



# Beyond Outreach

## ALB Detection Survey

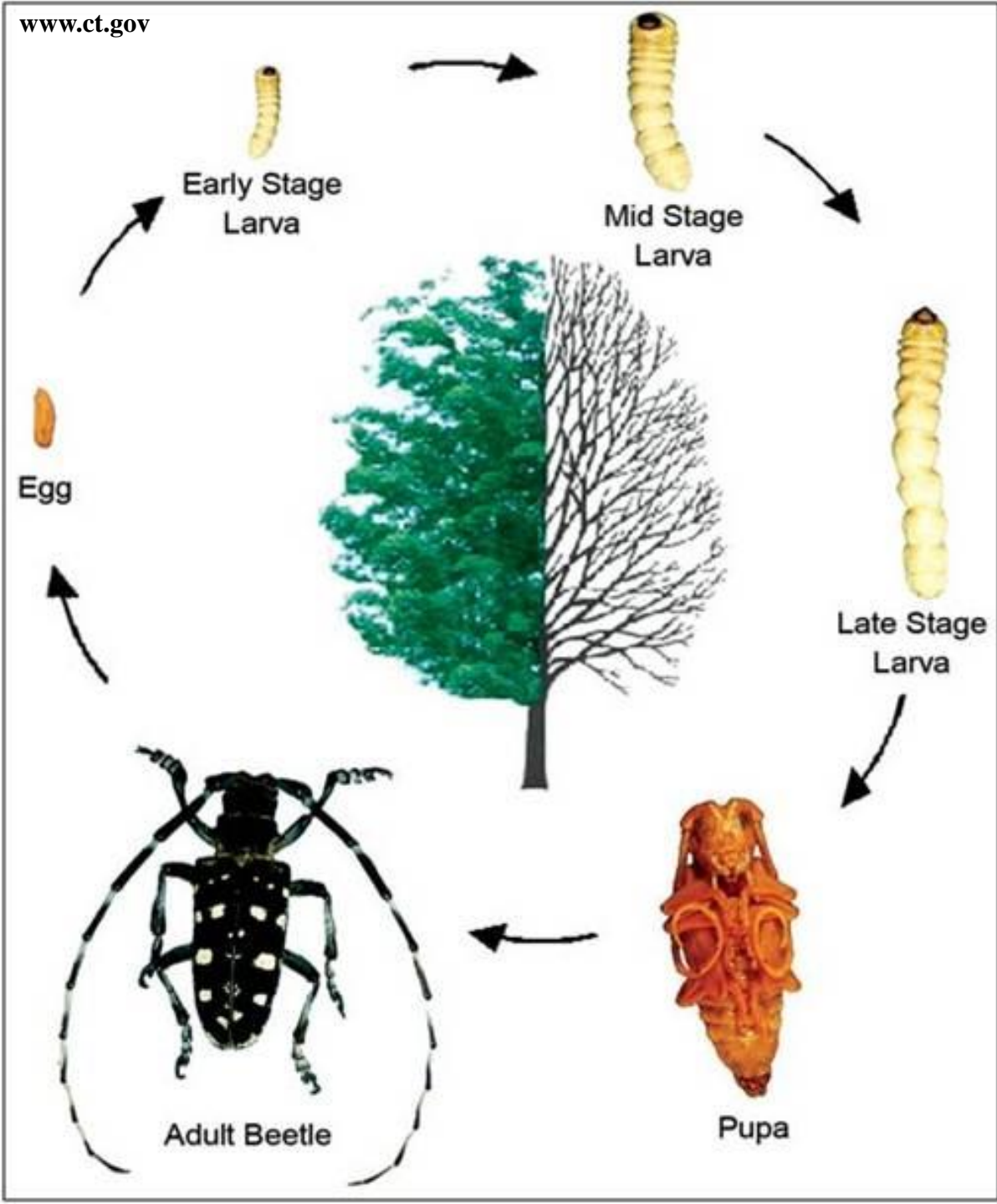
**Mark E. Hitchcox**  
**Pest Survey Specialist**  
**USDA-APHIS-PPQ**  
**Portland, Oregon**



Asian  
Longhorned  
Beetle

Survey  
Training

# ALB life cycle (1-2 years)



**egg-laying scars**

# Spring & Summer: Egg-laying

**egg scar  
close-up**



# Egg



# Summer: Larvae hatch



# The Business End of an ALB



**Female ALB**

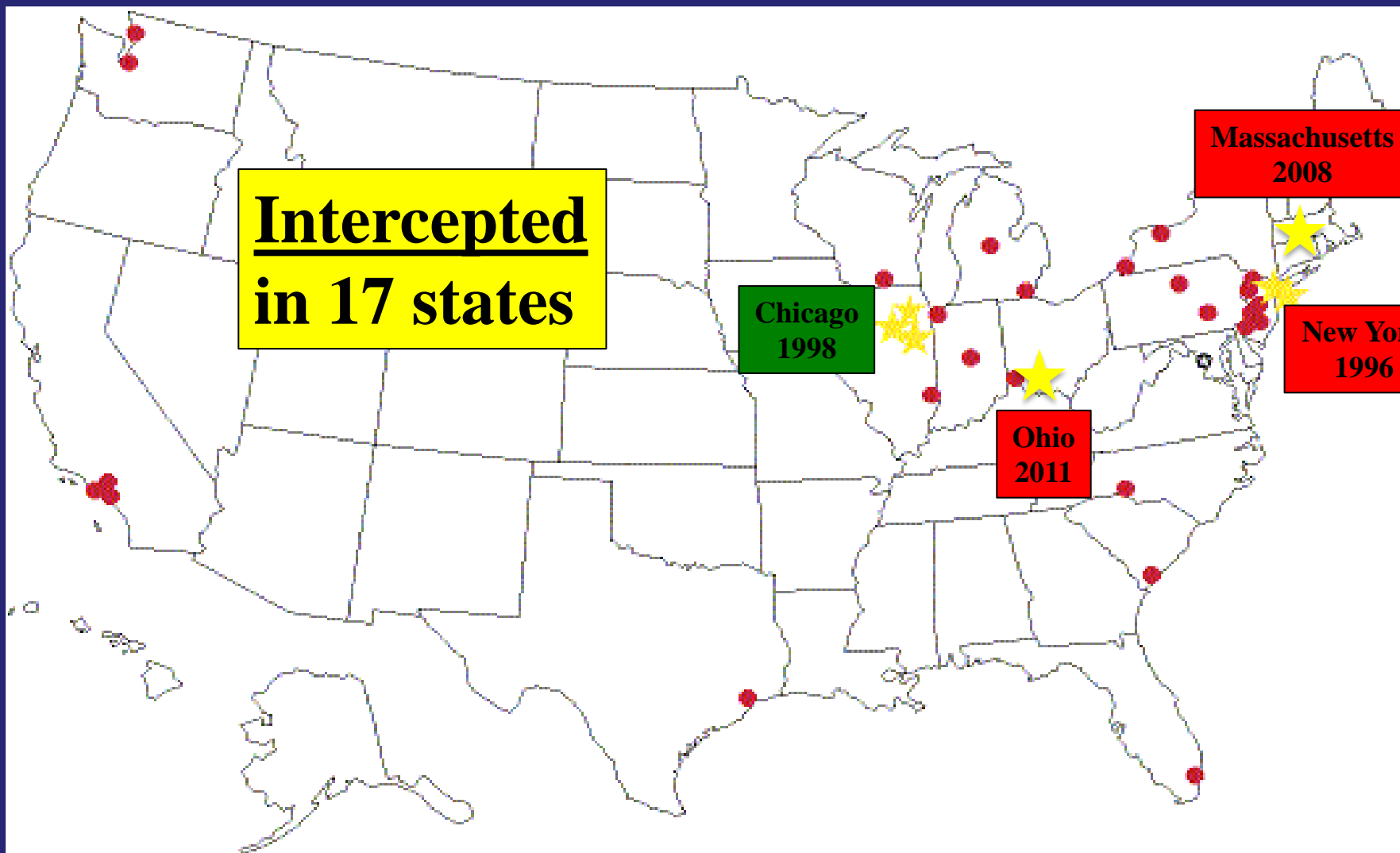


**Male ALB**





# ALB in the U.S.



 **ALB Introduction**

 **Warehouse detections**

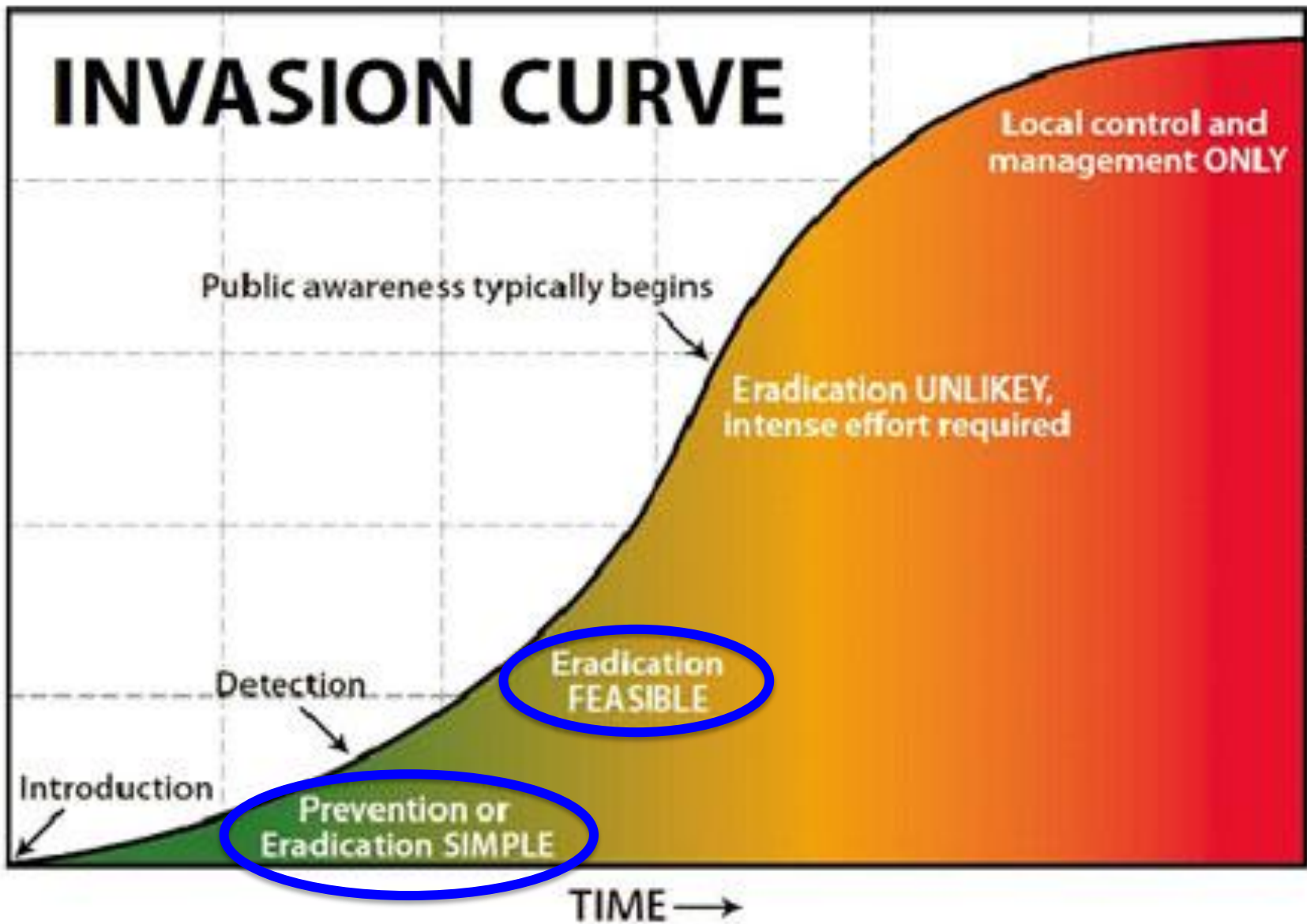
# ALB Scorecard

<b>Place</b>	<b>Year Detected</b>	<b>Sq. miles Regulated</b>	<b>Trees Dead</b>
<b>New York</b>	<b>1996</b>	<b>102 (7 mi erad.)</b>	<b>25,046</b>
<b>Chicago</b>	<b>1998</b>	<b>Eradicated</b>	<b>~33,000</b>
<b>Toronto</b>	<b>2003</b>	<b>?</b>	<b>~26,000</b>
<b>Worcester</b>	<b>2008</b>	<b>120</b>	<b>33,717</b>
<b>New Jersey</b>	<b>2002</b>	<b>Eradicated</b>	<b>21,981</b>
<b>Boston</b>	<b>2010</b>	<b>10</b>	<b>?</b>
<b>Ohio</b>	<b>2011</b>	<del><b>61</b></del>	<del><b>30,090</b></del>

# INVASION CURVE

AREA INFESTED

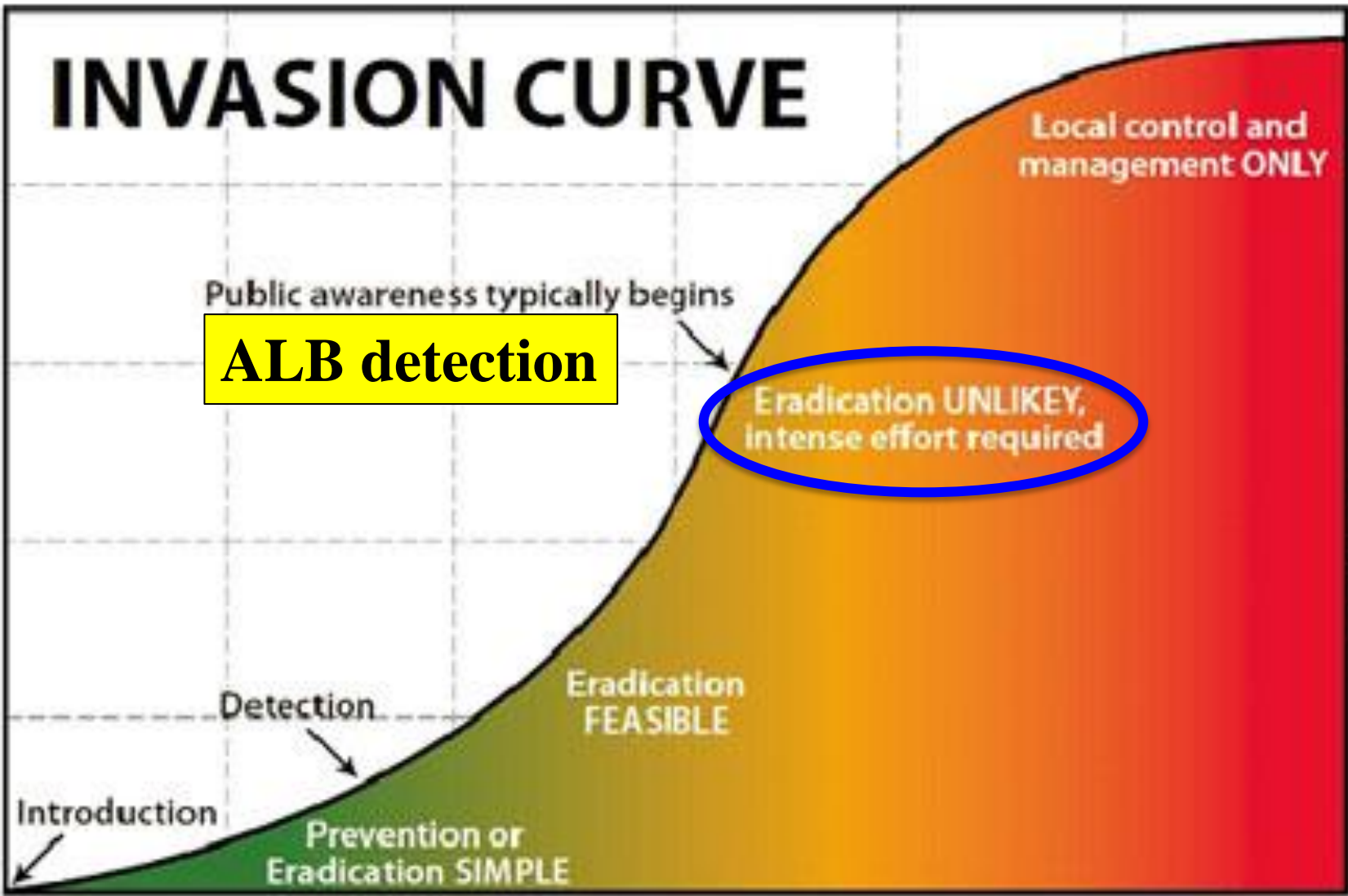
CONTROL COSTS →



# INVASION CURVE

AREA INFESTED

CONTROL COSTS →



**ALB detection**

Eradication UNLIKELY,  
intense effort required

TIME →

# Pest Pathways for ALB

Live plant imports

Wood Packing Material

crates

pallets

spools

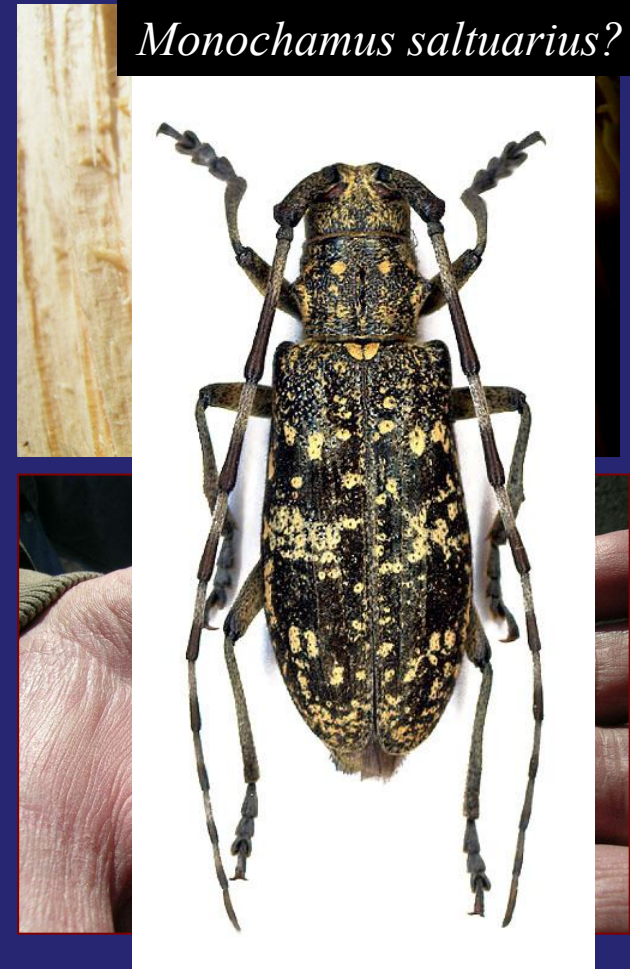
dunnage

firewood



## December 2013 –Port of Portland

### *Monochamus* sp. larva



# The Safeguarding “Continuum”

Phytosanitary requirements

Preclearance Inspection

U.S. Port Inspection

Post-Entry Quarantine

Pest Detection Surveys

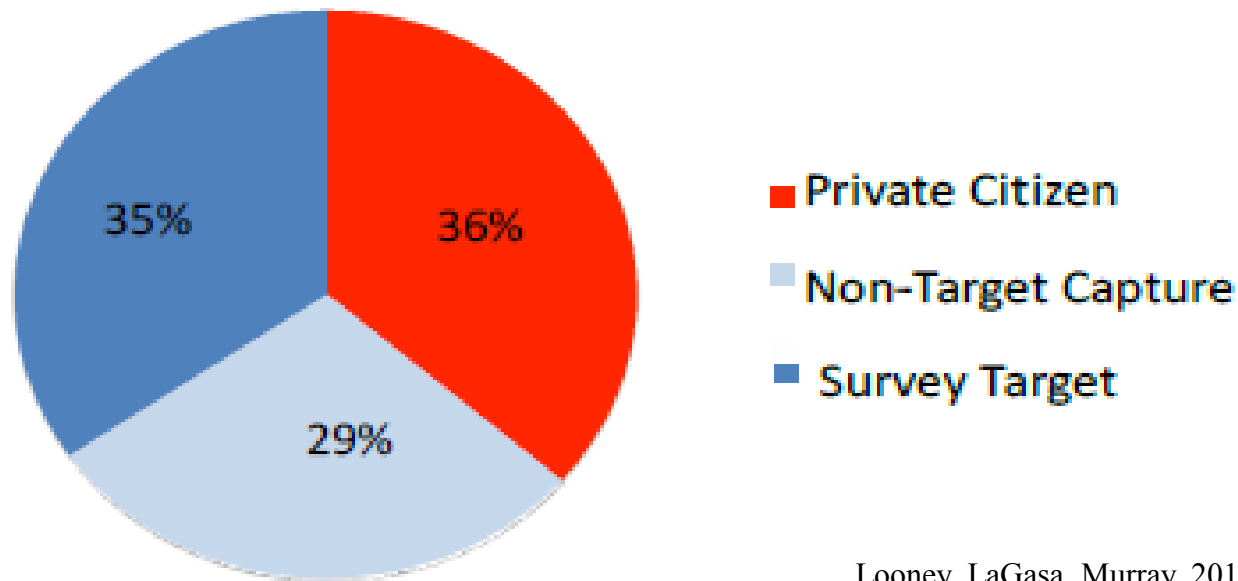
Public Outreach aimed at early detection



# Pest Safeguarding Continuum

- Pre-clearance active
- Port Inspections active
- Detection Surveys active
- ❖ **Citizen Detectors** active?
- Outreach passive

New Invertebrate Detections in Washington State 1999-2010 (n=57)





# The Power of the People



## Portland P&R

- FY2010-11: 63,000+ volunteer hrs.
- Individuals
- Youth programs
- Community organizations
- Service clubs
- Employee teams
- School classes

## ALB Detection Survey

- **Prevent** the widespread establishment of non-native plant pests, through detection surveys, and outreach to public and industrial landowners/land users.
- **Develop** people to strengthen the safeguarding system.
- Increase the number of people actively looking, particularly in high-risk areas.

# “ALB” Detection Survey

Goal 1: Increase public awareness

Goal 2:, the presence/absence of “ALB” in defined high-risk areas in the metro area.



*Anoplophora* spp.  
*Tremex* woodwasp  
*Hesperophanes campestris*

## Challenges with Volunteer-gearred projects

- Recruitment
- Consistency
- Data Quality
- Time Investment
- Sampling challenges
  - Property Access
  - Quality Control



**Can Science  
prevail?**

# Capturing and Holding Interest

- Clear goals                      Event: “x” trees surveyed per area
- Risk-based                      Well-defined high-risk Survey Sites
- Science                      biology, botany, ecology, metrics: defined  
“population”                      statistical model
- Standardized Methods
  - Tiered experience
  - “Spikes”
  - Mapping/gadgets



## The Science, The Metrics, ...the Motivation

Alternate Hypothesis: ALB is present at the Survey Site

Null Hypothesis: “95% confident that less than 1% of the surveyed population is infested with the beetle.”

i.e.: a 99% pest-free population.

### Survey points:

- randomly-generated (VSP, ArcMap) within population area.
- unknown distribution
- No overlap
- Standardized sampling

# Standardized Sampling

## Lab Training

- Review Goals: Project goals and Personal Goals
- Background of the bug(s)
- Survey methods
- Data forms
- Safety
- Test

## Field Training

- Tree ID
  - Sampling
  - Data recording
  - Data submission
- 
- Simulation Site Test



# Evidence



**Exotic Beetle Visual Survey Form**

Survey Date/Time \_\_\_\_\_ PLOT NUMBER \_\_\_\_\_  
 Surveyor Phone \_\_\_\_\_  
 .....Sketch map of Survey Site on reverse side of this form.....

Trees inspected: \_\_\_\_\_ # inspected \_\_\_\_\_ damage observed?  
 tree species: \_\_\_\_\_ # inspected \_\_\_\_\_ damage observed?  
 tree species: \_\_\_\_\_ # inspected \_\_\_\_\_ damage observed?

**If damage observed, describe in detail below and on Sketch map on reverse side of this form**

**Detailed Tree Damage Description**  
 Damaged Tree Location (describe landmarks, tree size, tree species, and if flagging was used)

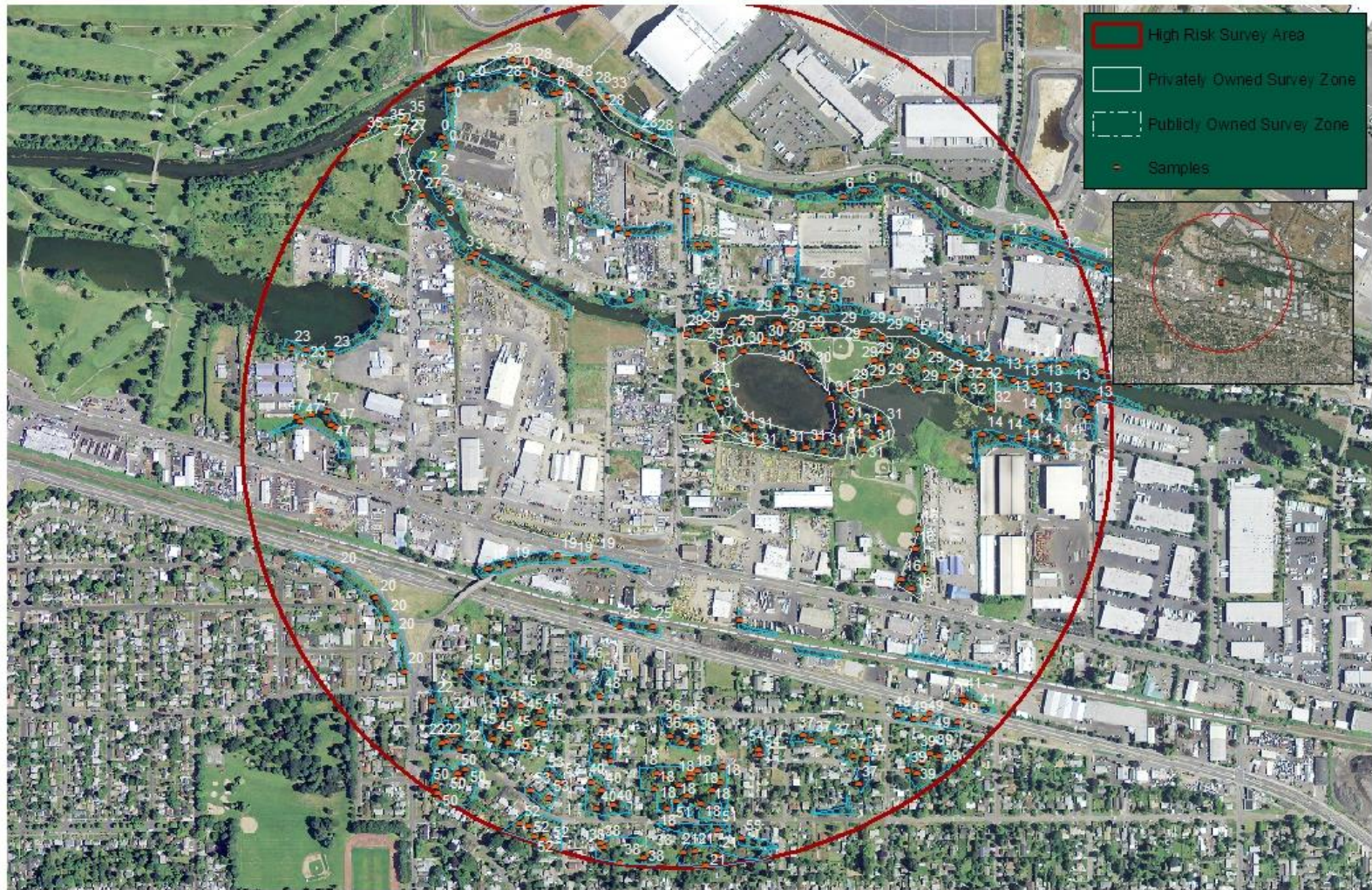
**Tree Damage Type:** (indicate how many trees had the damage)

**Insect Holes:**

Round holes # \_\_\_\_\_  Dieback in canopy # \_\_\_\_\_  Suckering # \_\_\_\_\_  
 D-shaped holes # \_\_\_\_\_  Oviposition scars # \_\_\_\_\_  Trunk suckering # \_\_\_\_\_  
 Holes in healthy wood  Sawdust # \_\_\_\_\_  Trunk suckering # \_\_\_\_\_  
 Holes in dead wood  Adult beetles seen (describe) # \_\_\_\_\_  
 Adult beetles collected # \_\_\_\_\_, Send to USDA with label or call

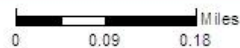


# Asian Longhorned Beetle Target Site North Columbia Slough- NE 47th Ave



USDA-APHIS-PPQ  
6136 NE 80th Ave, Ste A-5  
Portland, OR 97218

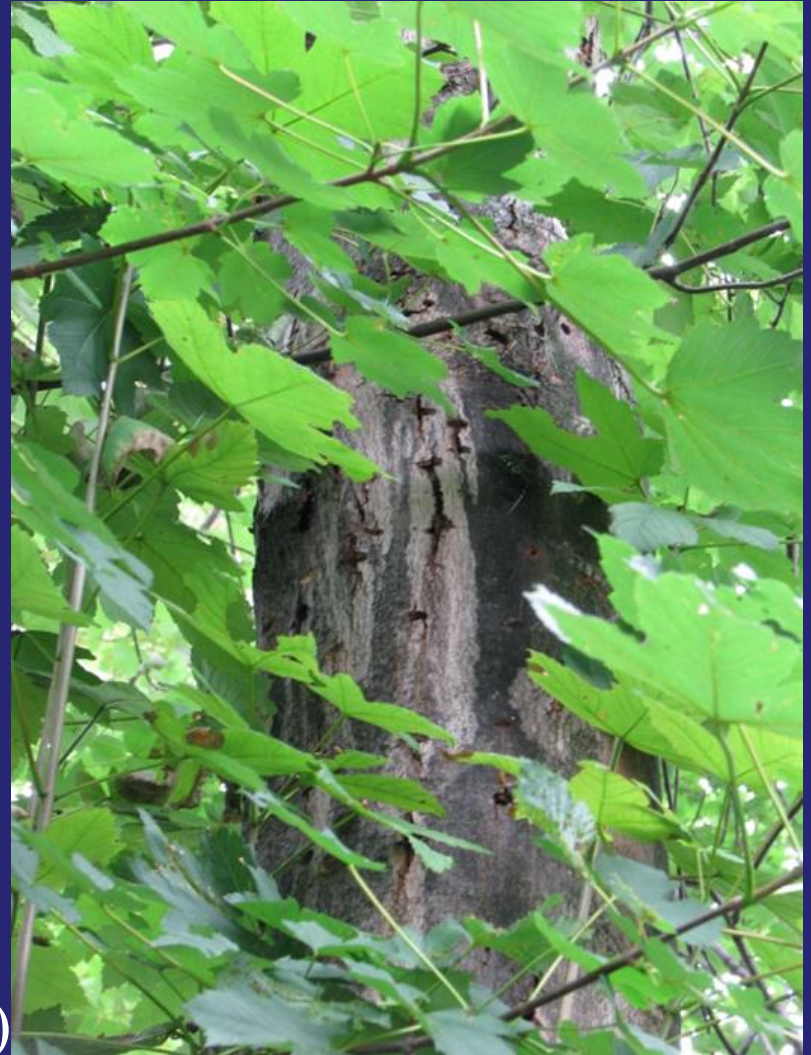
Date current as of: 10/17/2011  
Coordinate System: Lamber Conf. Conic  
Data Source: USDA-APHIS-PPQ



The U.S. Department of Agriculture's Animal and Plant Health Inspection Service collected the data displayed for internal agency purposes only. These data may be used by others; however, they must be used for their original intended purpose.

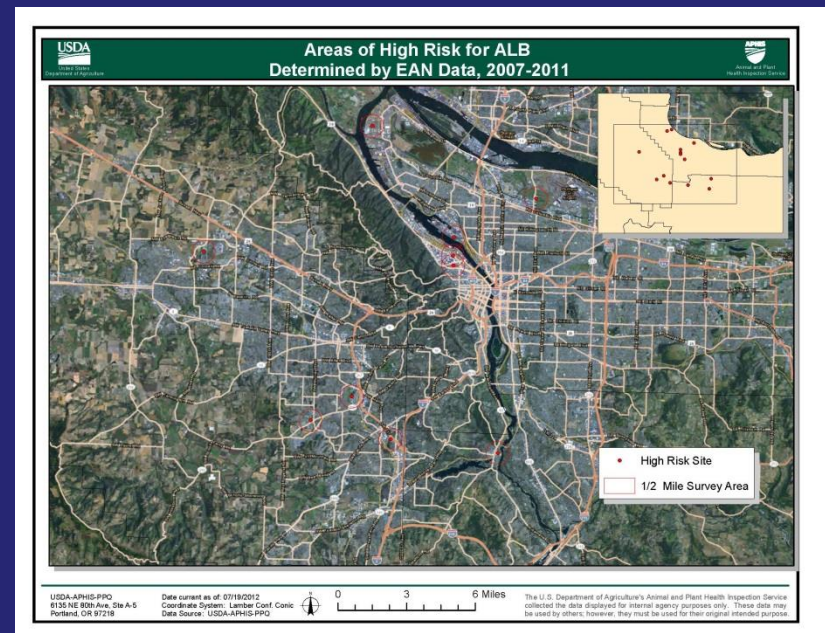
# Sampling methods

- Training,
  - *or* accompany a trained colleague
- Get assignment/instructions
- locate assigned plots
- Find a Host tree near point
  - look for evidence
  - collect data (**neg. too**)
- Survey a tree only 1x
- Observe min. 2 minutes/tree
- \* (depends on obstacles, size of tree)



# Future

- Survey Methodology
- ALB simulation forest
- Field-Test VSP model
- ALB Detection Survey in Portland area.
  - Defined high-risk areas
- Trainings:
  - ALB Awareness Training
  - ALB Surveyor Training
  - Identify volunteer groups





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