

Black Ash Management Recommendations and Resources for Vermont Municipalities

This resource packet was developed by a group of UVM students enrolled in NR206 – a class focused on Environmental Problem Solving and Impact Assessment. We hope that this collection of recommendations and resources will relay the importance of preserving black ash for ecological and cultural purposes, as well as aid in the formulation of a succinct and effective plan to do so.

Within this resource packet we've included black ash management and cultural access recommendations in terms of preservation, an [ArcGIS StoryMap](#) containing black ash distribution, and resources that provide more insight into formulating plans and understanding the significance of black ash.

Background on Black Ash

Black ash (*Fraxinus nigra*) is an ecologically and culturally significant species native to the northeastern United States and eastern Canada. Black ash splints are favored for basket-making and weaving projects, with the species being integral to the economy and culture of indigenous tribes (Hansen, 2009). In the Abenaki creation story, people were formed from the ash tree, flexible, and in harmony with the earth (Drake, 2022). Ecologically, black ash plays a crucial role in the nutrient cycling of nitrogen and carbon within a wetland ecosystem. By regulating water levels through the species' unique physiological characteristics, it has the ability to efficiently return excess moisture to the atmosphere (Toczydlowski, 2020).

However, the emerald ash borer (EAB), or *Agrilus planipennis*, threatens to eradicate black ash in North America. Originating from Asia, EAB was discovered in Michigan in 2002, rapidly spreading across The Great Lakes, transforming wetland and upland ecosystems for the foreseeable future. EAB was first detected in Vermont in 2018, and has since spread through much of the state. The emerald ash borer attacks all ash species, but black ash is most susceptible for reasons researchers suspect may be linked to volatile organic chemical profiles, which could attract EAB to preferred suitable hosts (Rigsly, 2017). The inevitable dieback of black ash will initiate a substantial ecological response on a regional scale: canopy gaps formed from the stand-level loss of ash will impact ground-level vegetation, decomposition, and nutrient cycling. The absence of the species will correspondingly result in higher wetland water tables, prompting potential flooding events (Kolka, 2018).

Resources to learn more about cultural and ecological significance of black ash and the impact of the Emerald Ash Borer:

- ❖ [Ash Trees- A Celebration and a Lament](#)
Blog post highlighting the role that ash trees play in North America
- ❖ [People of the Trees: An Abenaki Creation Story](#)
Blog post that describes the Abenaki Creation Story, which explains the cultural importance of the ash tree
- ❖ [Basketmaking](#)
Overview of the process and significance of Abenaki basket making traditions
- ❖ [Request for Help Saving Ash Trees](#)
Kerry Wood, a member of Nulhegan Band of the Coosuk Abenaki Nation, shares a request to community members to join the conversation around preserving black ash for future generations
- ❖ [Emerald Ash Borer Invasion of North America: History, Biology, Ecology, Impacts, and Management](#)
Scientific journal article that provides information about the Emerald Ash Borer and its impacts as an invasive species in North America
- ❖ [Emerald Ash Borer in Vermont](#)
Overview of the Emerald Ash Borer in Vermont from VTinvasives.org

Black Ash Management Recommendations

For towns that have been managing their forests, but do not yet have plans to address EAB, we are recommending that the current management plans be updated to include guidelines for dealing with this invasive beetle. So far, EAB has been confirmed in many locations across the state of Vermont, in 13 of the 14 counties. There is a current map of confirmed infestations and their surroundings at VTInvasives.org. With the threat of EAB throughout Vermont, municipalities should consider adopting Municipal Ash Management Strategies into more municipal land management plans to help slow the spread of EAB and improve the health of each forest.

For towns and municipalities that do not have a current management plan for their forests, we are recommending that a management plan be constructed, and that the Municipal Ash Management Strategies are implemented from the beginning. This will increase the overall productivity and health of the forest with the added benefit of the forest manager being aware of the risk to ash trees when it is drafted.

Resources for developing management plans:

- ❖ [Municipal Ash Management Strategies](#)
One page summary of management strategies for ash trees on municipal lands
- ❖ [VT Forest Management Plan Information](#)
Information and links for landowners to properly manage their land
- ❖ [VT UCF Examples of Management Plans](#)
Compilation of EAB preparedness and management plans from communities in Vermont

Cultural Preservation Recommendations

Another critical step in addressing the threat to black ash is considering how to best preserve the species for future generations. Members of the Abenaki Nation and other indigenous tribes have a profound history and long-lasting relationship with ash trees. By understanding this cultural significance and taking measures to expand access and protection of the species, we can make progress towards preserving this relationship and corresponding traditional knowledge.

As the initial option for black ash preservation, we recommend treatment with insecticide of legacy, seed-bearing individuals. This practice would better preserve the continuation of black ash as a species through EAB's ecological devastation. Additionally, we suggest treating seed-bearing individuals that exhibit prominent basket-making attributes when possible to aid future harvest efforts. Trees compatible for basketry have a bole height of at least 6 feet, are at least 8 inches in diameter, and have no EAB damage. While we acknowledge that insecticide treatment is expensive, the preservation of mature, seed-bearing black ash individuals across the Vermont landscape will have significant ecological and cultural benefits, in addition to retaining local black ash genetic diversity.

Beyond treatment of individual black ash, seed collection can be a practical and economical option to preserve the genetic diversity of black ash adapted to local environments and climatic conditions. Currently, ash seed collection is being conducted in several states in partnership with the USDA, introducing promising case studies to reference in our own state (Knight, 2017; USDA ARS, 2018). Black ash seeds should be collected upon maturity but prior to dispersal from the host. Gathered black ash seeds should be properly labeled and placed in sustainable deep freeze storage, where they can remain viable for over 40 years. When the time is right, these saved seeds can be used to grow new ash trees so that the species may live on.

As a final option, we recommend allowing the harvest of viable black ash trees for the purpose of basket-making and other activities that utilize black ash splints. Although it is crucial to recognize that this would be a significant step in supporting the indigenous basket-weaving community, there are various challenges to accomplishing this:

- Suitable trees may be located in forests or other areas that are difficult to access

- Limited resources are readily available to assist basketmakers in the harvest of black ash
- Presently, there are no large-scale processing facilities or locations for black ash splint storage exist in Vermont

These are complex issues that still need tangible solutions. Regardless, it is essential to consider the recommendations mentioned above to progress the preservation of black ash for future generations regarding ecological and cultural considerations.

Resources for treating trees and estimating costs:

- ❖ [Insecticide Treatment Options](#)
Steps and information regarding insecticide treatment for ash tree protection
- ❖ [Frequently Asked Questions about Treatment](#)
Resource answering a variety of frequently asked questions about insecticide application
- ❖ [Ash Tree Protection Services Contact List](#)
List of professional arborists and tree care companies in Vermont
- ❖ [Methods for Collecting Ash Seeds](#)
Description of ash seed collection timing, techniques, and post-harvest handling
- ❖ [EAB Invasion Cost Calculator](#)
Cost calculator that can be used to predict how economical it is to protect ash trees
- ❖ [2023 Communities Caring for Canopy Grants](#)
Grants that provide financial assistance for tree planting, tree maintenance, EAB preparedness, and related projects

Contacts regarding cultural access:

- ❖ Vermont Commission on Native American Affairs (VCNAA)
The VCNAA is charged with recognizing the historic and cultural contributions of Native Americans in Vermont, protecting and strengthening Native American heritage, and addressing needs in state policy, programs, and actions.
Contact: [Website](#)
- ❖ Kerry R. Wood
Black ash and Sweetgrass Basketmaker, Member of Nulhegan Band of the Coosuk Abenaki Nation, Abenaki Language Keeper
Contact: [Email](#)

Story Map of Black Ash in VT Municipalities

One of the first steps in managing black ash is identifying where they exist. Black ash trees have been documented across the state of Vermont using iNaturalist, a citizen science app that allows users to contribute their own observations of species. Compiling this public data, along with additional environmental information about the landscape, provides useful insight into where black ash exists throughout the state. Find out if your municipality's land might contain black ash trees using the [Black Ash in VT Municipalities StoryMap](#).

NR206 Presentation: Black Ash Documentation and Cultural Management in Vermont Public Forests

On December 8th, 2022, our team presented our process and findings of the semester-long service-learning project. You can access the recorded meeting at the following link:

[Presentation Recording](#)

Thank you for your time and acknowledgement of the information we have compiled. We hope that you will consider implementing our recommendations regarding the management of EAB to preserve black ash for the enjoyment of future generations.

Additional Resources and Contact Information

Many of the aforementioned resources and additional information can be found on the [Vermont Urban and Community Forestry program's website](#).

For future information and questions about black ash tree management in the context of urban and community forestry in Vermont, please contact:

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Citations

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