WHEN ARE WEST COAST ASH TREES SUITABLE FOR PRESERVATION?

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In June 2022 Emerald Ash Borer (EAB) was discovered in Oregon. Urban foresters and arborists will be making different decisions and organizing resources in many different ways. While tree preservation on construction sites is not the most obvious impact of EAB, we have started talking about it. As arborists who work on development projects in the Pacific Northwest we have to think about when ash trees are suitable for preservation.

INTRODUCTION

In the midwest, ash historically provided a large amount of canopy cover in urban areas. In 1993, Schoon found ash (Fraxinus pennsylvanica, Fraxinus americana) constituted 10% of all trees in urban public on average, with many communities having greater than 15% of all their trees being ash. In 2010, approximately 18% of the Chicago area's street trees were F. pennsylvanica and F. americana, 33% of which had diameters at breast height greater than 18 inches (Nowak et al., 2014). Once EAB moved in, these trees were decimated and the urban forests in the region are still recovering.

On the West Coast, several ash species are planted as street trees but do not dominate the urban landscape in the same way as in the Midwest. For example, ash make up 4.3% of the City of Portland's urban parks and street trees. Oregon ash (Fraxinus latifolia), however, can dominate more natural settings where they occupy sites with plentiful moisture such as stream banks, sloughs, and rich lowlands (Jenson, 2010). Oregon ash extends from California to British Columbia and is a primary riparian species throughout Oregon (Oregon State accessed 2023).

The urban forest devastation in the Midwest has overshadowed the large swaths of black ash (Fraxinus nigra) loss in riparian areas throughout the United States and Canada. Miles of riparian channels in New York and other locations experienced extensive total canopy loss and invasive species spread http://www.emeraldashborer.info/blackash. Land managers are struggling to plant riparian tree species to restore critical shading to water bodies and hydrological function while dead ash trees fail throughout the area.

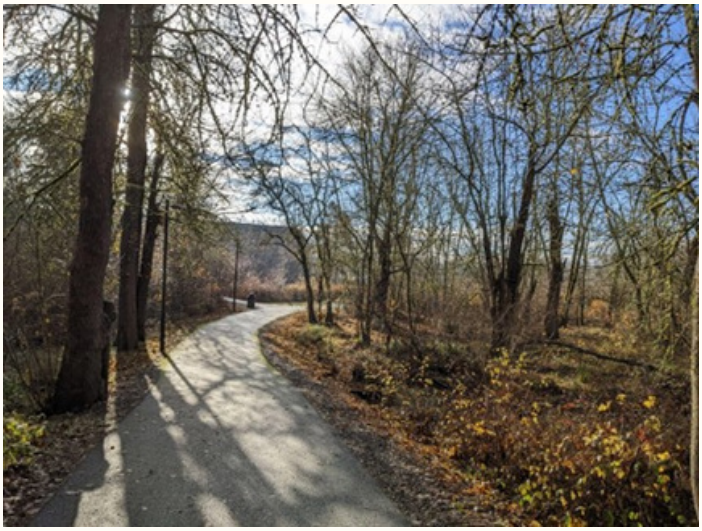
EAB IN THE PACIFIC NORTHWEST

While we (or anyone else) cannot predict exactly what will happen, we must make a few assumptions in order to plan appropriately.

1. EAB will spread north to British Columbia and south to California.
2. Most untreated ash trees on the West Coast will die.
3. Most ash trees treated properly with systemic insecticides every 1-3 years will survive.
4. Most ash trees will not be treated.

WEST COAST CONSTRUCTION PROJECTS

We have worked on hundreds of construction projects on the West Coast. In our experience and based on the literature (Clark and Matheny in press) and conversations with other arborists, ash trees have high tolerance to construction impacts. Whether we are excavating a sewer line near a F. pennsylvanica street tree in Seattle, grading near a Fraxinus latifolia outside of Eugene, or building an ADU near a Fraxinus uhdei in California, we see ash trees tolerate more root damage and maintain their health with smaller tree protection zones than other species of a similar size and condition. So, traditionally that means that we would rate ash trees in good condition as high suitability for preservation.

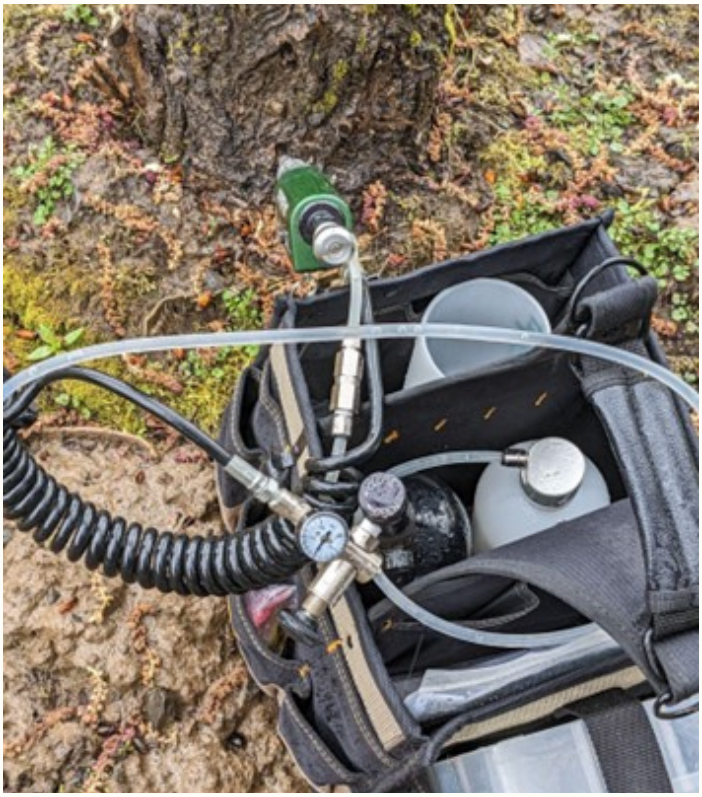


The 3rd edition of the Managing Trees during Construction Best Management Practices says:

Suitability for preservation is a categorization of a tree's potential to be an asset to the project following development. While it is future focused, ratings of suitability for preservation are based on the species, current size, current condition, and species tolerance to construction. It is not based on specific construction plans or anticipated impacts to the tree, which may be unknown in the planning phase.

In general, trees with high suitability for preservation are in good condition, have long remaining life spans, are desirable, and are species that tolerate construction damage. Trees with low suitability for preservation include those that are in poor condition, have short remaining life span, have poor aesthetics, are intolerant of construction damage, or are invasive. Trees with moderate suitability for preservation are in between these two categories. They may have conditions or qualities that could be mitigated with arboricultural treatments such as pruning, pest management, soil management, or supplemental irrigation.

However, the presence of EAB will reduce our expectation for ash's remaining life spans, significantly reducing their suitability for preservation. In light of EAB's effect on ash's preservation suitability, we are re-examining criteria for when ash should be retained or removed. The fact that EAB will likely become widespread on the West Coast makes this topic especially important for arborists in our region.



On one end of the decision making spectrum, we could consider all ash trees as having very low suitability for preservation because they are more of a liability to the future site than an asset. In practicality, this means that we would recommend removing ash trees regardless of whether they experience construction damage or not. Proactively removing ash creates new planting locations, triggers mitigation requirements for additional tree planting and overall creates greater opportunity to replace ash. The benefit of this strategy is that susceptible trees are actively removed and replaced, creating resilience in our urban forests. Alternatively, we are losing the immediate benefits provided by these large and healthy ash trees. Instead, we are considering a more nuanced discussion. We do not plan on continuing to rate most healthy ash trees as highly suitable for preservation as we have been doing. But also, we do not plan to recommend proactively removing every ash tree on all of our construction sites. Insteadl, we will not be giving many high suitability for preservation ratings to ash trees on our projects on the West Coast. We will rate more ash trees as having a low suitability for preservation and be recommending them for removal more often. Many ash trees will have a moderate suitability for preservation. However, we are more likely to recommend them for removal when construction is planned close enough that they will be significantly impacted. Some projects will have a healthy ash tree that is valuable enough to treat with insecticides, and our client will plan on treating the tree into the future. These trees do have a long anticipated lifespan and therefore, are highly suitable for preservation.

The Oregon Department of Agriculture has approved 62 chemicals using 9 active ingredients to treat EAB. Emamectin Benzoate is a popular choice because it provides protection for up to three years on treated ash trees and minimize cross contamination because it is injected into the trunk. Generally, it is recommended for trees that have 30% canopy loss or less because it is systemic and needs the trees vascular system to transport it throughout the tree. Because treatments can extend the expected lifespan of ash trees, we should consider willingness of the owners and land managers to use systemic insecticides when rating the suitability for preservation of healthy ash trees.

Budgets will not allow property owners to treat all ash trees. In Portland for example, many of the most valuable ash trees can be found in public parks. Treating these trees will allow for construction projects, such path improvement, new playgrounds, and additions of other amenities to occur relatively near ash trees. On the other hand, large swaths of Oregon ash growing in riparian areas will not likely receive treatment. Development occurring in these areas include residential construction, stream restoration projects and trail enhancements. Though local policies often protect ash in these areas because of their proximity to sensitive environmental areas, these trees may not be best suited for preservation in the face of EAB.

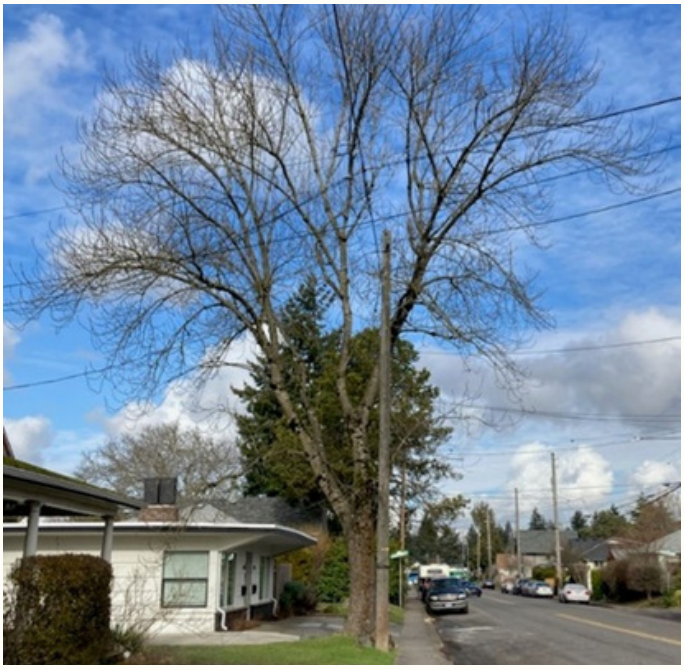
DECIDING TO PRESERVE ASH ON A CASE BY CASE BASIS

For now, we are making preservation decisions on ash trees on a case by case basis. We will try to preserve the ash trees that we can, but we will not go to great lengths to try to preserve ash trees because we suspect that their lifespan is limited.

Case #1 One Fraxinus americana approx. 20" DBH is growing on private property in front of a single family home. Several properties on this street are being combined to build an apartment complex. The plans that we review show the utilities are proposed approximately 7 feet from tree's stem, creating a severely limited Tree Protection Zone.

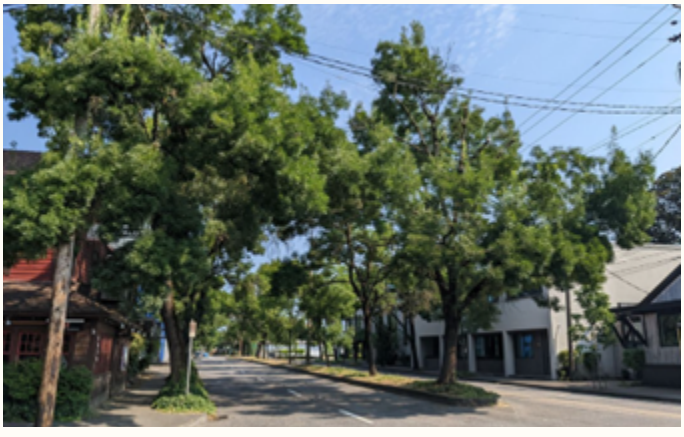
The utility locations are so close to the tree that we expect root loss during trench excavation to be severe. We would not expect this tree to survive construction. Before EAB arrived on the West Coast, we could have handled this situation differently. We may have advised

the client to shift the utilities away from the tree or install them using a trenchless bore. Now, we expect this tree to have a limited lifespan unless the property owner consistently treats it. Does it still make sense to ask our clients to alter their design to preserve a tree that likely does not have a long remaining lifespan? The project would be more successful by removing the susceptible ash tree and replanting with a climate forward species.



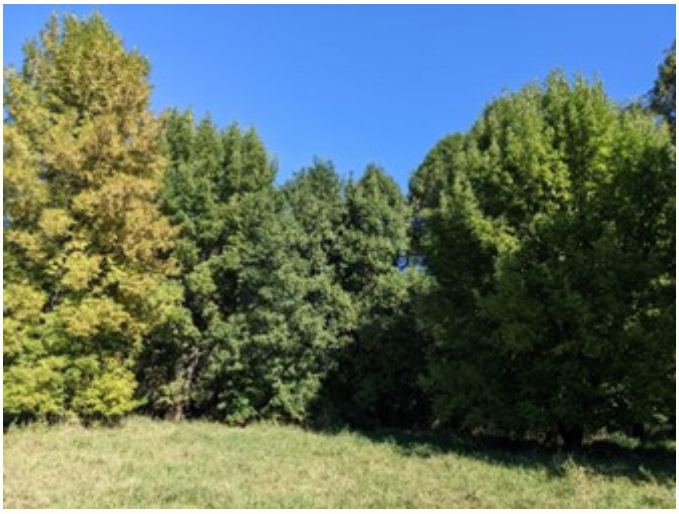
Case #2 - An intersection lined with mature Fraxinus oxycarpa 'Raywood' is being redeveloped, expanding curb ramps and building new light signals. Two trees are not directly impacted by the ROW improvements, but the project's landscape architect suggests them for removal because the municipality may not treat them for EAB. These two trees are within 20 feet of the intersection and the City prohibits planting new street trees in such close proximity. However, the existing trees are allowed to be preserved even if they do not meet this clearance requirement.

As EAB spreads across the west, arborists will be considering when ash tree replacement is appropriate during public infrastructure repairs. When replacement is not possible, we will choose to retain a healthy tree that has a limited lifespan rather than removing it without replacing it. In this situation, we recommend preservation and protection of the existing ash trees during construction.



Case #3 - A trail is being constructed in a natural area that needs to cross a creek. The creek is lined with Fraxinus latifolia, and we are asked to help select the location and design of the bridge.
Before the arrival of EAB, we would have used ash tree condition, diameter and location to recommend the location of the bridge that preserved the healthiest, largest trees. While we could take that same approach, we expect the health of all of these trees to decline in the next few years and current tree health to be less important. We may try to identify female trees as an important seed resource if property managers wish to treat a few trees or just in case that tree has some genetic resistance to EAB. It is unlikely that these riparian areas will be treated with insecticides by the property owner, so we would focus on future risk and safety. Rather than looking at how the bridge construction would damage the trees, we would focus on which trees would damage the bridge. We may now consider EAB's future impacts and have a lower tolerance for retaining ash trees within striking distance of the bridge.

Several of these trees can be adequately protected during construction, especially because they are in good condition and tolerate root loss. But we must consider that the new bridge engages the surrounding area, encouraging people to use the space. When collaborating with designers to highlight scenic and safe areas, we need to also discuss strategies that encourage hikers to keep moving and not spend time under ash trees. As EAB spreads to the nearby Oregon ash stand, the trees will succumb to the pest and become riskier to pedestrians and the new bridge. As arborists advising on the project, we would recommend removing far more trees than we have in the past and be thinking more about risk of tree failure than protecting the trees.

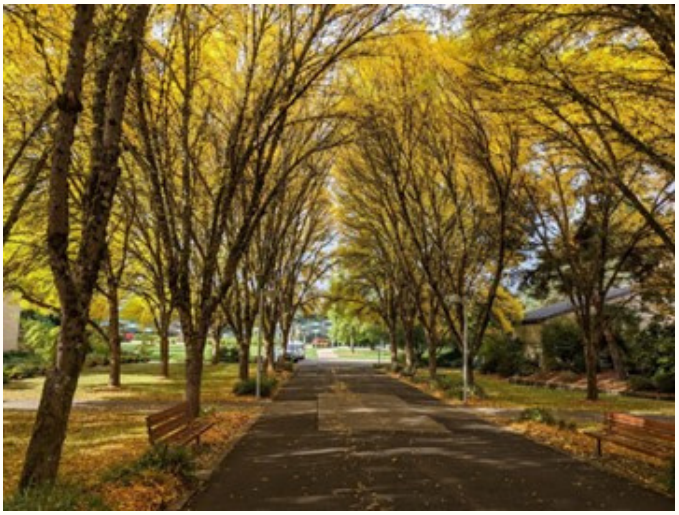


Case #4 - A university is early in the design phase of a project re-developing the iconic entry-way to the library. The allay of Fraxinus pennsylvanica is on every brochure, but they want to replace the straight road with narrower meandering paths.

When early in the planning process, arborists have the opportunity to guide conversations to preserve the best trees. Before looking at the trees and any potential design, we would talk to the university about their insecticide use policy, budget, and long term investment in preserving these trees. In addition to typical tree inventory data, we would focus on crown dieback because declining trees may not

transport insecticides effectively. With the design team, we would try to protect the best trees from construction and make difficult decisions about removing trees. With all of the data in hand, we would recommend removal of trees that are:

- too small to be valuable enough to treat,
- too unhealthy to transport systemic insecticides,
- in locations that will experience moderate root damage, etc.



SUMMARY

Since EAB was discovered in Oregon, you may have already made difficult decisions regarding ash trees on construction projects. Some of you may still be treating ash trees with the same tolerance for preservation as you have in the past. For anyone working on the West Coast who does not feel any need to adjust your lens when working near ash, we encourage you to begin making that adjustment. We hope that our ideas and examples have helped you think about some of the ways that EAB will affect our urban forestry work. We hope that you reach out and let us know what you are experiencing on your projects.

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