



Vermont Urban and Community Forestry:

**An inventory project in order to assess Ash
tree health**

A project done through NR-025 with help from the
Urban Forestry Department

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Introduction: This project's goal was to inventory Ash trees in order to prepare towns for a possible outbreak of the Emerald Ash Borer, *A. planipennis*. The Emerald Ash Borer, a species within the *Buprestidae* family, is non-native to the United States, and has become invasive. Because this specific beetle only feeds on Ash trees, and because it is invasive, once this individual is found within a community, there is little to do to save all of the Ash trees in the area. There are ways of saving individual trees, but the methods are expensive and require multiple applications. For this reason the best way to fight the Emerald Ash Borer is to make sure the beetle never gets reaches your community.

The reason for the tree inventory in this project was to assess the health and condition of the Ash trees in Williston in order to create some management plans for the Ash trees in Williston in preparation of the Emerald Ash Borer.

Of all the street trees planted in Williston, 40% are Ash trees, which measure out to be about 500 trees. Because of this large number, and the small amount of time for this project, not all of the Ash trees were inventoried. The Ash trees were rated on a level of which trees were most likely to be exposed to the Emerald Ash Borer first. These trees were ones that were surrounded by other Ashes, ones that were near imported wood and nurseries. With this information, we could discern which trees were of high priority and should be inventoried first.

The sites that were inventoried, and were of the highest priority, were streets within the mall complex Maple Tree Place. The location of Maple Tree Place mall complex within Williston, VT can be seen in figure 1.

These streets included Marshall Ave, Harvest Ln, which were both streets lined with Ash trees and adjacent to *Gardener's Supply* and to *The Home Depot*. The other streets, Connor Way and Hawthorne St, were within Maple Tree Place mall complex and were also lined with Ash trees.

Methods: Each week we went into the town of Williston to take general health assessments, as well as GPS locate ash trees in emergent areas with the Juno device provided to us by Caitlyn Cusack. Using a list, we visited streets around Maple Tree

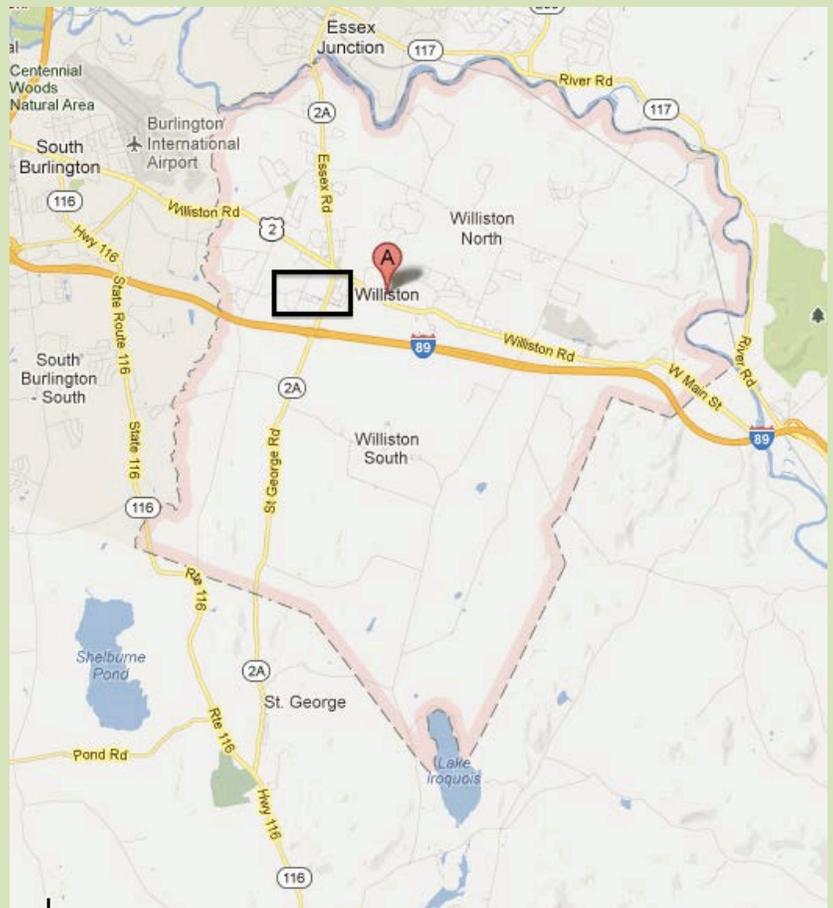


Figure 1: Map of Williston- Photo Credit Google Maps

Place directly off of Interstate 89 exit 12. The Juno device prompted questions to us regarding the general health of the tree. These questions were:

- 1.) Presence of dead or broken branches - Yes or No
- 2.) Presence of crown dieback - Yes or No
- 3.) Decay of tree - Yes or No
- 4.) Presence of bark split - Yes or No
- 5.) Presence of cankers - Yes or No
- 6.) Presence of Sprouts near bottom of the tree - Yes or No
- 7.) Woodpecker activity - Yes or No
- 8.) Presence of exit holes (insects) - Yes or No
- 9.) Exposed roots - specifically stem girdling - Yes or No
- 10.) Do the branches need to be pruned - Yes or No, then whether the land was public or private
- 11.) DBH of the tree - 1-3in, 3-6in, 6-12in, 12-18in, 18+in. Our overall assessment of Condition based on the answers to these questions being either dead, poor, fair or good. Additional comments were added at the end of the questions, as well as the GPS location. We answered all the questions for each tree systematically and took the GPS location.

We followed a list provided to us by Elise Schadler of the most at-risk of being infested sites. These sites were defined as being near possible infestation sites, such as near a nursery where plants that may be carrying EAB were located, or near the highway where vehicles may be carrying EAB. In our case, we got through the trees located directly off of the highway, as well as being in close proximity to Gardener's Supply Company, which is a Garden Center, Nursery and Outlet Store located on Marshall Ave. in Williston, VT.



Figure 2: Exit Hole- Photo Credit Amanda Allard

Results: From spending time inventorying the trees within the vicinity of Maple

Tree Place mall, we found that most of the Ash street trees in this area were not very healthy. At first, it seemed to the group that these Ash trees had already been exposed to the Emerald Ash Borer because of the amount of exit holes found on trees on

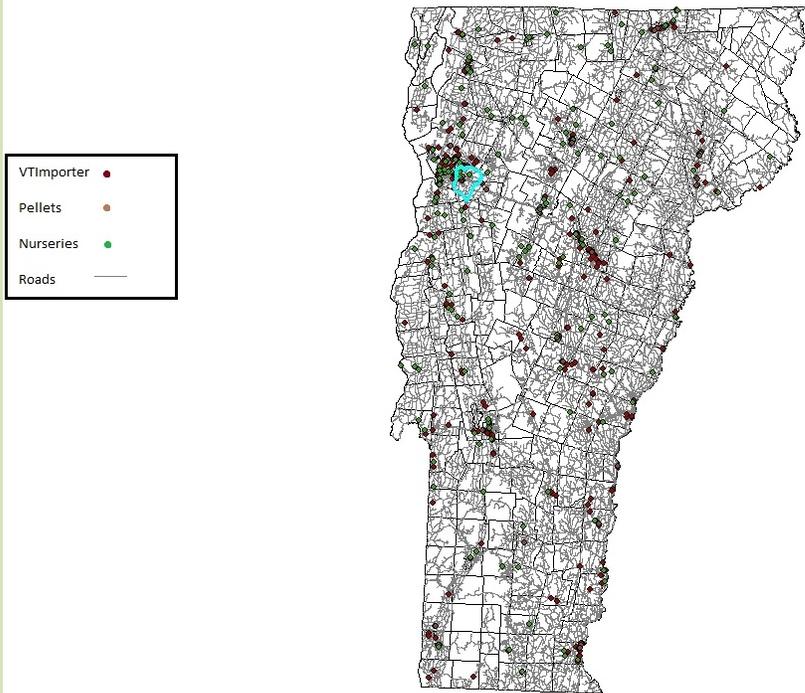
Marshall Ave. After studying the exit holes more extensively, we

realized that most of the holes found on the trees were much more circular, a trait of a native borer, rather than D-shaped, a trait of the Emerald Ash Borer. Although for

Factors	Number of trees affected	Percent affected
Dead/Broken Branches	25/92	27.17%
Crown Dieback	N/A	N/A
Decay	39/92	42.3%
Bark split	43/92	46.7%
Cankers	0/92	0%
Sprouting	7/92	7.6%
Woodpeckers	0/92	0%
Exit holes	18/92	19.5%
Exposed roots	14/92	15.2%
Pruning needed	52/92	56.5%

Figure 3: Table of Final Data

Human Impacts Concerning EAB in Vermont
Fall 2012



the most part this held true, there was one exit hole found on the an Ash tree that looked extremely D-shaped. This finding could be a sign of the Emerald Ash Borer, or more likely could be an exit hole from a slightly deformed native insect.

Another thing that was noticed only after the fieldwork potion of this project was done was that Mountain Ash trees were also planted in the area. This changes the general tree condition, because Mountain Ash trees have a different bark texture then White and Green Ash. Lots of

Figure 5: Map of Vermont and High Risk Area

trees found in the field had bark that was smoother than normal, which lead the group to assume the trees were in a worse condition. Knowing this information, the trees that were found in the field could be in better condition than initially thought. We also found that the general condition of the street trees in this area was not very good, as you can see in figure 3. The average tree found was either fair or poor and a lot of the trees seemed as if they were decaying.

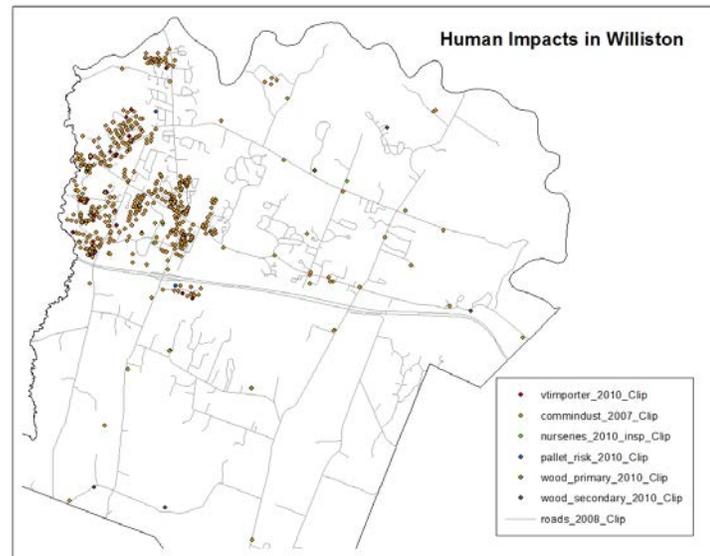


Figure 6: Map of Williston and High Risk Areas



Figure 6: Map of Maple Tree Place and Ash Trees

Lastly, figures 4, 5, and 6 are all maps made on GIS; the final deliverables. Figure 4 shows places that are high-risk of infestation of the Emerald Ash Borer in Vermont.

The next map, figure 5, is a zoomed in map of Williston, which shows the same human factors and high-risk areas that figure 4 had. The last map, figure 6, is map of the area around Maple Tree Place mall complex and points out all the Ash trees inventoried in this project. The different colored dots show the different health conditions that each tree was found in.

Discussion and Recommendations: Our management recommendations are to simply keep a close eye on the most at-risk areas of Emerald Ash Borer (EAB) infestation. These areas include the ones listed on the “Most Highly At-Risk Areas” that was provided to us. We noticed things including a lot of decay and insect holes in the bark that indicate the Ash trees which we looked at (in Maple Tree Place, Harvest Ln., and Marshall Ave.) are not in the healthiest of conditions and are therefore much more susceptible to pests such as EAB. Besides keeping up with the conditions of the trees and working to improve them, there is not much more work that can be done.

Problems that we encountered during our data collection were mostly due to time constraints. Since we are all full time students, it was very difficult to find time other than the lab time provided on Wednesday afternoons between 1:00 and 4:00 to get to Williston and inventory. Also, since the project was started late in the fall semester daylight faded quickly and we were not able to collect information. It also would have been helpful to get together with Caitlyn on a second day where she could have shown us how to use the Juno on an Ash tree, as we had a few specific questions regarding the health aspects and what is or isn't normal and how a healthy tree should look. Another problem that we had (again, due to timing of the project) is that we could not answer some of the prompted Juno questions such as canopy dieback because there was no canopy left to assess.

Ways of perhaps improving this project would be to make sure that the people going out to do the assessment and inventorying were familiar enough with Ash trees to answer any questions about the general health completely without additional help. For many of the questions, we were slightly unsure and having an example of a completely healthy Ash tree would have made answering questions easier. Also, the inventory should be done (or at least started) in a season where the sun is still up past 4:30 so there is more time in one area and travel time is not as much of an issue, and also so canopy dieback can be assessed.



Figure 7: Ash Tree- Photo Credit Tara Gron

Acknowledgements: We would like to thank all of the people that made this project possible. Firstly, our sponsors: Elise Schadler, Caitlin Cusack, and all the others who help getting us the resources needed to participate in this project. We would also like to thank Zac Ispa-Landa and Jeff O'Donnell who assigned us to this project, and help us with many problems along the way.