

2017 Washington State Exotic Wood Boring Insect Survey



Prepare by:
Washington State Department of Agriculture
Plant Protection Division
Entomology Branch

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In Cooperation with:
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Animal and Plant Health Inspection Service
Plant Protection and Quarantine

Introduction

In response to the threat of infestation from exotic wood boring insects, the Washington State Department of Agriculture (WSDA), in cooperation with the United States Department of Agriculture (USDA) established a program of inspecting and surveying for exotic wood boring insects (EWBIS) in 1997.

The state of Washington continues to be at extreme risk for the introduction and establishment of numerous exotic insects such as *Anoplophora glabripennis* (Asian Long horned beetle, ALB), *Anoplophora chinensis* (Citrus Long horned beetle, CLHB), *Agrilus planipennis* (Emerald Ash borer, EAB), *Sirex noctilio* (Sirex woodwasp) and many exotic Scolytidae (bark beetles) due to the following:

- The pathway for introductions has been well established by numerous port interceptions at western Washington ports (i.e. Ports of Seattle, Tacoma, and Everett).
- The introduction potential has been demonstrated by off-port-area finds.
- The biomass of host material for insect establishment, such as Acer (Maple), Pinus (Pine), Alnus rubra (Red Alder), Populus (Poplar), Fraxinus (Ash) and various other fruit trees, is enormous and could support large populations.
- No natural predators exist to keep introduced exotic pests in check.

Several adult CLHB, detected in August 2001, were introduced into Washington State via *Acer palmatum* (Japanese maple) imported from Korea. CLHB is a serious threat to Washington State, since it attacks approximately 40 varieties of healthy trees and has no known natural predators in the United States. ALB was discovered in Brooklyn, NY during 1996. ALB is believed to have arrived in solid wood packing material from Asia, and has since spread to other areas of New York, Chicago Illinois, New Jersey, and Massachusetts. It is believed that the infestation in Worcester, MA could have gone undetected for approximately 15 years. In 2002, EAB was discovered in southeastern Michigan feeding on Ash trees. EAB larvae feed in the phloem and outer sapwood of healthy Ash trees, producing galleries that eventually girdle, kill branches, or the entire tree. Since 2002, EAB has spread to 17 states and Canada. *Sirex noctilio* has emerged as a pest of concern since its detection in New York State in 2004. *S. noctilio* is a native of Eurasia, but has been introduced/established in a number of other countries. Since 2004, *S. noctilio* has spread to Connecticut, Pennsylvania, Vermont, and Michigan.

Survey Methods and Material

Planning

Planning for the Exotic Wood Boring Insect Survey (EWBIS) started in January 2017. WSDA employees first reanalyzed previous data (trap location maps, possible “hot spots”, high risk sites, such as Ports, etc.) from the 2016 EWBIS. Next, Google Earth and forest mortality maps (DNR and USFS) were referenced in an attempt to identify areas of concern. All information acquired was used to lay out potential trap/survey sites for 2016.

Trapping

WSDA deployed 10 Lindgren funnels in January 2017 in Pierce and Thurston County in Washington (Map 1). Traps were baited with a lineatum lure, inspected every three weeks; lures changed as needed and were removed in April 2017.

WSDA deployed 20 Emerald Ash Borer purple prism traps were deployed in May and completed in June. Traps are located in the following counties: King, Pierce and Thurston County (Map 2). Traps will be inspected, lures replaced within 42 days and removed by the end of September.

WSDA deployed 4 cross-vane, 10 translucent cross-vane and 51 Lindgren funnel traps with the install starting in April and completed in June 2017 throughout Western Washington (Map 3). Each trap had one of the following lure combinations: 4 Ungelled alpha-pinene; 4 Monchamol, UHR ethanol and UHR alpha-pinene; 11 UHR ethanol and UHR alpha-pinene; 8 exotic Ips; 4 Spruce blend, UHR ethanol and Geranyl Acetol, 10 Quercivorol, 7 Chalcogran, 10 *Megaplatypus mutatus* or 7 Sirex. Traps are checked on a three-week cycle, and lures are changed every three to six weeks or as determined by CAPS approved method. Traps were removed in September.

Data Collection

Trapping data, WSDA used an iPhone in the field using the data collection system “iForm” to record data, such as trap number, collection data, and waypoints. iForm allowed field personnel to save data on the handheld device and upload all trapping information (i.e. GPS point, placement date, check dates, and removal date) to a server in real-time.

For visual tree survey, WSDA used an iPhone or iPad in the field to populate all data into collection system “ArcGIS”. The system had pre-loaded high-risk site location on an interactive map for the field crew conducting visual tree inspection throughout western Washington. The system, also, allowed field crews to indicate a high-risk site had been inspected and add new locations to the interactive map. Supervisors were able to view in real-time, new high-risk sites being added to the map or the inspection completion status for each site.

Sorting and Identification

WSDA has been sorting samples and will do pre-identifying collected wood boring insect specimens. All sorting and pre-identification was completed at the end of December 2017.

Most common wood boring insects pre-identified during the season:

Scolydidae (bark beetles) - *Dendroctonus valens*, *Xyleborinus saxesenii* and *Gnathotrichus sulcatus*

Buprestidae (metallic wood boring beetles) – *Anthaxia sp.* and *Phaenops drummondi*

Cerambycidae (long horned beetles) – *Xylotrechus longitarsis* and *Strictoleptura conadensi*

Wood wasp- *Ucerus albicornus*.

Final determination of suspect specimens will be done by James R. LaBonte (Curator for the Oregon Department of Agriculture (ODA)), and Josh Vlach (ODA) for final determination. All traps and trees were negative for exotic wood boring insects.

Visual Survey

In April, WSDA started visual tree inspections in the Port of Tacoma and Port of Seattle. WSDA continued visual tree survey and SWPM (solid wood packing material) inspections survey at facilities into the fall throughout Washington. All host trees available were visual inspected around high risk area from the ground with binoculars. The host trees like Pine, fir and various deciduous such as Ash, Birch, Maple, Poplar, and Willow

WSDA maintains a list of high risk sites to visit and survey as a component of the visual survey. The visual survey list includes businesses and geographic areas of concern (ports, waterways, etc.). When visiting businesses, WSDA personnel distributes educational material in an effort to help on-site personnel identify pests of concern and to provide contact information in the event of a pest interception. WSDA conducts a visual survey of woody plants and trees in the area surrounding all sites visited. The staff is looking at general tree health and for obvious signs of insect damage (exit holes, feeding damage, etc.) (Map 4).

Results

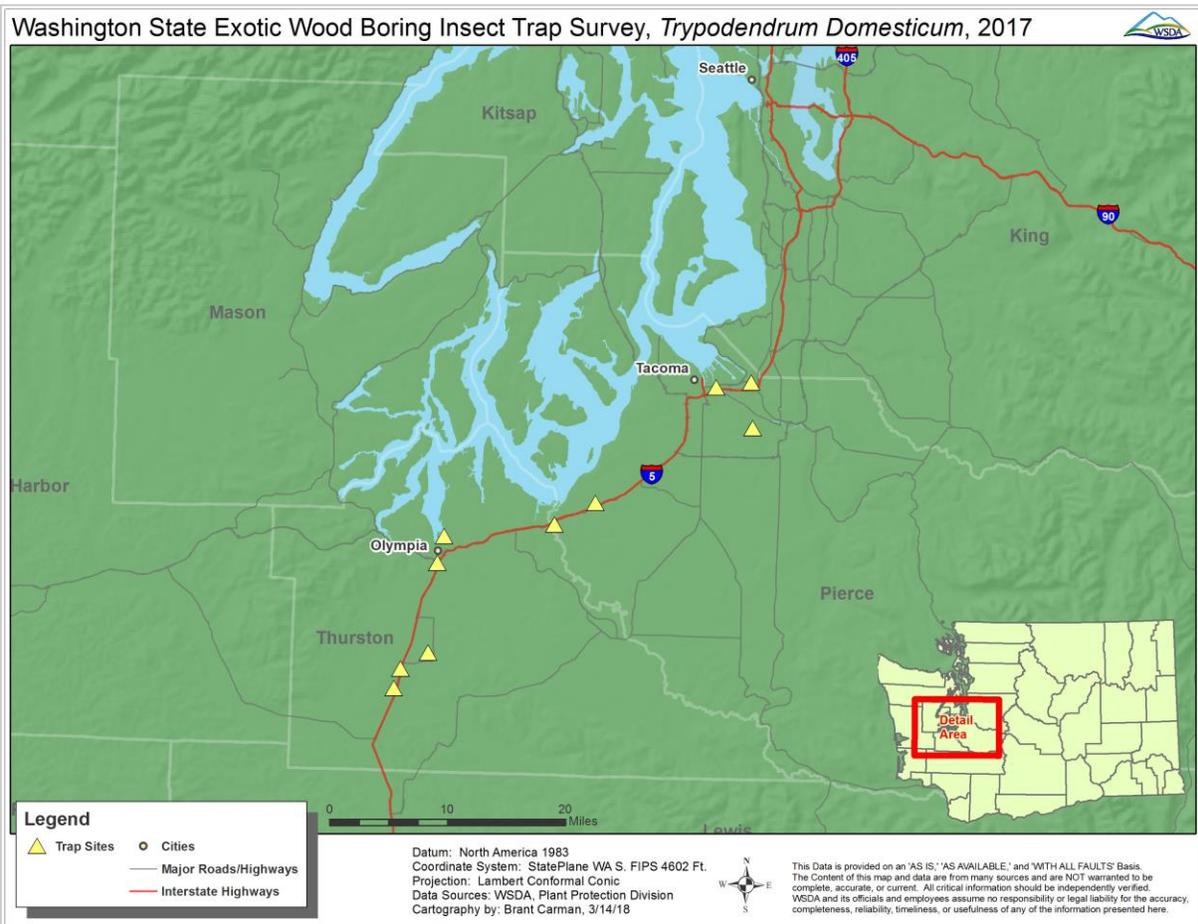
WSDA deployed traps, at high-risk sites, throughout Washington State. Data collection became faster and more precise over the years to the new technology and data collection applications. WSDA pre-identifiers were able to sort and identify collected specimens in a timely manner. Visual survey for ALB was carried out for a third consecutive year. Trees were surveyed from the ground around the warehouse and the business district adjacent to high risk areas. *Trypodendron domesticum* was only detected in Pierce and Thurston County. No ALB, EAB or other target insects were trapped or visual observed during the 2017 EWBS.

Summary

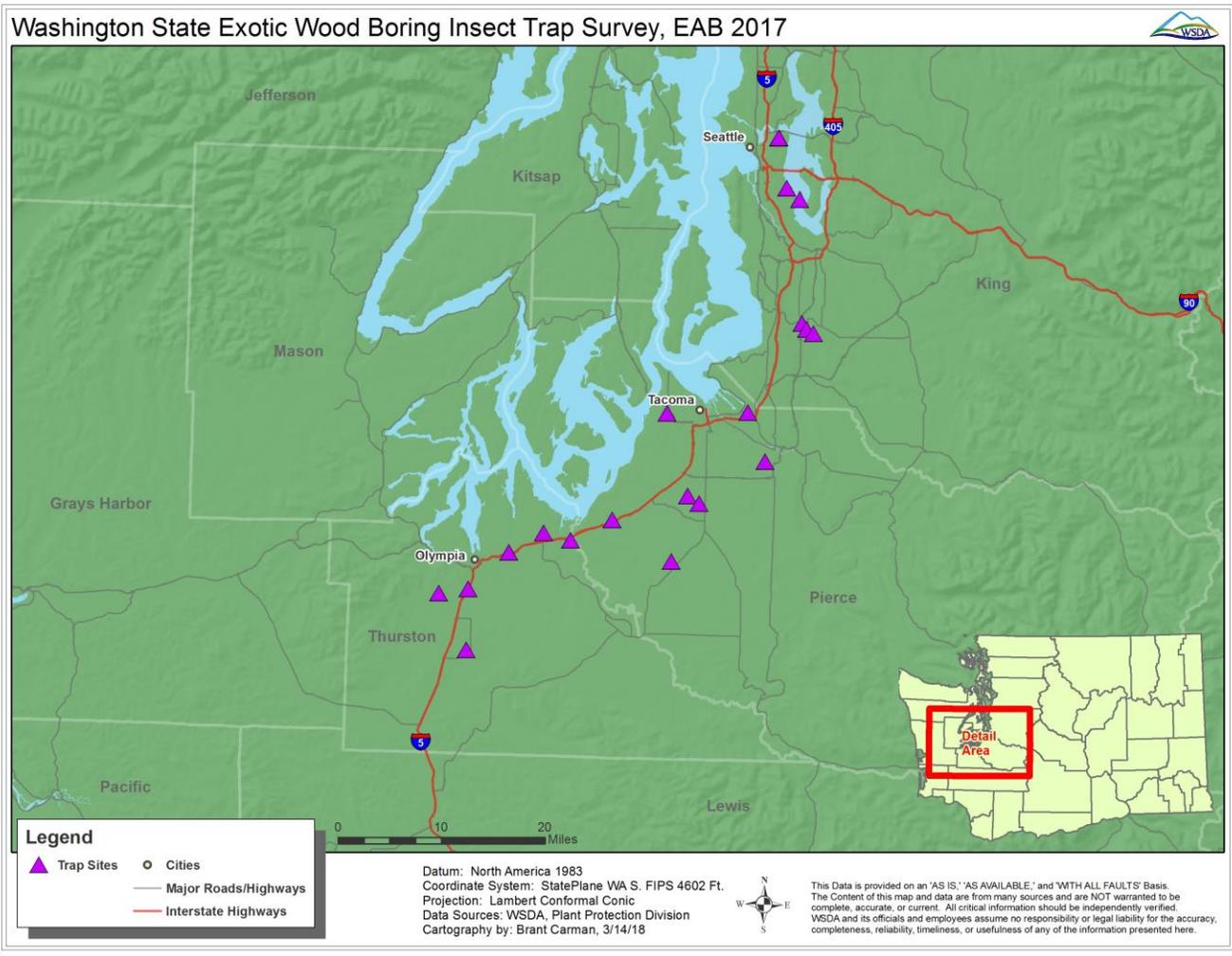
WSDA, USDA and ODA continues to work successfully together throughout the 2017 EWBS. As with the case of the ALB in 2011, all cooperators helped accomplish the end goal of keeping exotic pests out of Washington State. It is essential to continue detection surveys throughout Washington State to detect and prevent invasive wood boring insect infestations. WSDA has been quite successful in pest detection through EWBS activities, and further surveys will help in protecting the states vast resources. A wood boring insect infestation would devastate the environment of Washington State, limit recreational activities, and economically impact agriculture such as Christmas tree farms, and trees grown for timber and pulp.

Compiled by:
J. Cena
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Washington State Department of Agriculture

Map 1

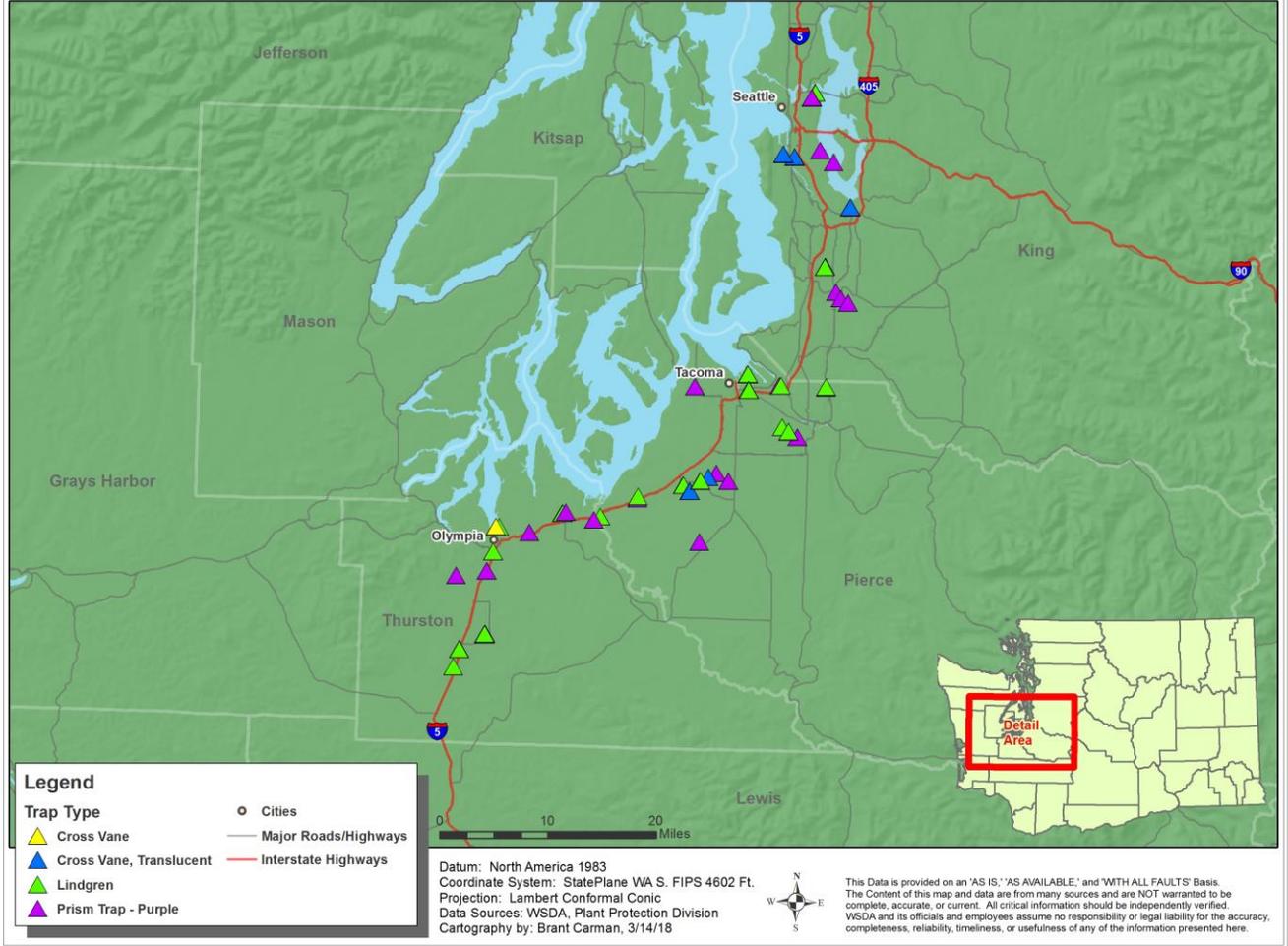


Map 2



Map 3

Washington State Exotic Wood Boring Insect Trap Survey, 2017



Map 4

