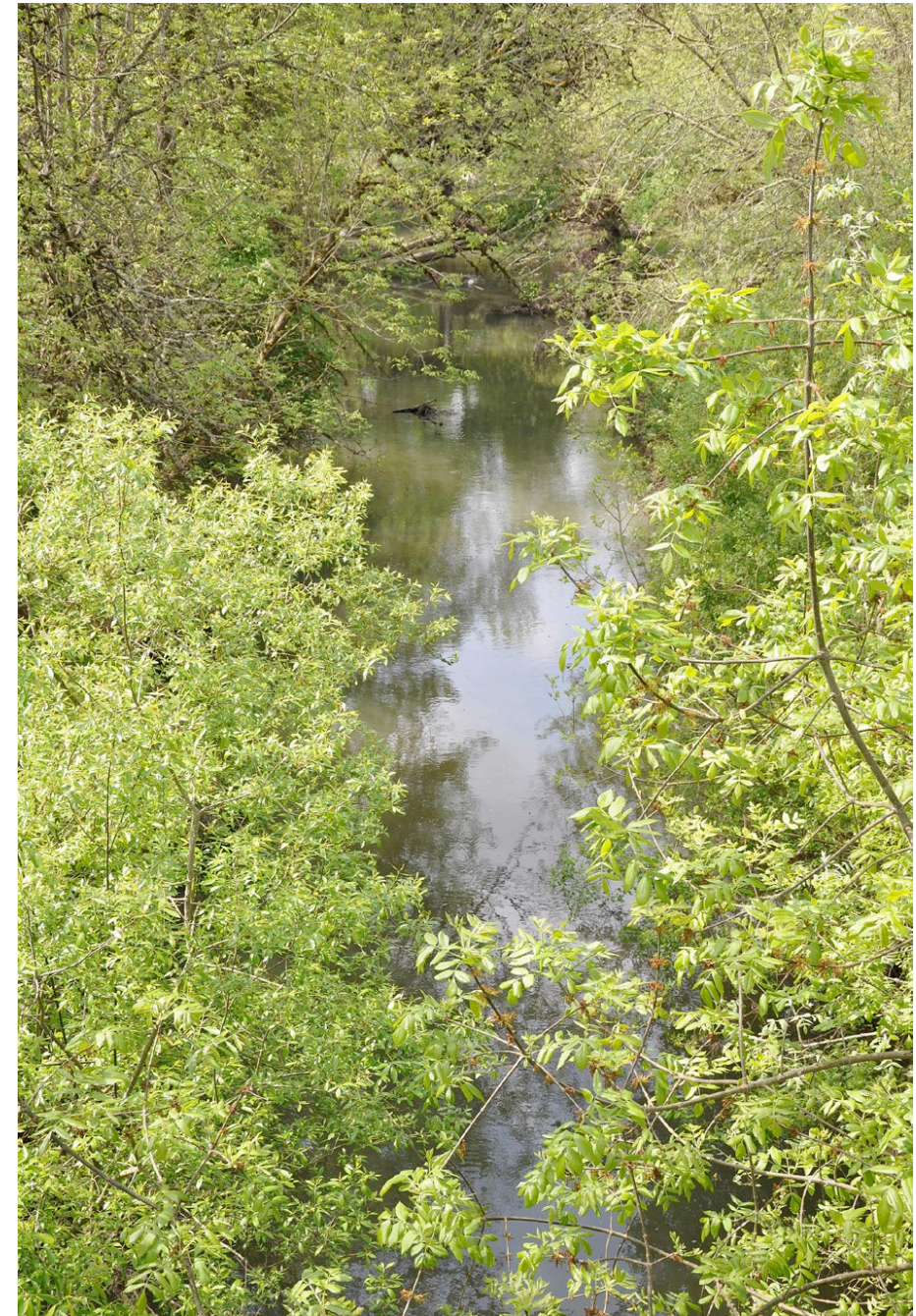
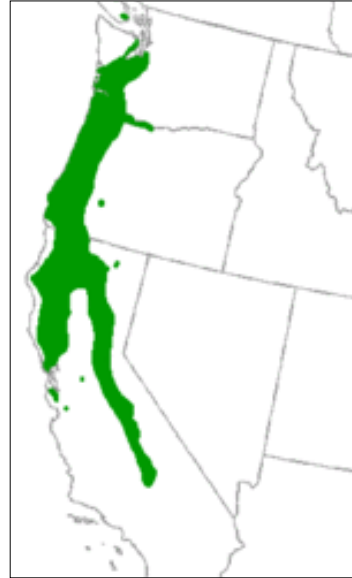


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# Oregon ash (*Fraxinus latifolia*)

- Oregon's only native ash tree
- Important riparian tree
  - Shading, bank stabilization
- Habitat for T&E species
- Wood products
- Cultural resource





# Other EAB hosts



Cultivated Olive  
(*Olea europaea*)



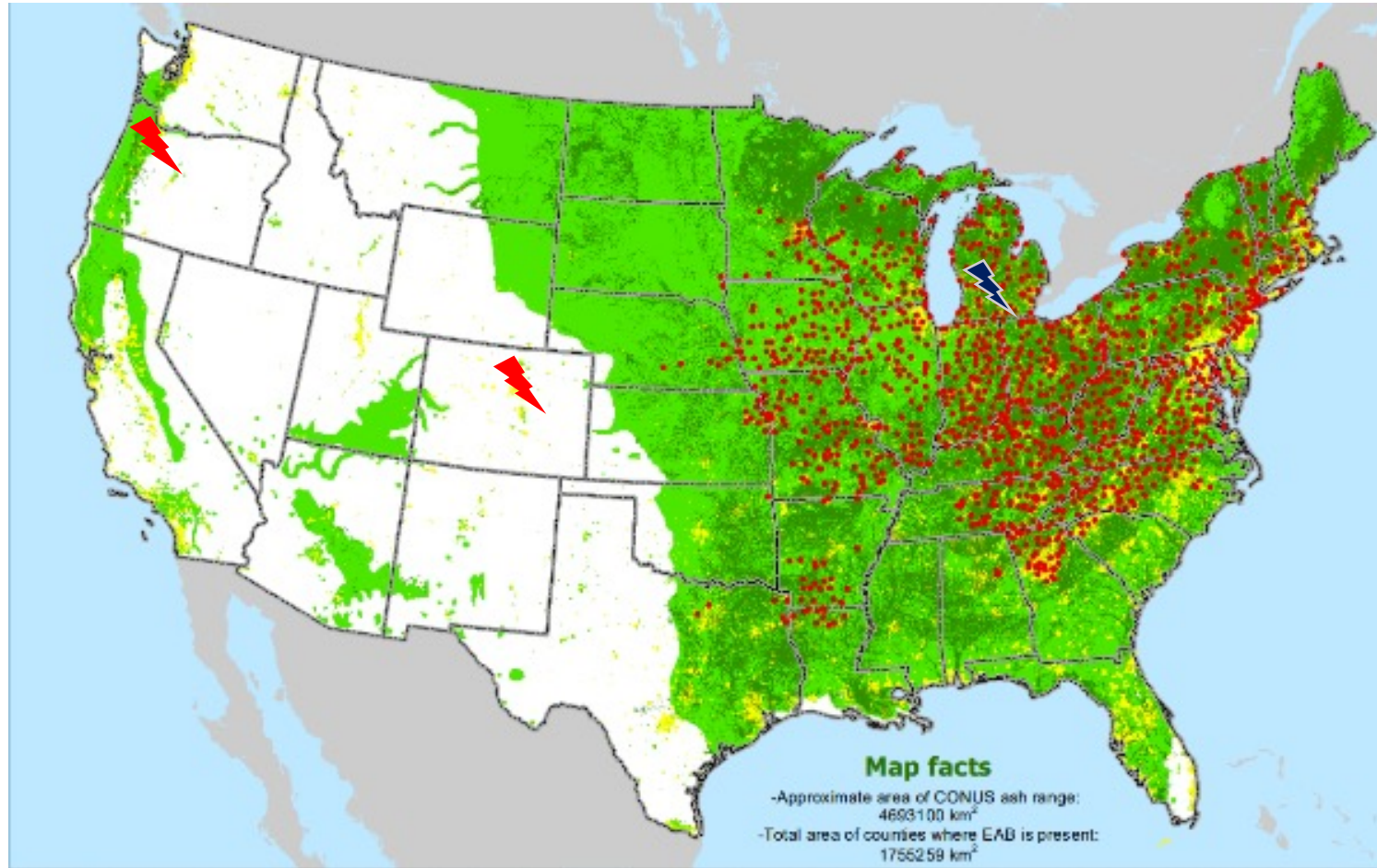
White fringe tree  
(*Chionathus virginicus*)



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# Spread of EAB in the U.S.



- 2002: First detection in MI
- 2013: Detected in CO
- 2022: Jump to Oregon (#36!)
- Spread to 36 states / 20 yrs

*Quarantines are not bulletproof!*





## TOLEDO STREET BEFORE AND AFTER EMERALD ASH BORER

**BEFORE: JUNE 2006**

**PHOTO COURTESY OF DAN HERMS, OSU**

**AFTER: AUGUST 2009**



# Native range of Emerald Ash Borer in Asia.



- International Standard in Phytosanitary Measures 15 (ISPM 15)
- [www.dontmovefirewood.org](http://www.dontmovefirewood.org)





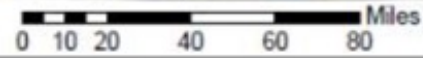
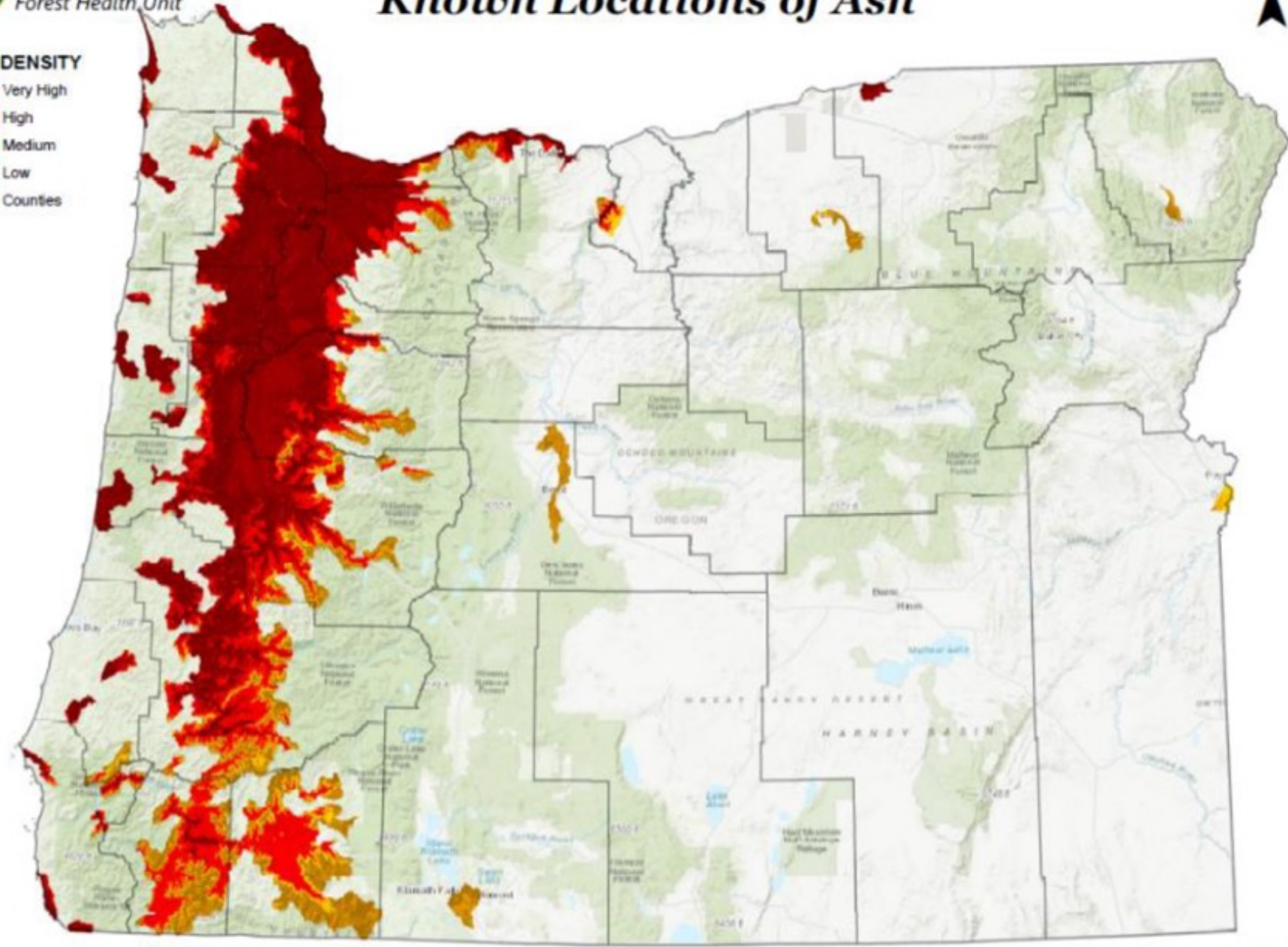




# Known Locations of Ash



- ASH DENSITY**
-  Very High
  -  High
  -  Medium
  -  Low
  -  Counties



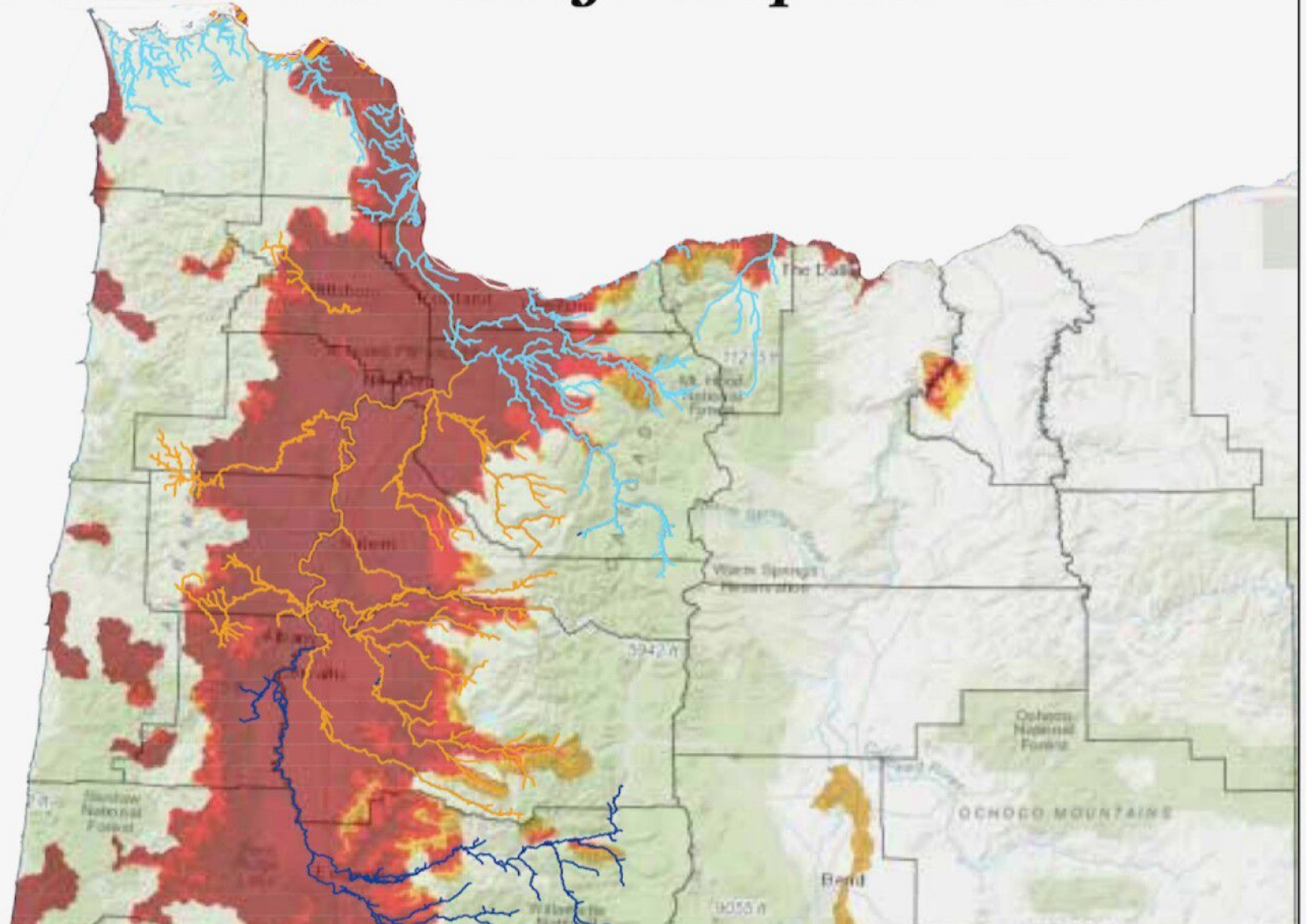
Date: May 2018



# *Emerald Ash Borer - Threatened and Endangered Species Habitat*



- Lower Columbia Coho
  - Upper Willamette Steelhead
  - Upper Willamette Chinook
  - Columbia White Tailed Deer
- EAB Risk**
- Very High
  - High
  - Medium
  - Low
  - Counties







80% of Oregon ash occurs below 1,000'



# Islands of Oregon ash









Walker Creek

Ashland, OR



W. Williams, ODF





# Long-term costs of EAB

- **Ecological:** changes in water quality, species composition, ect.
- **Economic:** Urban tree removal & replacement, property value losses, timber...





# How has Oregon prepared?

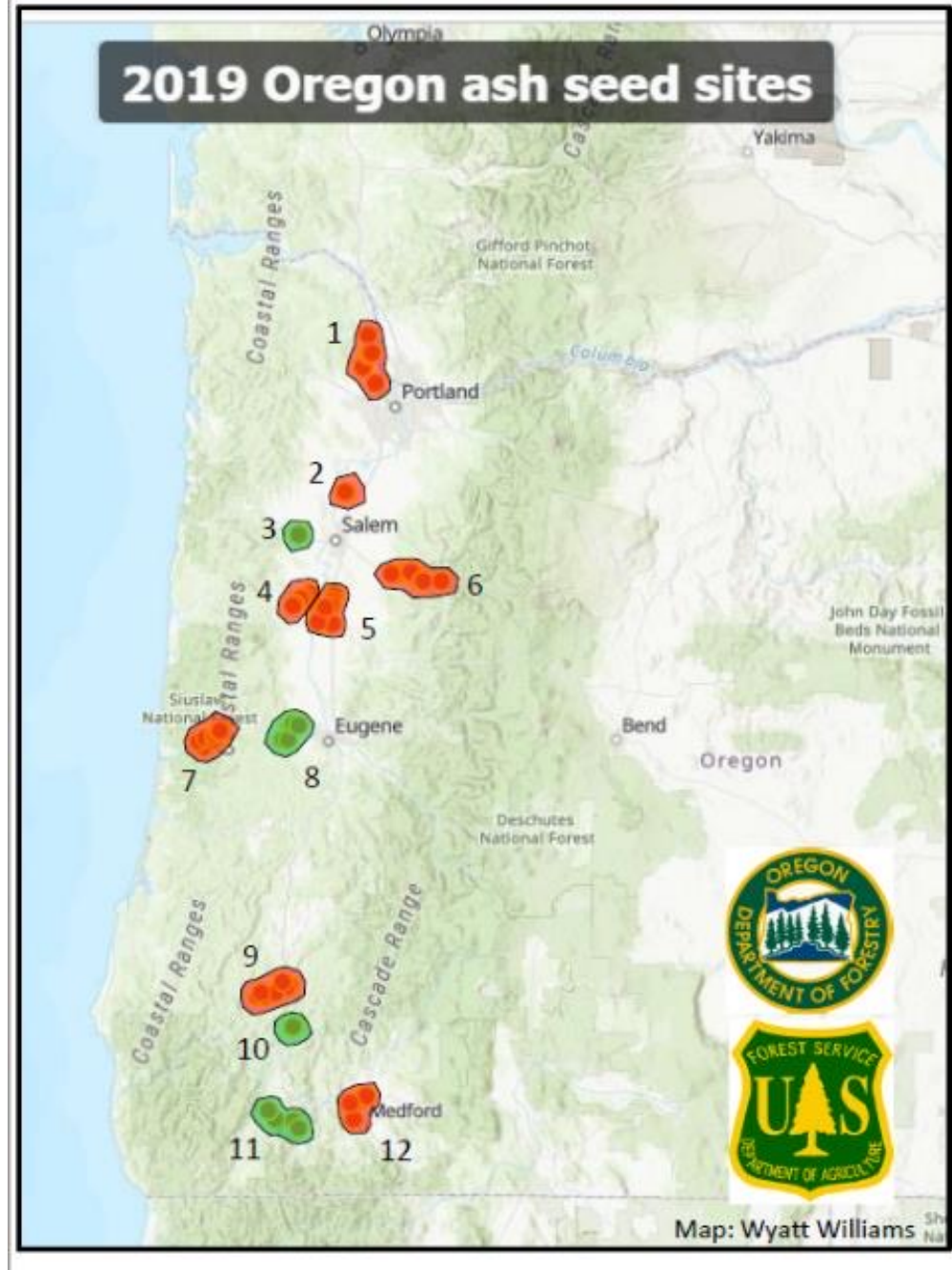
- ODF has been monitoring for EAB for several years
- Before the 2022 detection, ODA had federal funds to begin biocontrol work on EAB
- ODA performed 2 consecutive years surveying nurseries in the valley for woodboring insects
- EAB Response Plan







- 1 million seeds
- 30 populations





# EAB in Forest Grove & initial response



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- Trees planted in 2012
- Purchased locally from OR landscaper/nursery
- Tree origin unknown
- Estimate 3-5 years
- **NO evidence to suggest the trees were source of infestation**









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# Timeline 2022

6/30: ODF visited site

7/1: ODA notified

7/2: trees chipped

7/5: site visit and survey

7/11: press release & USDA  
confirmation

....The frenzy begins....





## Emerald Ash Borer (*Agrilus planipennis*) on Jul 28, 2022

### Description of specimen

Ash tree exhibiting dieback and presence of galleries

*Submitter does not have a specimen*  
**EDRR Status:** Local expert notified



### Location





One ash tree near lamppost in parking island at NW corner of property. This tree is exhibiting street and dieback and has some beetle galleries just below dead branches. Possible EAB. Might be a good place to place traps for monitoring. -Justin Marble, Arborist

### Expert Reviewer



### Commentary

 Thank you for your report! This is near the original detection in Washington Co.  
*Tom Valente*  
July 28, 2022, 2:34 p.m.

 This is not EAB. The tree was inspected and no EAB signs were found.  
*Wyatt Williams*  
July 28, 2022, 4:28 p.m.

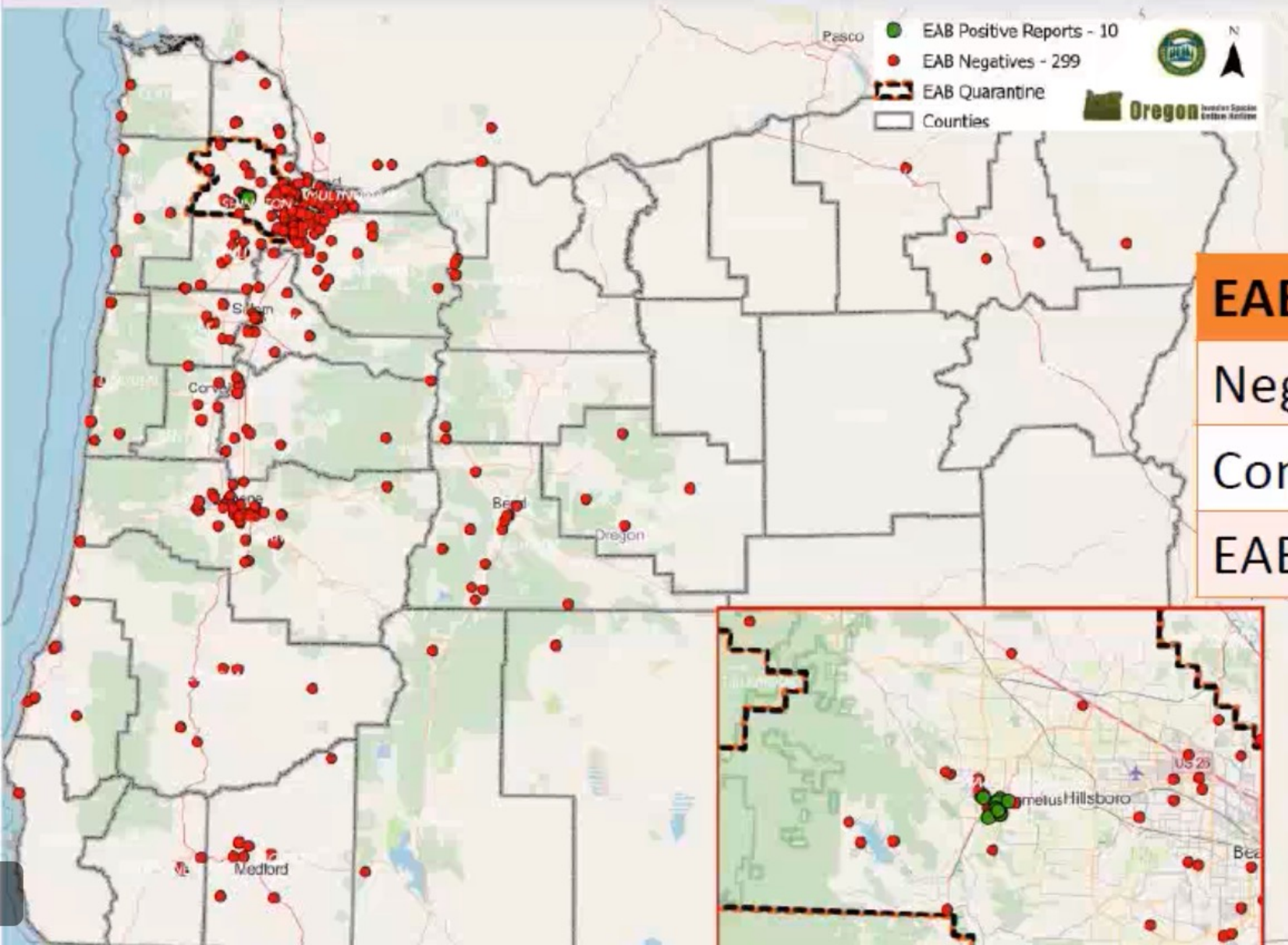


- Mostly false reports
- No new reports from outside known infested area





# Hotline reports: July 1, 2022- Sep 30, 2023



## EAB reports to OISC Hotline

Negative EAB	299
Confirmed EAB	10
EAB Lookalikes*	309

\* 46% Golden buprestid  
19% Western cedar borer



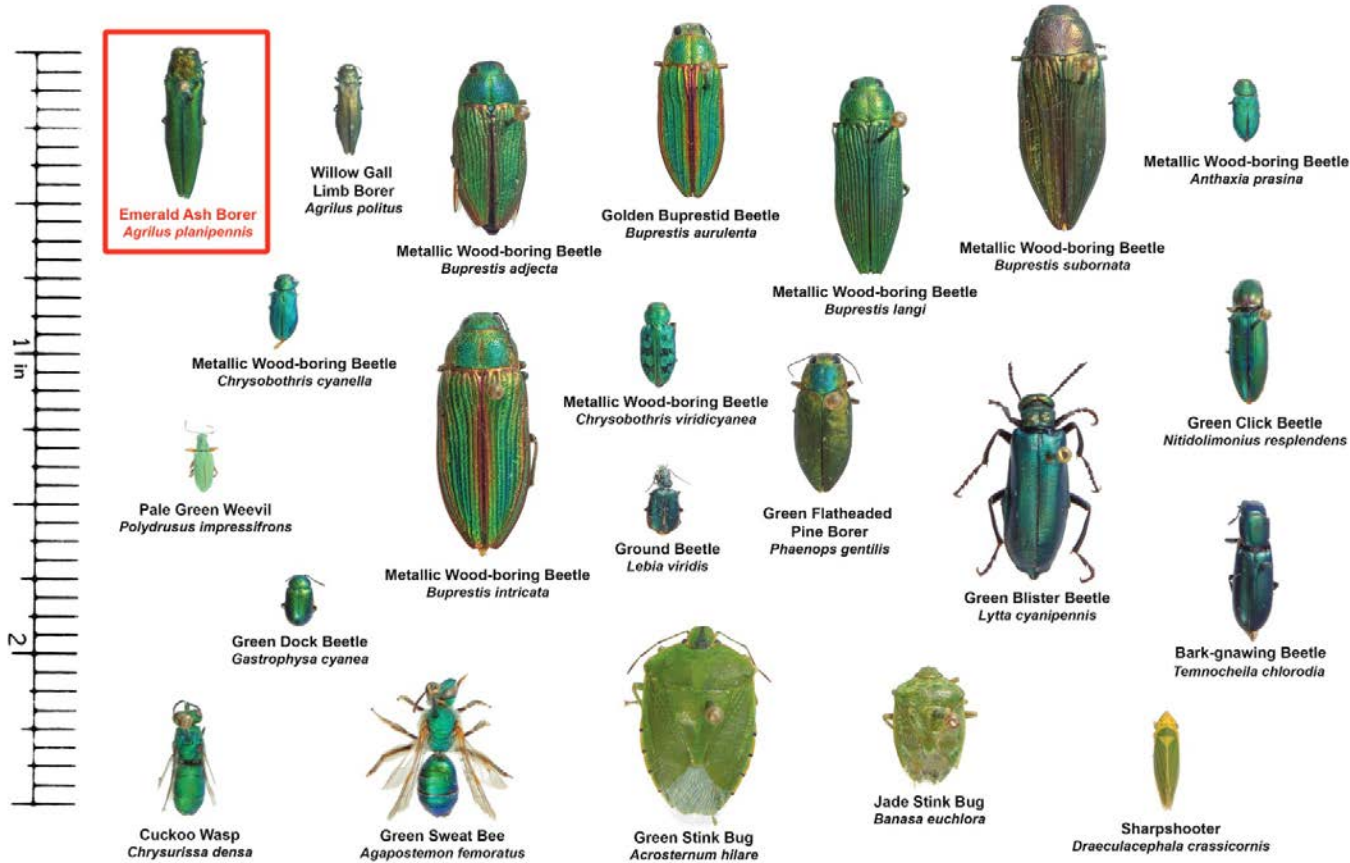


# Outreach and Resources



Insect Pest Prevention & Management Program  
635 Capitol St, NE, Salem, OR 97301-2532  
503.986.4636 | oda.direct/EAB

## Emerald Ash Borer Look-Alikes



Please note these images and the ruler have been enlarged for detail.

7/2022

- Updated EAB fact sheets
  - multi-lingual
- Social media\*\*\*
- Trainings
  - ODF, OSU
  - Urban forestry and small landowners
- Updated State webpages





# EAB Task Force

- 40 organizations
- Lead by ODA, coordinated by OISC
- Subcommittees:
  - Survey & Monitoring
  - Wood Waste
  - Training
  - Research
  - Communications
  - *Funding*

**\*\*Steering Committee\*\***

The background of the slide features a dark, textured surface with several illustrations of Emerald Ash Borer (EAB) beetles and their larvae. The beetles are depicted with their characteristic green bodies and red, segmented abdomens. The larvae are shown as small, green, segmented creatures. The illustrations are scattered across the slide, with some appearing to be on the surface and others as if they are flying or crawling.

## EMERALD ASH BORER

READINESS AND RESPONSE PLAN FOR OREGON



## Quarantine rule


- Ash, olive and white fringe tree
- Regulates movement of nursery stock & wood
- County by county
- Permanent by Nov 2023

## Emergency Funding

- Staff
- Tree felling
- Green waste collection
- Treatment

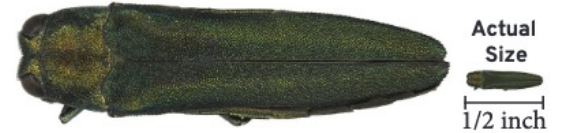
OREGON DEPARTMENT OF AGRICULTURE FACT SHEETS AND PEST ALERTS

# INSECT PEST TEMPORARY QUARANTINE ALERT

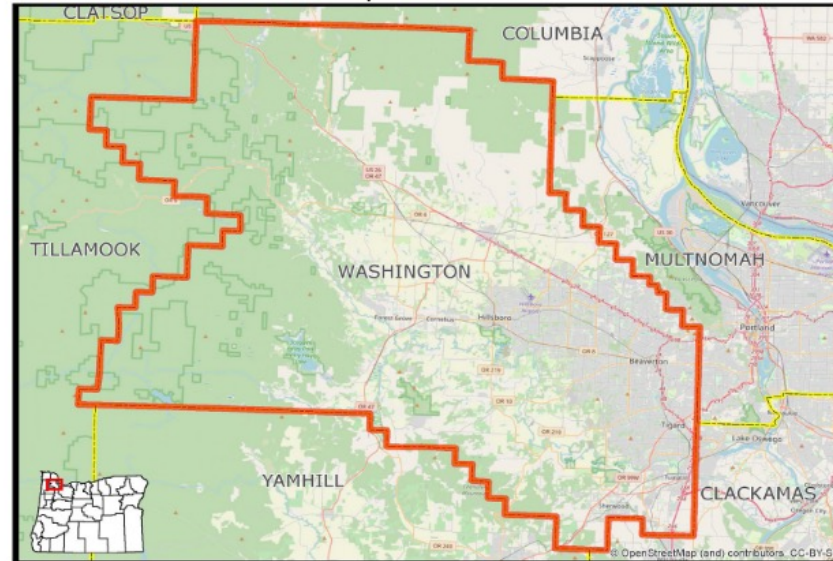


**A temporary quarantine is now in effect. Tree materials of ash, olive, and white fringe tree, must remain within Washington County. Wood waste must be processed accordingly and disposed of to slow the spread of emerald ash borer (EAB) in Oregon.**

## EMERALD ASH BORER TEMPORARY QUARANTINE



### WASHINGTON COUNTY, OREGON



*Washington County, Oregon is now under a temporary quarantine due to the presence of EAB, a destructive pest that targets ash, olive, and white fringe tree. Quarantine applies to all of Washington County, including federal, state, commercial, and private lands.*

### Treatments for ash, olive & white fringe tree materials

#### Quarantined ash, olive, & white fringe tree Materials

- Logs
- Stumps
- Green lumber
- Nursery stock
- Scion wood
- Bud wood
- Chips and mulch
- Roots and branches
- Firewood of hardwood species

#### Quarantine Exceptions

- Seeds and leaves
- Processed lumber that is kiln dried, free of bark and material 1 inch below bark.
- Finished wood products without bark, including furniture, baskets, and baseball bats.

#### April 1 - September 30

Avoid removing ash, olive and white fringe trees, including branches, and stumps.



# Oregon Response: Survey & Monitoring



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# Response as a Continuum

1. Actions will come from different groups in different ways
2. Surveys
  - How far spread?
  - identify biocontrol release sites
3. Traps lures not specific enough and work best in areas with high levels of infestation
4. Biocontrol





# Survey & Monitoring

- Visual Surveys
  - Coordinated through Survey123
- Trapping
  - Purple Prism & Green Funnel
- USDA Training Week
- Treatment Response Plan

8:56 AM

Max

### Emerald Ash Borer Initial Detection S...

This tool is intended for trained natural resource specialists, pest detectors, arborists, foresters, and other experts. If you have not received EAB pest-detector training, please report your EAB findings to the [OISC hotline](#).

Supplying this information can help Oregon detect early EAB infestations.  
Please answer all that apply to the best of your ability.

**Your Name\***

**Agency/Affiliation/Organization\***  
If you are not affiliated with an organization, please write "independent"

**Survey Date\***

12/29/2022

**Tree Location\***

9:00 AM

Max

### If EAB is present - attach a photo

Please take a clear, in focus picture of the insect and/or damage

1 Drop image here or select image (number of files allowed: 1 - 3)

**Full Tree Image**

Take a picture of the full tree (i.e. trunk & canopy).  
Include as much of the canopy as possible.

1 Drop image here or select image (number of files allowed: 1 - 3)

### Canopy Class on a 1-5 Scale

[Click here for reference on crown classification: On a 1-5 Scale, with 1 being a perfectly healthy canopy and 5 being no leaves.](#)

-Please select-

### Dead Branches?

If a branch or branches are dead, is it dead to the trunk, or a connecting branch?

-Please select-

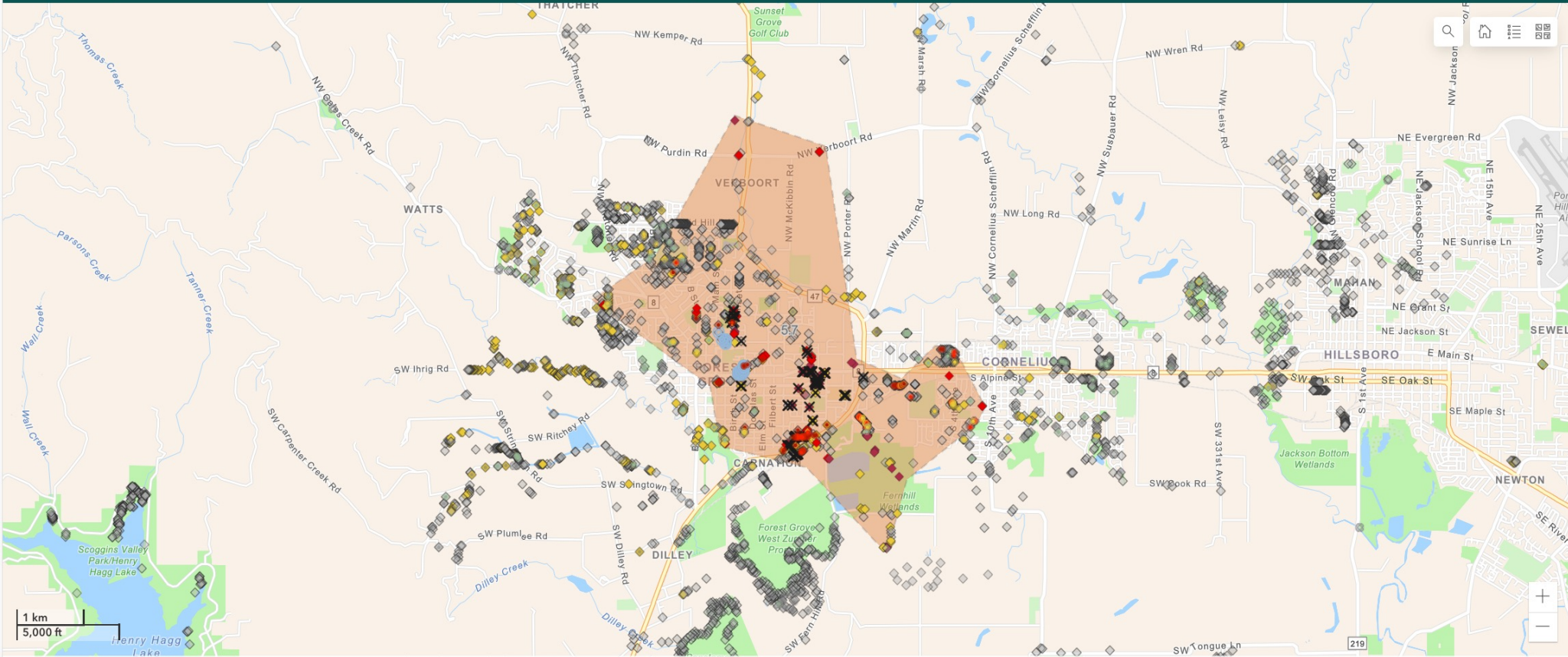
### Are there suckers or shoots growing from the trunk? (Epicormic Branches)

Are leaves & twigs growing straight from the trunk of the ash?

[Examples](#)



Preliminary Survey Results for EAB Detection. **Caution: Data is live reported and preliminary. Not Intended for Management Purposes.** Contact [EAB@ODA.Oregon.gov](mailto:EAB@ODA.Oregon.gov) for validated data.



### EAB Recheck Detection Survey - survey

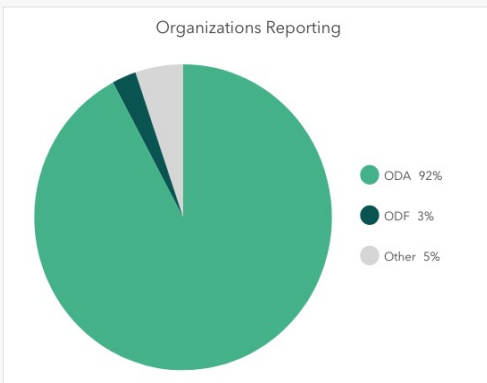
- Yes - Adult beetles observed
- Yes - Larval galleries observed
- Maybe - I suspect EAB, but cannot find adults, larva, or galleries
- Maybe - I suspect something else is causing decline
- No

### Management Actions Taken

- ✕ Removed
- ⊙ Treated

### Visual Survey Result

- ◆ Yes - Adult Beetles
- ◆ Yes - Larvae & Galleries Present
- ◆ Suspect - Requires Confirmation
- ◆ Tree Surveyed



Oregon Metro, Oregon State Parks, State of Oregon GEO, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA

Each point represents an ash tree surveyed for EAB through visual surveys by the EAB task force and cooperating agencies and organizations.

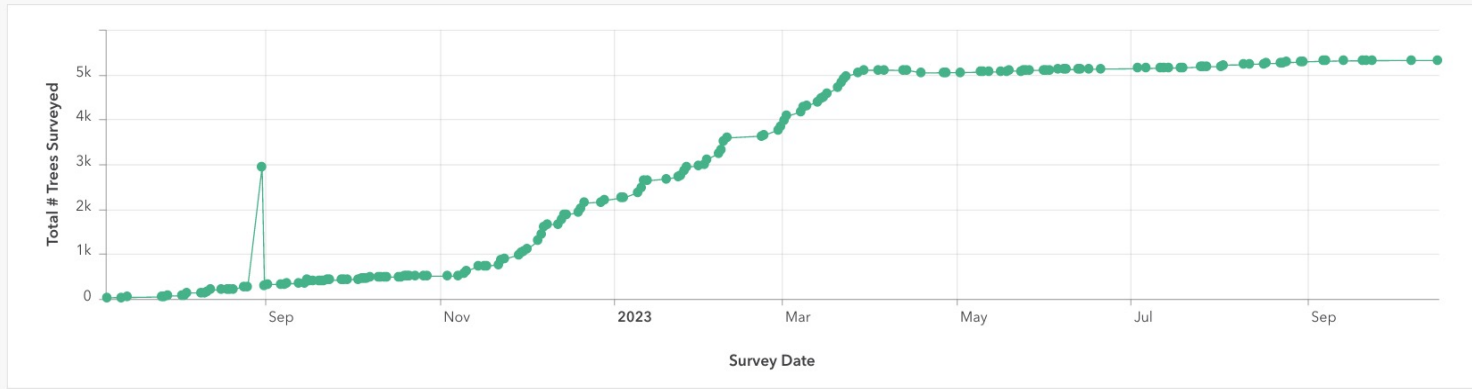
# Trees Visually Surveyed

# 5293

*\*as of 10/17/2023*

Infested Area

# 5.7sq mi

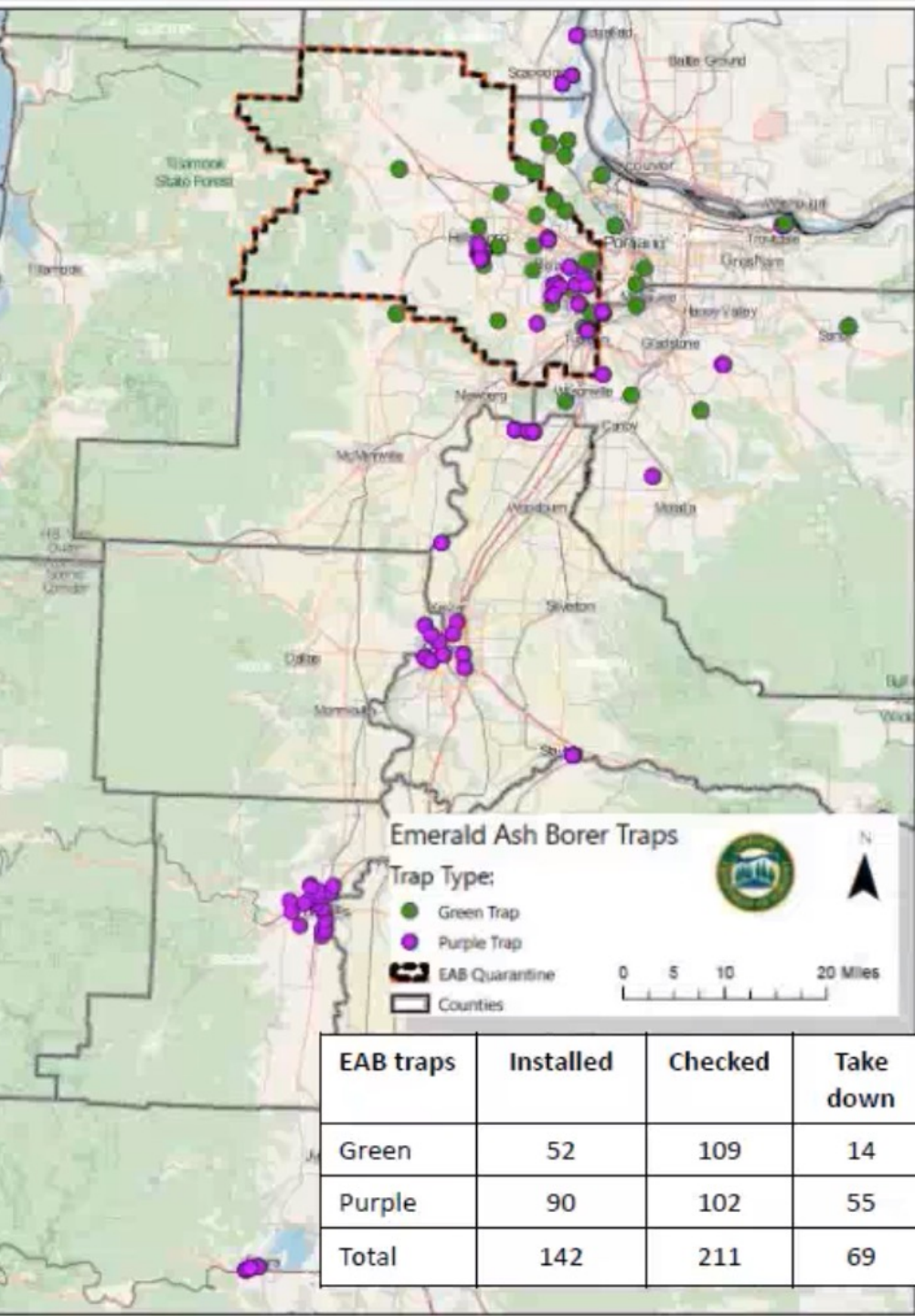






# Trap results

## April 25 – Oct 9, 2023



EAB traps	Installed	Checked	Take down
Green	52	109	14
Purple	90	102	55
Total	142	211	69

### EAB detections

Suspect samples\* 2

Confirmed EAB 0



# SLAM = Slow Ash Mortality

Areawide integrated pest management:

1. Slowing the spread
2. Mitigate populations



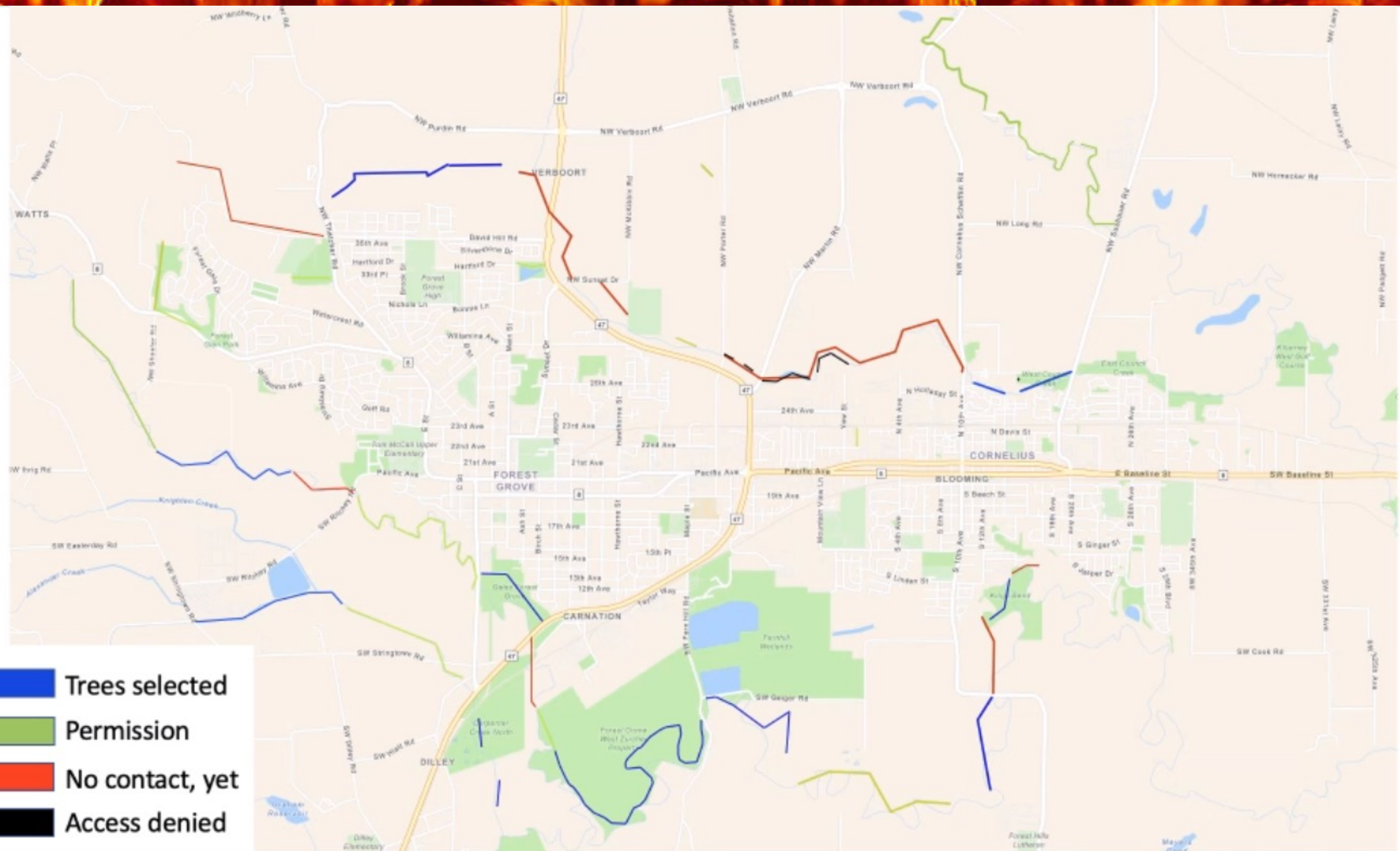


# Girdled Trap Trees

- “Ring of Fire”
  - girdle ash trees
  - Inject proximal trees to create lethal trap trees (Emamectin Benzoate)
- Inject select trees to protect the seed bank







- Trees selected
- Permission
- No contact, yet
- Access denied



# Biological Control



*Oobius agrili*



*Spathius galinae*



*Tetrastichus planipennis*

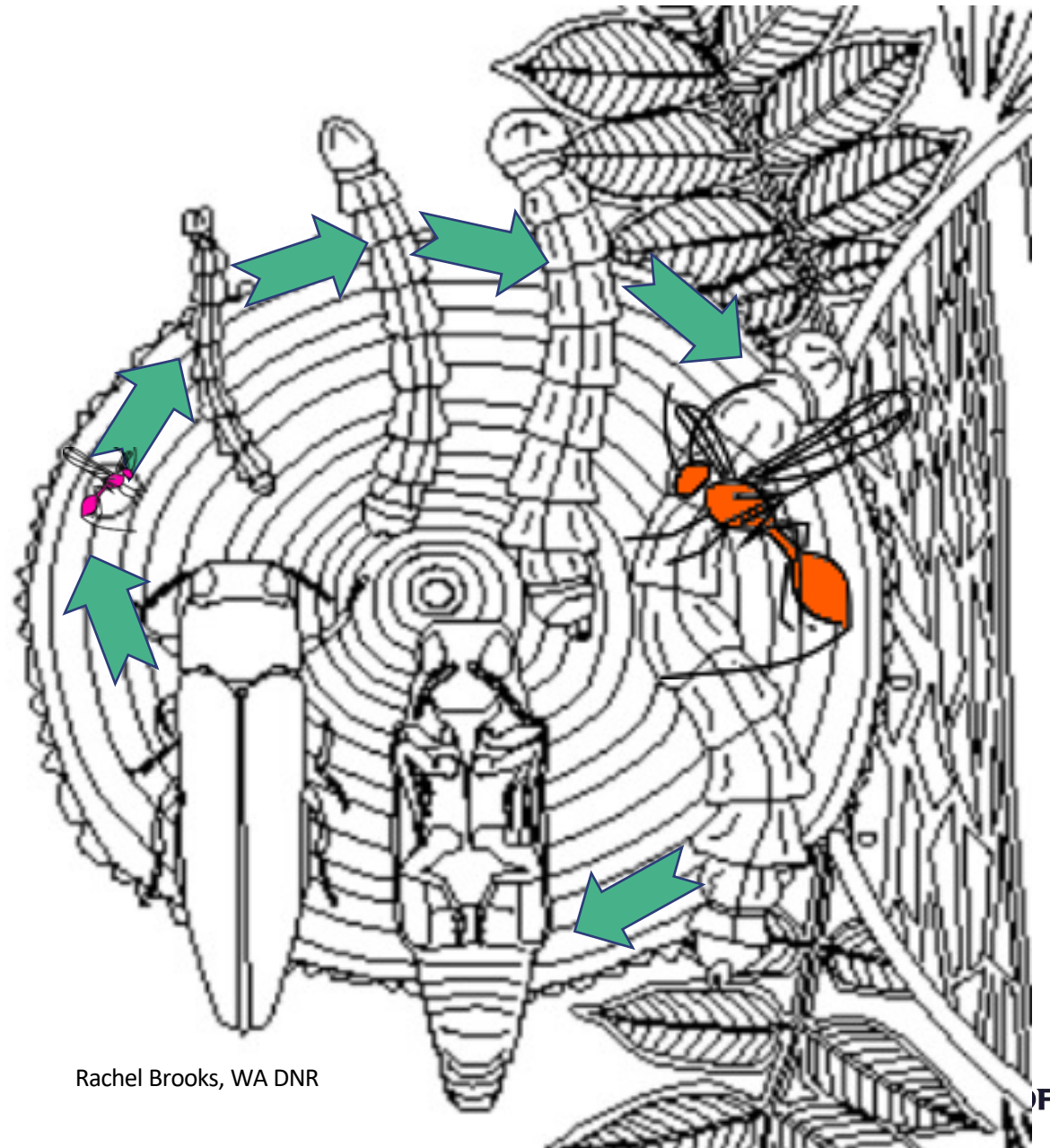


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# Parasitoid Lifecycle

- Interrupts at egg or larval stage
- Stops EAB from developing
- Reproduces within the host



Rachel Brooks, WA DNR



# Real-time science

- Not a one size fit option
- Long term strategy
- ❖ Spring 2023 release

## Beneficial biocontrol agent found in Forest Grove

Max Ragozzino, ODA's invasive species entomologist, reports he has found evidence that two of the three species of tiny wasps released to control EAB in Oregon have parasitized EAB in the field. These tiny wasps lay eggs inside of EAB larvae under the bark of ash trees, killing the EAB larvae before they become adult beetles and spread. Recovering them requires peeling the bark off infested ash trees. He found the cocoons of *Spathius galinae*, and overwintering adult *Tetrastichus planipennis* at the site where the wasps were released. Both species typically remain under the bark in the EAB gallery until late spring. Earlier this summer, to combat



United States  
Department of  
Agriculture

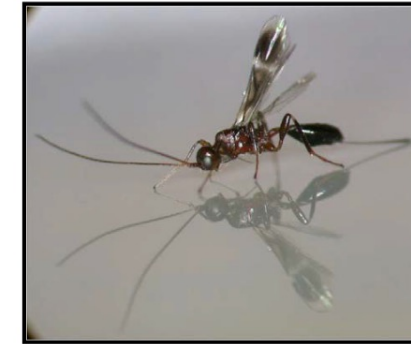
Animal and  
Plant Health  
Inspection Service

Agricultural Research  
Service

US Forest Service

Cooperating State  
Departments of  
Agriculture

## Emerald Ash Borer Biological Control Release and Recovery Guidelines 2021



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# What can you do now?

- Sign up for the EAB Bulletin. Send a request to [Jim.GERSBACH@odf.oregon.gov](mailto:Jim.GERSBACH@odf.oregon.gov)
- Conduct a tree inventory
- Identify high priority trees
- Know what your options are
- Explore available EAB resources (OISC, ODA, ODF, OSU)



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# Treatments - Chemical

- Tree injections, soil drenches
- Systemic insecticides
  - Emamectin benzoate
- Costly
  - \$100-\$300 per tree
- Repeat applications
  - every 1-3 years

*Not feasible on a large scale*





## Pesticide List for Emerald Ash Borer in Oregon

Information provided by the Oregon Department of Agriculture, July 14, 2022

Name	Registrant Name	EPA/State Reg. No.	Intended User	Ingredients	Concentrations	Signal Word	Restricted Use Pesticide (RUP)
12-9-4 CORETECT	BAYER ENVIRONMENTAL SCIENCE	432-1457	COMMERCIAL	IMIDACLOPRID	20%	CAUTION	NO
2-1-1 BIOADVANCED SBS 12 MONTH TREE & SHRUB PROTECT & FEED CONCENTRATE	SBM LIFE SCIENCE CORP	92564-33	HOME	IMIDACLOPRID	1.47%	CAUTION	NO
2-1-1 BIOADVANCED SBS 12 MONTH TREE & SHRUB PROTECT & FEED CONCENTRATE II	SBM LIFE SCIENCE CORP	92564-39	HOME	CLOTHIANIDIN; IMIDACLOPRID	0.37%;0.74%	CAUTION	NO
2-1-1 BIOADVANCED SBS 12 MONTH TREE & SHRUB PROTECT & FEED RTU GRANULES	SBM LIFE SCIENCE CORP	92564-30	HOME	IMIDACLOPRID	1.10%	CAUTION	NO
ACE-JET	ARBORJET INC	74578-2	COMMERCIAL	ACEPHATE (ORGANOPHOSPHATE)	97.40%	CAUTION	NO
ACECAP SYSTEMIC INSECTICIDE IMPLANTS	CREATIVE SALES INC	37979-1	HOME	ACEPHATE (ORGANOPHOSPHATE)	98.90%	CAUTION	NO
ALOFT LC G INSECTICIDE	ARYSTA LIFESCIENCE NORTH AMERICA	66330-368	COMMERCIAL	BIFENTHRIN; CLOTHIANIDIN	0.125%;0.250%	CAUTION	NO
ARBORMECTIN	ROTAM NORTH AMERICA INC	83100-35-83979	HOME	EMAMECTIN BENZOATE	4.00%	CAUTION	NO
AZAGUARD	BIOSAFE SYSTEMS LLC	70299-17	COMMERCIAL	AZADIRACTIN	3.00%	CAUTION	NO
BASELINE INSECTICIDE	FMC CORPORATION AGRICULTURAL PROD GROUP	279-3177	COMMERCIAL	BIFENTHRIN	23.40%	WARNING	NO
BATTALLION 2EC	ATTICUS LLC	91234-104	COMMERCIAL	BIFENTHRIN	25%	WARNING	YES
BIFEN XTS INSECTICIDE/TERMITICIDE	CONTROL SOLUTIONS INC	53883-189	COMMERCIAL	BIFENTHRIN	25.10%	WARNING	NO
BIOADVANCED SBS 12 MONTH TREE & SHRUB INSECT CONTROL CONCENTRATE	SBM LIFE SCIENCE CORP	92564-22	HOME	IMIDACLOPRID	2.94%	CAUTION	NO
BIOADVANCED SBS 12 MONTH TREE PROTECT & FEED CONCENTRATE II	SBM LIFE SCIENCE CORP	92564-39	HOME	CLOTHIANIDIN; IMIDACLOPRID	0.37%;0.74%	CAUTION	NO
BIOADVANCED SBS 12 MONTH TREE PROTECT & FEED RTU GRANULES	SBM LIFE SCIENCE CORP	92564-30	HOME	IMIDACLOPRID	1.10%	CAUTION	NO
BONIDE ANNUAL TREE AND SHRUB INSECT CONTROL WITH SYSTEMAXX	BONIDE PRODUCTS INC	53883-205-4	HOME	IMIDACLOPRID	1.47%	CAUTION	NO
BONIDE CAPTAIN JACK'S DEADBUG BREW	BONIDE PRODUCTS INC	4-471	HOME	SPINOSAD	0.50%	NO SIGNAL WORD	NO







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**Oregon State  
University**

Clean Water  Services



**Metro**

**USDA**  




FOREST GROVE  OREGON

*A place where families and businesses thrive.*

*...and others!*

 **OISC**  
OREGON INVASIVE SPECIES COUNCIL



**Tualatin Soil and Water  
CONSERVATION DISTRICT**



# October is Firewood Month!



## SHARE WHAT YOU KNOW

---

38% of people are aware that invasive insects can move in firewood. With consistent outreach, that number jumps to 96%.





[TOOLBOX](#)

[FOR KIDS](#)

[FOR PROFESSIONALS](#)

Sign Up For Our   
eNewsletter

Subscribe 

## Recent Posts

**WEBINAR: Firewood Month 2023 – Meet the Don't Move Firewood Team!**

September 28, 2023

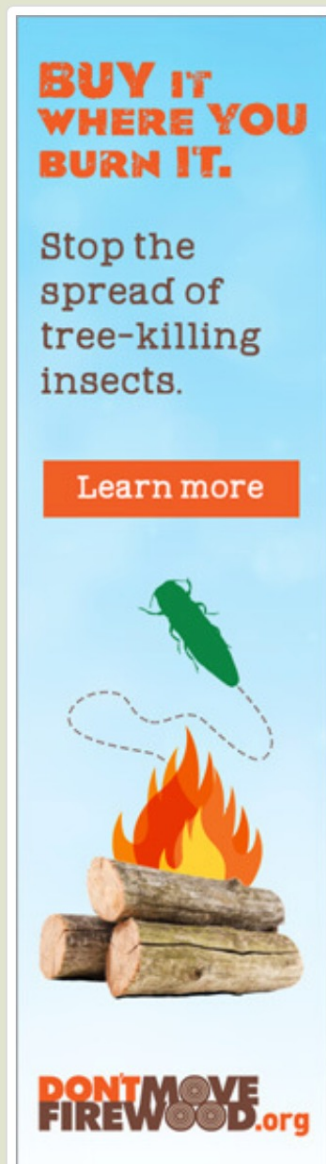
October is Firewood Month and we're back with 2 call ...

**Disposing of Woody Storm Debris from Asian Longhorned Beetle Host Trees**

August 30, 2023

Hurricane season is upon us.

# STOP THE SPREAD OF EAB, VERTICAL BANNER AD



**BUY IT  
WHERE YOU  
BURN IT.**

Stop the  
spread of  
tree-killing  
insects.

[Learn more](#)

**DONTMOVE  
FIREWOOD.org**

Custom Don't Move Firewood simple and clean vertical banner ad. Designed and published in 2022. Features emerald ash borer image.

DOWNLOAD FILE NOW:

[TNC-DMF-stopsread\\_160x600.jpg](#)

Contact First Name: Contact Last Name:

Leigh

Greenwood

Contact Agency:

The Nature Conservancy, Don't Move Firewood

- ✓ Order direct ([dontmovefirewood.org](https://dontmovefirewood.org))
- ✓ Contact ODA ([EAB@oda.oregon.gov](mailto:EAB@oda.oregon.gov))





# Questions?

Chris Benemann

[chris.benemann@oda.oregon.gov](mailto:chris.benemann@oda.oregon.gov)

EAB Program

[EAB@oda.Oregon.gov](mailto:EAB@oda.Oregon.gov)





# EAB delimitation/eradication



Delimitation surveys = Hard work!



Eradication = Expensive, ineffective.



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