TEN
RECOMMENDATIONS FOR MANAGING ASH
IN THE FACE OF EMERALD ASH BORER AND CLIMATE CHANGE

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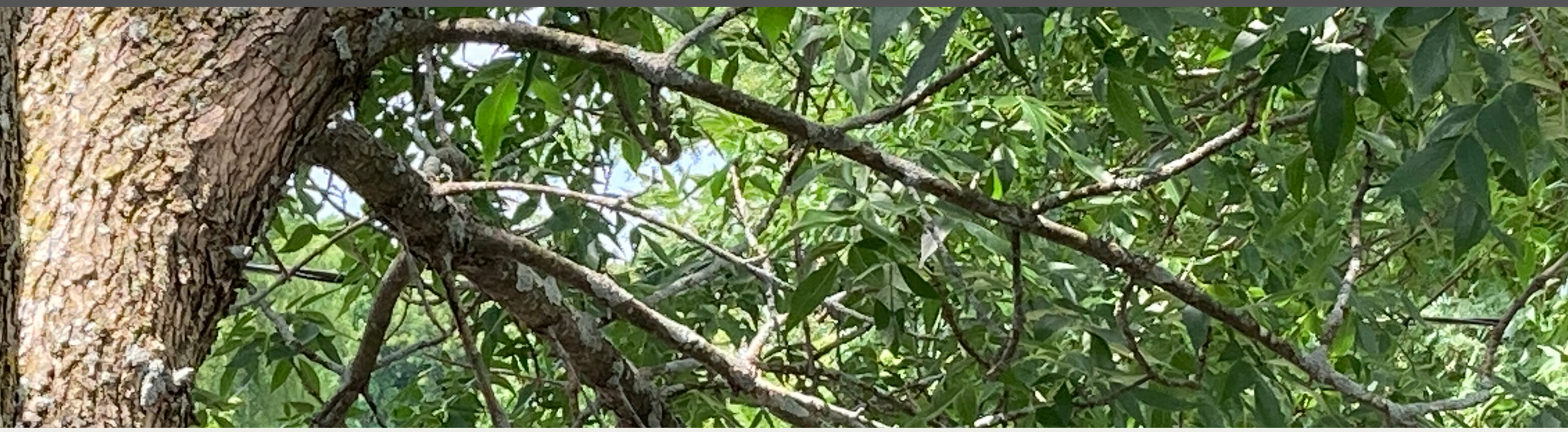

1. Ash has intrinsic value

Each component of the forested ecosystem is integral, and ash trees are no exception. Their late spring leaf-out allows light to reach the forest floor for longer than beneath other trees. They support dozens of insects and provide cover and forage for a variety of mammals and birds[i, ii]. When broken, white ash readily forms trunk cavities, and its large diameter at maturity makes it highly valuable for cavity nesters[iii]. Black ash is valued as a spiritual resource and used for basket-making and other traditional lifeways for Indigenous people whose ancestral lands intersect the range of this species[iv]. It has different functional traits than most other co-occurring trees, like compound leaves and ring-porous wood. By shedding nutrient-dense leaves, ash trees can alter soil properties[v]. The low tannic leaves of green and black ash are a high-quality food source for tadpoles and aquatic invertebrates[vi][vii].

2. Manage the forest, not the insect

Sound, ecologically based silviculture is the best way to manage forests, including those threatened by Emerald Ash Borer (EAB). EAB is shown to have variable impacts on different forests. As a guiding principle for management, continue the application of treatments that increase structural and species diversity and promote regeneration.

3. Removing solely the largest ash trees is counterproductive

Decades of research and experience have demonstrated that diameter-limit cutting (i.e., only harvesting stems over a certain size) negatively impacts forest quality and health[viii]. Where overstory ash is removed, it should be done as part of silvicultural treatments designed to sustain long-term options and ecological conditions on site (i.e., not diameter-limit cutting; see point 4).

Photo credit Christa Rittberg

4. KEEP FUTURE OPTIONS, INCLUDING FUTURE ASH

There have been no silvicultural treatments proven effective at reducing impacts of EAB on overstory trees (e.g., thinning to increase vigor), so it is critical to encourage a range of age classes by using silvicultural treatments that promote ash regeneration. Although ash seedlings are tolerant of shade, larger openings (> 0.25 acre) are often necessary to recruit future individuals into the canopy. Beyond regeneration, keep large, healthy ash trees in the canopy as a source of pollen and seed (and thus genetic diversity).

5. THERE ARE FEMALE AND MALE ASH

Ash is dioecious, meaning that there are separate male and female trees. Retention of seed-bearing trees (i.e., female trees) should be a priority, as there are generally more male trees than female trees (at a ratio of about 7:1)[ix]. Although ash pollen can travel long distances, having male ash less than 400 feet from a female will increase likelihood of pollination[x]. Determining the sex of individual trees can be challenging, but examining the flowers that emerge just before leaf out, or by identifying which trees produce seed mid-summer are the most straightforward ways to do this. Keep in mind that female ash trees may not flower every year (up to 5 years can pass between flowering).

6. CONSIDER OTHER VALUES TO LANDOWNERS OF LEAVING ASH IN THE STAND

Weigh the economic trade-offs between harvesting ash or retaining it for other values such as forage and habitat for game species, carbon sequestration and storage, water and nutrient cycling, or other ecosystem services.

7. REMEMBER THAT ECOLOGICAL SILVICULTURE CAN PROVIDE CLIMATE RESILIENCY BENEFITS

Use forest management techniques like group and patch selection with reserves, irregular shelterwoods, and legacy retention to create variation and diversity in structure and composition, which can provide a range of functional responses and resiliency when the forest encounters a stress or disturbance[xi].

8. MAKE CLIMATE ADAPTATION MANAGEMENT INTENTIONAL

In addition to EAB, climate change is also creating great uncertainty about the future health and dynamics of our forests. Consider the likely impacts that the stand will experience in the next few decades and incorporate these threats into silviculture strategies that create diverse functional conditions, including uneven-aged management and mixed species management. With regard to ash species, climate change models suggest that both white and green ash could see either no change or an increase in suitable habitat in the region, while black ash may experience a slight decrease[xii]. However, green ash has a high capacity to adapt to changing conditions, while white and black ash have low adaptive capacities and are intolerant of drought. On drier sites, manage white and black ash with these restrictions in mind and retain them where water may be less limited.

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9. Resistance is there, and there is hope in resistance

There is variation among ash species and individual tree to EAB impacts. Black and green ash unfortunately show little resistance to EAB; however, impacts on white ash are much more variable with some areas experiencing complete mortality and others showing high survival[xiii]. Maintaining a large population of ash across the landscape provides greater chance of some trees surviving. Resistance to EAB offers hope for the species and our forests and should inform management decisions.

10. Integrated pest management (IPM) and other novel techniques may be an option for EAB management in certain areas

Before you plan a harvest, find out what EAB management is going on in your area by contacting your state's forest health specialists, especially if you are near an urban environment. Our understanding on managing ash is developing rapidly. For instance, there are some recent results that suggest treating <1% of ash trees with insecticide may reduce impacts from EAB[xiv] and provide the future options described above.

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