**PROJECT TITLE**

**Developing inventory tools and management planning documents for emerald ash borer in Oregon ash forests**

**PROJECT DELIVERABLES**

-Work sufficiently closely with the EAB Task Force’s Research, IPM and Survey & Monitoring Subcommittees to ensure efficiency and avoid duplication of effort.  
-Keep Karen Ripley, USFS Forest Health Monitoring Coordinator Region 6, reasonably informed of activities and accomplishments.  
-Work closely with Alex Gorman (OSU Extension) and Patrick Shuls (WSU Extension) to accomplish the following objectives:

1. Develop a standardized Oregon ash inventory template:

a. Targeted to moderate sized parcels (300-2000 acres) of Oregon ash (*Fraxinus latifolia*)-relevant properties in Oregon and Washington. These could be non- industrial private forest landowners and publicly owned such as a WDNR conservation area, National Wildlife Refuge properties, BLM or FS properties.

b. That will gather information on specific trees (maturity, seed bearing, importance qualities) so select trees can be considered as candidates for chemical protection.

c. That will gather site information (riparian qualities, soil, flood probability, annual inundation depth and duration) so the places that Oregon ash grows which are likely to be inappropriate or appropriate for establishment and occupation by alternate tree species can be identified.

2. Pilot this inventory template on at least 3 properties.

3. Provide and interpret the resulting information to those landowners or land managers, and their chosen extension or consulting foresters.

4. Prepare management strategy outreach materials (for similar landownerships, above), to guide them in identifying and implementing their management goals for before, during and post-EAB invasion.

5. Identify specific options suitable for research and monitoring that such landownerships can participate in.

6. Facilitate respectful relationships with each of these landowners.

**PROJECT PERSONNEL**

Karen Ripley

USDA Forest Service Region 6 Forest Health and Monitoring Coordinator

503.808.2674

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Karen has provided the funding for this project and defined the deliverables.

Dave Shaw

Oregon State University Extension Forest Health Specialist

541.737.2845

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Dave chairs the EAB Task Force Research Subcommittee and has experience in Oregon ash vegetation ecology.

Alex Gorman

Oregon State University Extension Forester, Columbia, Washington, Yamhill Counties

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Alex has contacts with private landowners in NW Oregon (Peter Hayes of Hyla Woods)

Patrick Shults

Washington State University Extension Forester Southwest Washinton

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Patrick has contacts with private landowners in SW Washington

Robert Slesak

USDA Forest Service Research Forester

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Rob has conducted research connecting hydrological features and the effects of EAB in black ash wetlands in Minnesota.

Jared LeBoldus

Professor, Oregon State University Department of Botany and Plant Pathology

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Jared is the OSU PI for this grant and has administration and reporting responsibilities. He should be included on research updates.

David Showalter

Oregon Department of Forestry Forest Health and Monitoring Unit

showaltd@oregonstate.edu

David led this project up until Feb 2023. He is available to consult on this project as it continues.

**STAKEHOLDERS AND KEY CONTACTS**

**Oregon Department of Agriculture – Insect Pest Prevention & Management Program**

Mark (Cody) Holthouse , Manager

503.910.6615

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Max Ragozzino, Biological Control Entomologist

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Max has designed the ODA ash inventory and EAB survey method. This is being deployed within 15 miles of the initial detection site in Forest Grove. This area is divided into ¼ mile grid blocks in which the percent ash cover is estimated and any signs or symptoms are noted. These surveys take place from public land or right-of-ways like roads. It is possible that surveys conducted on the project described herein could add information to the ODA survey.

Max has also developed the Survey123 app for reporting ash locations and conditions.

Matt Mills, Emerald ash borer survey coordinator

matt.mills@oda.oregon.gov

**Oregon Department of Forestry- Forest Health and Monitoring**

Wyatt Williams, Invasive Species Specialist

wyatt.williams@odf.oregon.gov

Wyatt is connected to several researchers working on remote sensing for mapping ash and mentioned that they are looking for opportunities for ground-truthing. This may be a relevant intersection with the project.

**Tualatin Soil and Water Conservation District**

Mike Conroy, Habitat Conservation Specialist

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Mike has drafted a Statement of Need for developing stand-level management tools in response to EAB. This is an excellent document and will provide a good basis for some of the deliverables of this project. Mike is attempting to organize a field meeting with people in the EAB Task Force Research subcommittee to discuss research needed to inform restoration.

Brandy Saffell, Forest Conservation Specialist

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**Clean Water Services**

Rob Emanuel, Water Resources Project Manager

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From Karen: “Rob was really confident that his group (and its partners like Tualatin Soil and Water Conservation District and Tualatin Parks and Rec) have an excellent ash forest inventory system (vegetation, shade; I’m not sure what other physical parameters) that’s been implemented over several hundred or thousand acres. He offered to provide the permissions to share that data base. (My mind also turned toward accessing the data collection materials like software or field data sheets and training materials on thresholds or decision points when taking the inventories).”

David has connected with Rob and he is hesitant about sharing access to the database itself, but may be able to describe or share specific tools (like the ones Karen mentioned above).

**City of Hillsboro**

Laura Trunk, Restoration Biologist, Jackson Bottoms Wetland Preserve

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**US Fish and Wildlife Service**

Tom Brumbelow, Biologist

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Tom might be a connection for USFWS sites to test the inventory method.

**Oregon State University**

Chris Hedstrom

EAB Task Force IPM Subcommittee chair

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**Washington Department of Natural Resources**

Dave Wilderman, Natural Areas Program Ecologist

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Dave manages a WDNR conservation area along the lower Columbia River that has a lot of ash, both in ash-dominant forested wetlands and mixed ash-oak riparian forests. Dave provided a permitting document that would allow this to serve as an inventory testing site. Open wetland prairie areas on this site already contain wells for measuring hydrology and he may have interest in adding some in the areas with ash. Coordinate wells with Rob Slesak.

**Private Landowners**

Peter Hayes, Hyla Woods site along Derry Creek in Washington County, OR.

Alex Gorman has a relationship with Peter and can connect whomever is taking over the inventory project. This may serve as an inventory testing site.

(Unknown), forest site in Clark County, WA.

Patrick Shults has a relationship with the landowner and can connect whomever is taking over the inventory project. This may serve as an inventory testing site.

**Anticipated Materials List:**

<Work in progress>

Plot center stake

DBH tape

Stand Characteriaztion Datasheet

Stand Inventory Datasheet

Stand Seedling Datasheet

Shovel or soil probe

tape measure or stick for soil depth

Binoculars (optional for canopy inspection)

Canopy rating photo guide

Hydrology devices (if installing)

**Inventory method:**

Modified version of Koch et al 2014 publication for monitoring EAB-infested areas.

Includes initial characterization of stands including species composition and soil characteristics in an effort to inform restoration options.

The process of characterizing and stand and selecting plots within a stand should be described. If the purpose of the inventory is to define hydrological boundaries that may dictate alternative species for use in restoration, then lines of plots perpendicular to topopgraphic lines (from low to higher elevations) should be used to define transitions. Multiple lines of plots could be used across a site in attempt to trace lines. A line of plots might be deployed along the red arrow on the map below.

Graphical user interface

Description automatically generated with medium confidence

The procedure and guidance for determining depth to soil mottling needs some work.

Second step is establishing inventory plots. These could transition to monitoring plots later.

**Key decisions:**

I have not developed the final step which would be using the inventory and hydrology data to help guide management plans. However, Mike Conroy created a nice decision tree within his statement of need that would be a good starting point. He also has some great tables and figures about native plant functional traits and tolerances.

**Project literature and documents on GitHub:**

https://github.com/LeBoldus-Lab/Ash\_inventory/

**Other Resources:**

Formal ecosystem description for North Pacific Lowland Riparian Forest and Shrubland:

https://explorer.natureserve.org/Taxon/ELEMENT\_GLOBAL.2.722806/North\_Pacific\_Lowland\_Riparian\_Forest\_and\_Shrubland

**Questions for potential stakeholders:**

I've come up with the following questions to try and learn a little more about your sites and their needs. We can discuss during the meeting.

1. What are your long term goals or objectives for the ash forests under your management? (Either ash-dominant forested wetlands or riparian forests containing ash and other tree species).

2. Do you have a plan for managing your ash forest given the presence of EAB in the region?

3. What information would be helpful in planning your long term response to EAB?

4. Do you have any vegetation mapping or inventory data for ash sites?

5. Do you have any hydrological data for ash sites, such as annual inundation depth or frequency?

6. Would you have a site suitable to test our ash inventory method and/or perform limited impact soil sampling or groundwater measurements?