Emerald Ash Borer (EAB) Pest Preparedness Plan

Danville, Vermont

Danville Conservation Commission

11/15/2018

Contents

I. Statement of Purpose

This document outlines an action plan for the Town of Danville to follow before and after the arrival of the emerald ash borer (EAB). This introduced insect is currently killing all species of ash trees across the northcentral and northeast U.S. Its recent arrival in Vermont is expected to have devastating consequences for our ash resource in both forest and urban areas.

This action plan consolidates essential information within one reference document and details what Danville will do before EAB is detected, what we will do when it is detected, and what we will do once it becomes established. The Plan specifies partner authorities and responsibilities, identifies our local EAB Project Team members, and their roles in relation to the Danville Town Select Board and other town agencies, and outlines a strategy for managing our community ash trees including waste wood disposal and utilization, comparative cost analysis of removals vs. pesticide insecticide treatments, assessment of needed equipment and other resources.

It is anticipated that this plan will serve to:

1) Distribute, over a manageable time period, the costs that will be associated with the removal and disposal of ash trees present in or adjacent to the highway right-of-ways of Danville that are attacked and/or killed by the EAB, and,

2) Reduce hazards to public health and property.

This plan deals with ash trees that are trees located a) along village streets within the Danville village(s) limits; b) in the right-of way on rural roads; c) in town parks; and d) trees that pose hazards along certain trails in Danville's Town Forests that if killed will constitute a hazard to people and property.

An initial pest planning information meeting was held several years ago in Danville Town Hall. It is in the records. In attendance were staff members from the Department of Forest and Parks- Jay Lakey, Neil Montieth; and Conservation Commission member Dave Houston.

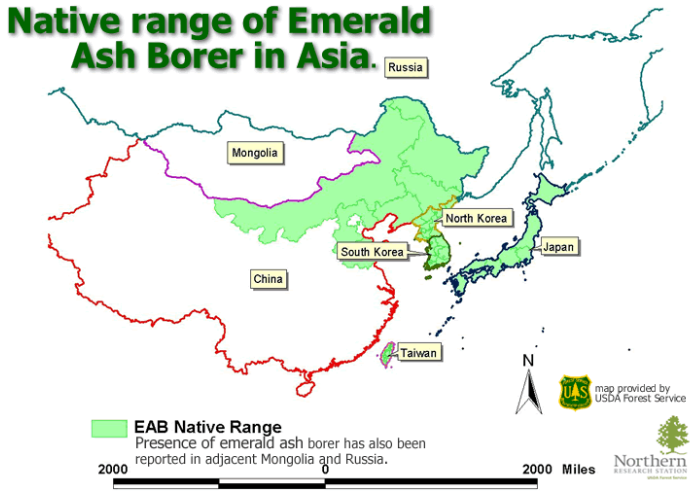
The EAB Preparedness Plan is a living document and will continue to change.

II. The Emerald Ash Borer

A. History

Emerald Ash Borer (*Agrilus planipennis*) is a non-native wood-boring insect that feeds on North American ash trees. EAB is native to Asia, in particular northeast China, Korea, Japan, Taiwan, and a small area in adjacent Russia and Mongolia. EAB is thought to have been introduced to southeastern Michigan through solid wood packing material, such as crates and pallets, originating from Asia. The insect was found in 2002, but is believed to have arrived in the early 1990's. Experts suspect that the insect was present for 12 years before it was identified.

In its native range, EAB feeds on a variety of plant species and is only considered a minor pest. This is partly due to the fact that Asian ash trees have been able to develop co-evolutionary resistance to EAB attacks and populations are also kept in check by predators and pathogens. However, this is not the case in North America where ash trees have no natural resistance and EAB has few predators. In North America, woodpeckers and a native wasp have been shown to attack EAB eggs and larvae, but with little impact on populations. In addition, research is being conducted with three species of wasps from China that show some promise of control.

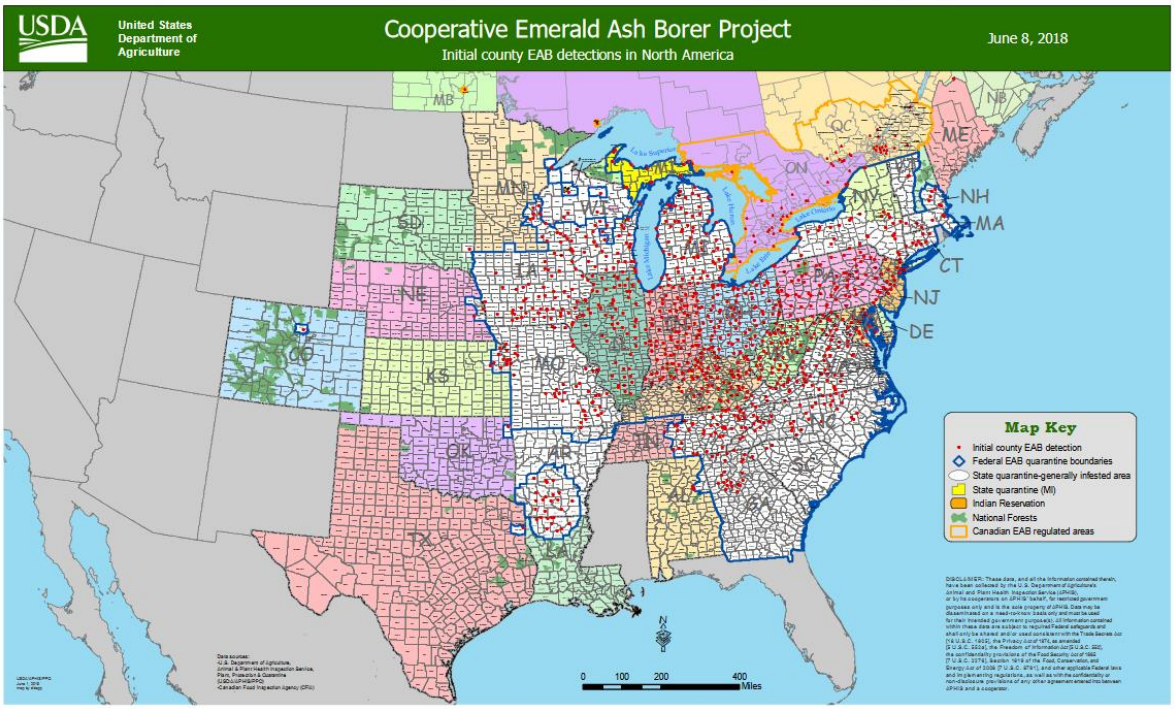


In North America, EAB attacks all ash trees in the genus *Fraxinus*, including green ash (*F. pennsylvanica*), white ash (*F. americana*), black ash (*F. nigra*), and other native species in the same genus. Mountain ash (*Sorbus* spp.), not a true ash, is unaffected. EAB is known to attack both healthy and declining ash trees and can infest branches as small as one inch in diameter.

Left on its own, EAB can travel ½ mile to several miles per year during its flight period. However, due to human activities EAB has spread over much greater distances than it could have moved naturally. The number one human activity that

has led to the spread of EAB is the movement of firewood. In addition, the movement of nursery stock has also played a role in its movement.

EAB has had a devastating effect on North American forests and has been compared to the effects of chestnut blight and Dutch elm disease. To date, EAB has killed millions of ash trees and has been found in 33 states, and Ontario, Quebec, and New Brunswick, Canada.



EAB could result in the losses of millions of dollars to the lumber and nursery industries as well as urban communities. Preliminary findings by the USDA Forest Service estimate that EAB's potential impact to the national urban landscape is a potential loss of between 0.5 to 2 percent of the total leaf area (30-90 million trees) and a value loss of between $20-60 billion. In addition, EAB could cause approximately $7 billion in additional costs to state and local governments and landowners to remove and replace dead and dying ash trees in urban and suburban areas over the next 25 years.
(New Pest Response Guidelines, Emerald Ash Borer *Agrilus planipennis* (Fairmaire), USDA-APHIS 2008.)

B. Identification and Lifecycle

(Source, http://www.emeraldashborer.wi.gov/index.jsp.)

Emerald ash borer adults are very small, metallic green beetles. They are only 3/8 - 1/2 inch long and 1/16 inch wide (about the size of a cooked grain of rice). Adult emerald ash borers emerge from beneath the bark of ash trees in late May through mid-July, creating a D-shaped exit hole as they chew their way out of the tree. Adult beetles are most active during the day and prefer warm, sunny weather. They never wander far from where they exit a tree (less than one mile) in search of a mate.

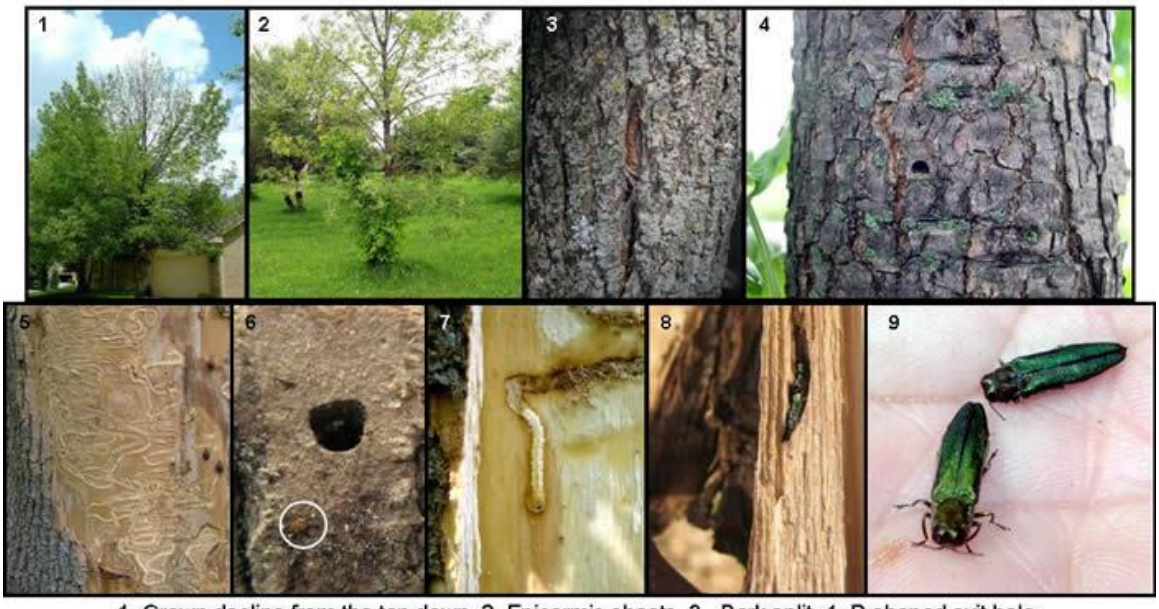
Once they find a mate, the female will lay 60 – 90 eggs, one at a time, in the crevices of ash tree bark. The adult beetles will feed lightly on ash tree leaves, but do not cause much harm by doing so. The adult beetles live a total of three to six weeks. Emerald ash borer eggs are very small (1 mm), difficult to find and are rarely seen. Female adult beetles deposit them in the bark crevices and as larvae hatch from the egg, they immediately chew their way into the tree.

Emerald ash borer larvae are white and slightly flattened, with a pair of brown pincher-like appendages on the last abdominal segment. Their size varies as they feed under the bark on the ash tree's tissues and grow. Full grown larvae average 1½ inches in length. They wind back and forth as they feed, creating characteristic S-shaped patterns called galleries under the bark (starting in the phloem and extending into the xylem layers). Larvae will feed under the bark for one year and often two years in healthier trees, and can survive in green wood, such as firewood, even if the tree is no longer standing.

In autumn, after feeding under the bark, larvae will create a chamber for themselves in the tree's sapwood. They stay in this chamber over winter and pupate in the spring, turning into adult beetles. The adults emerge from the pupal chamber and then emerge from the tree through D-shaped exit holes, completing the life cycle. The pupae, like the larvae, cannot be seen unless the bark is pulled away from the tree.

There are numerous metallic green insects common to the northeast that could easily be confused with EAB. In addition, there are several native pests other than EAB that attack ash trees.

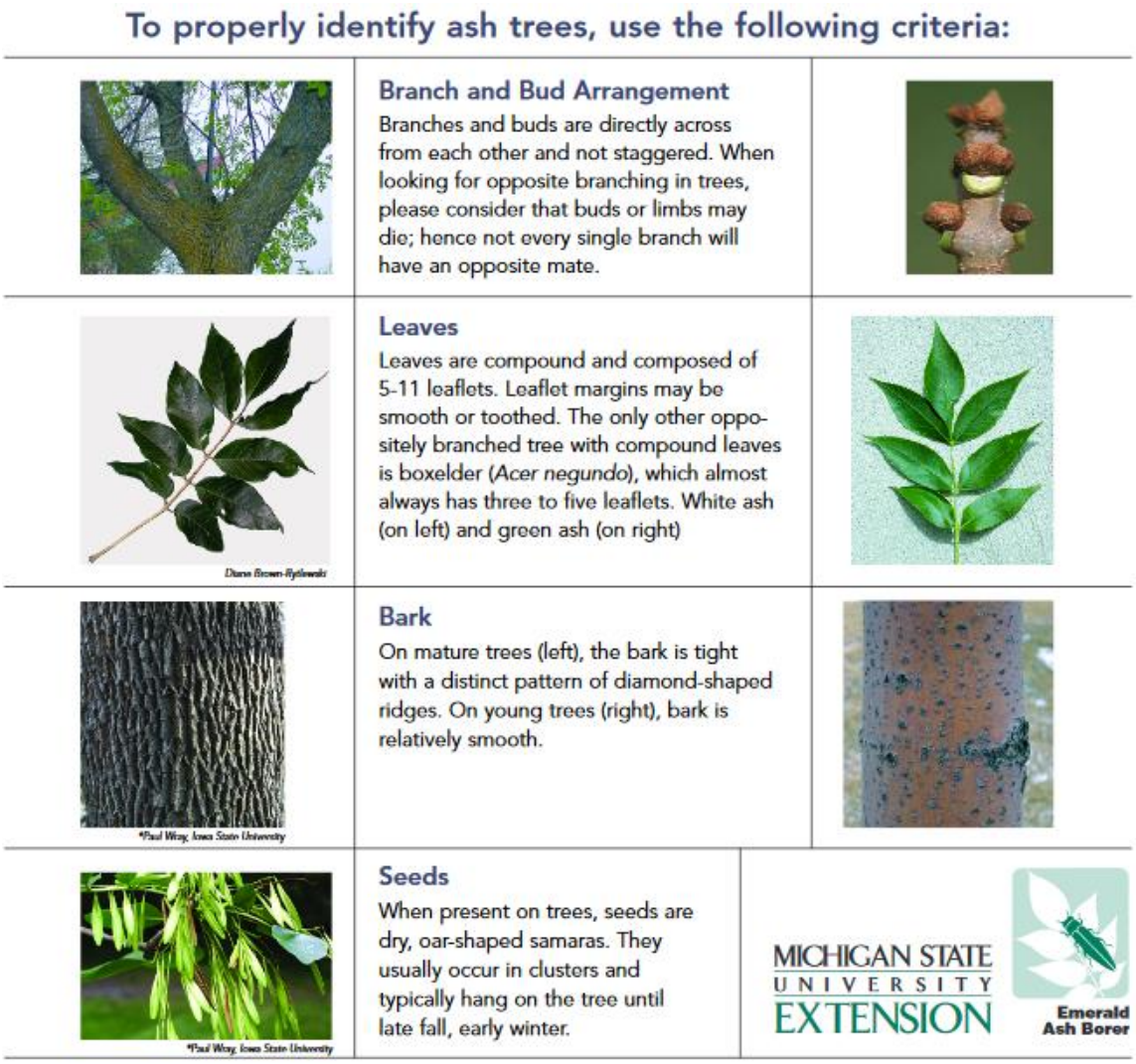
SYMPTOMS AND SIGNS OF EMERALD ASH BORER



1. Crown decline from the top down, 2. Epicormic shoots, 3. Bark split, 4. D-shaped exit hole, 5. S-shaped galleries, 6. Egg (circled) and exit hole, 7. Larva, 8. Adult in pupal cell, 9. Adults

C. Ash Tree Identification and Symptoms

Since EAB attacks only ash trees, monitoring for its presence means knowing how to identify ash. Ash trees are most easily identified by their compound leaves (leaves are composed of 5-11 leaflets) and opposite branching pattern where branches, buds, and leaves grow directly across from each other not staggered. The only other oppositely branched tree with compound leaves is boxelder (*Acer negundo*), which almost always has three to five leaflets. The bark on mature ash trees is tight with a distinct pattern of diamond-shaped ridges. On young trees, bark is relatively smooth.



It is important to remember that since EAB is a wood-boring insect and spends most of its life under the bark of the tree, it is difficult to detect in ash trees. It is also difficult to detect because the decline of infested ash trees is usually gradual. Looking for visible signs and symptoms is one method for detecting EAB. Symptoms of an infestation might include dead branches near the top of a tree or wild, leafy shoots growing out from its lower trunk. However, D-shaped exit holes and bark splits exposing S-shaped tunnels are significant signs of EAB. One sign that a tree has become infested by EAB is bark with a mottled appearance and/or jagged holes, both caused by woodpeckers looking for prepupal larvae. Another sign are the D-shaped exit holes present on the branches and the trunk left by emerging adults. For D-shaped holes to be present a tree has to be infested for at least one year. Since EAB prefers warm sunny areas of the tree the infestation usually begins in the tops of ash trees making it difficult to find D-shaped holes in the early stages of infestation.

In addition, if a tree has EAB the bark may split vertically above larval feeding galleries. When the bark is removed from infested trees, the distinct, frass-filled larval tunnels that etch the outer sapwood and phloem are readily visible on the trunk and branches. An elliptical area of discolored sapwood, usually a result of secondary infection by fungal pathogens, sometimes surrounds larval feeding galleries. The S-shaped tunnels excavated by feeding larvae interrupt the transport of nutrients and water within the tree during the summer causing foliage to wilt, and the tree's canopy becomes increasingly thin and sparse as branches die. Many trees appear to lose about 30% to 50% of the canopy after 2 years of infestation and trees often die after 3-4 years of infestation. Often at the margin of live and dead tissue, epicormic shoots may arise on the trunk of the tree. Dense root sprouting sometimes occurs after trees die.

III. The Plan:

A. Community Resource List

Danville Select Board: Ken Linsley, Chair; klinsley@danvillevermont.org

Assistant to Selectboard: Audrey DeProspero; adeprospero@danvillevermont.org
802- 684-3426

Town Clerk Office: Wendy Somers; wsomers@danvillevermont.org 802-684-3352

Tree warden: Wes Everts; EvertsFM@gmail.com

Conservation Commission Chair: Nancy Diefenbach; conservation@danvillevermont.org

Road Foreman: Keith Gadapee; highways@danvillevermont.org 802-684-3362; 802-745-7706

Certified pesticide applicators in category 3A: Calvin Willard
(Go to http://www.vtinvasives.org/pesticide- treatment for an updated list)

Tree removal contractor(s): Morris Bedor, Bedor Tree Service (802)-748-1605; Matthew Leach 802-279-5888; Classen's Tree Service 802-535-2159

Volunteer partners:

Village Improvement Committee

Joes Pond Association: Tom Dente PO Box 111 W. Danville, VT 05873

Water Authority on Walden Hill – Danville Fire District #1

Volunteer Forest Pest First Detector: Keith Gadapee; highways@danvillevermont.org
802-684-3362; 802-745-7706

Solid Waste District Delegate: Walter McNeil 802-748-2333

Planning Commission Member: Glenn Herrin, Chair; gherrin.danvillevt@gmail.com

Local Emergency Management Coordinator: Peggy Cochran
peggy.cochrane@caledoniasherriff.net 802-748-1684

Local tree/forest professional: Dave Houston (802) 684-1122 wildethyme@kingcon.com

Lamoille Valley Rail Trail: (802)229-0005 info@LVRT.org

V-Trans-District 7 Senior Administrator: Dale L. Perron (802) 748-6670

VAST: Vermont Association of Snow Travelers (802) 229-0005 www.vtvast.org

Certified arborists/tree removal contractors listing go to:

http://www.isa-arbor.com/faca/findArbosrit.aspx

PO Box 3129 • Champaign, IL 61826, USA • +1.217.355.9411

Vermont Coverts Cooperators: Nancy and Richard Diefenbach, diefenbach@kingcon.com ;

SOUL Tree Stewards {Stewardship of the Urban Landscape (SOUL)} for further information contact: Vermont Department of Forest Parks and Recreation at ANR.Parks@vermont.gov

B. Forest Pest Planning Team

Assistant to Selectboard Audrey DeProspero adeprospero@danvillevermont.org
802- 684-3426

Conservation Commission Members: conservation@danvillevermont.org
Dave Houston (local tree/forest professional)
Nancy (Chairperson) and Richard Diefenbach (Vermont Covert Cooperators)
Bridget Ferrin-Smith
Deb Yonker
Thomas Forster
Evangelyn Morse
Jacob Langmaid

C. Town Documents and Information

- Current inventory of ash trees within Danville road ROW's (Right 0f Way)
- Current inventory data on community-owned ash trees along roadways in Danville Village and Parks
- Currently no ordinances regarding community-owned trees.

(See the proposed Town of Danville Tree Ordinance, 3rd draft, updated November 2018)

Danville does not own the land under the road or alongside of it; the landowner does and the town owns an easement – a right to use the land for highway purposes. These easements are a public right- of-way (ROW), usually three rods (49.5 feet) wide, which includes the authority to manage the trees. Danville can take down ROW trees if they pose a hazard.

D. Inventory of Ash Trees in Danville

In the spring of 2015, the Danville Conservation Commission began to survey ash trees in anticipation of the arrival of the emerald ash borer. As of July 2017 volunteers had counted, measured and marked ash trees within the right-of-ways along 45 miles (approximately 30% of the roads in Danville) of the Town's 120 miles of roads (See Figure 1, p.21). These trees were marked with blue paint to identify their location. The trees can be watched for any signs of EAB infestation. The potentially most hazardous trees may be removed pre-emptively as necessary.

The count of ash trees provides the Town an understanding of the number of trees in ROWs that will become infested and die from this tree pest. This information will assist in preparing in advance for the cost and disposal of infested wood. Data acquired are presented in several charts, tables and maps that indicate the magnitude of the problem and identify areas or specific trees of highest priority (pp 20-25).

E. Prioritization of Ash Trees for Removal or Preservation

We prioritized the hazard risk of surveyed trees based on their size and condition: (e.g. high priority for removal: trees that were either Dead, in Fair or Poor condition, and greater than 12 inches in diameter.)

(a) For removal:

- Trees in the right of way (ROW) – (see inventory tables)
- Trees on private land that impact town properties or the town ROW (see tables)

(b) For possible preservation (see information on preservation p.13)

- Street trees in densely settled/high use areas: primarily on Mt. View Ave.
- Trees in parks/other town-owned recreational or natural areas: Town Park on Hill St and on private land adjacent to high school.

F. Detecting and Monitoring EAB

Early detection is critical to slowing the spread of pests and limiting their impact. The timing of certain management actions is optimal when the pests are within 5-10 miles. EAB was detected in Orange County, VT (February, 2018). Surveys by State and Federal Agencies to determine the extent of this first known infestation are now underway and will continue. As of 6/4/18, infested trees have been found in Orange, Groton, Plainfield, and Montpelier. Visit www.vermontinvasives.org for updates on infestation status.

Danville is not currently monitoring for EAB. If signs of EAB are detected by a municipal staff member or resident they should report it to the Tree Warden and/or visit http://www.vtinvasives.org/tree-pests/report-it for pest identification information and contact information for state and federal staff.

If a forest pest infestation is suspected, it must remain confidential until it is verified and the information has been made public by the appropriate authority. APHIS (Animal Plant Health Inspection Services) is the lead organization on the identification, eradication, management and quarantines for emerald ash borer (EAB).

Following EAB's discovery in VT a federal quarantine that encompassed the entire state was established. And, it seems likely that all federal quarantines will be abolished soon, as there is little possibility of eradicating or significantly slowing its spread.

Still, it is important that residents protect sensitive information about the presence of EAB until the proper authorities have released the information to the public. Privileged information also includes the pest name, location, and name and contact information for any landowner or individual requesting assistance with pest identification.

Although detection surveys are not incumbent on the town, there is much that volunteers can do as well.

Following is a partial listing of potential sites at high risk for EAB introduction:

Town Forests: Rodger Lot and Pumpkin Hill Town Forests

Firewood dealers, sawmills and woodworking shops: Joel Currier, Isaac Pearl, logger, J.P Sinclair, North Danville

Campgrounds: Sugar Ridge Campground--(firewood) (802)684-2550

Joes Pond Camps- Joes Pond Association--(firewood) janebrown@joespondvermont.com; fredbrown@joespondvermont.com

Hastings Store-- (firewood) Rte. 2, West Danville

Larrabees Building Supply—(pallets) (802)684-3622 1410 Rte. 2, West Danville, VT 05873

Marty's First Stop—(pallets, travel stop) (802)684-2574 421 Rt. 2 East Danville, VT 05828

Lamoille Valley Rail Trail-(802)229-0005 info@LVRT.org

Vermont Home Specialties- (802) 684-1024 log homes

G. Ash Tree Removal and Preservation

(a) Removal:

Pre-emptive removal of live high risk trees:

While there is no plan to pre-emptively remove high risk ash trees before they are affected by EAB, it would be advantageous to do so. Living trees are easier, safer and less costly to remove than dead or dying trees. And, removing such trees over time spreads out the costs associated with their removal and disposal. Trees posing safety hazards to roads, and power lines are highest priority for pre-emptive removal followed by those that endanger property.
Although trees in the ROW are owned by the land owner, the town has the right to remove trees that are a hazard to public safety or are limiting road maintenance. The wood from cut trees can be claimed by the landowner.

Removing dead and dying trees:

EAB kills trees within a few years after they are infested. Dead trees soon deteriorate and become brittle and hazardous, and they allow more rapid spread of the beetle.

The Tree Warden designates trees within Danville village and in the road ROWs to be removed when they are infested, diseased, dead, severely damaged or

structurally unsound and are thus a hazard to public safety or property. Large trees, especially if they are defective, have the potential to fall in the road, damage the highest number of targets (people or property), and trees near power lines are the most important. Who conducts the tree removal depends on the location:

- Green Mountain Power Co. will be responsible for contracting the removal of trees endangering power lines. They must be called: 1-888-835-4672.
- Town Employees (Danville road crew) will remove trees where there are no other hazards present.

Private property trees:

Unless a private tree poses a threat to public safety or public property, the property owner is responsible for decisions regarding treating or removing it. However, the Town is liable when a private tree does pose such a threat. Current Vermont Tree Warden Statutes give the warden authority only over trees on public property such as ROWs and parks, etc. (Statutes related to Tree Wardens are in the process of being revised and updated.)

(b) Preservation:

Preserving public trees in ROWs using systemic insecticides:

It is unlikely that Danville will opt to treat ash trees in ROW's with systemic insecticides. Should they do so, the town must obtain a ROW permit from the Agency of Agriculture to apply pesticides in the ROW. For more information on Pesticide ROW permits go to:
https://agriculture.vermont.gov/pesticide_regulation/pesticide_permitting/row

Preserving municipal (public) trees using pesticides:

Trees designated as high value (See Appendix), can be protected from EAB with pesticides. Systemic insecticides containing the active ingredients imidacloprid, dinotefuran or emamectin benzoate are commonly used to protect ash trees from EAB.

There are few public ash trees in Danville village that might be candidates for preservation using pesticides. Should these be designated as "high value", they can be protected using the above approved systemic insecticides.

The environmental impacts of these insecticides are discussed in the document, "Frequently Asked Questions Regarding Potential Side Effects of Systemic Insecticides Used to Control Emerald Ash Borer", available at:
http://www.emeraldashborer.info/documents/Potential_Side_Effects_of_EAB_Insecticides_FAQ.pdf

In particular, concerns exist about the effects of these insecticides on honey bees. According to the FAQs referenced above, "ash trees are wind-pollinated and not a nectar source for bees." And, "as ash flowers are produced early in the growing season and present for only a limited number of days, it is highly unlikely that bees would be exposed to systemic insecticides applied to ash. Flowering plants that are pollinated by bees or other insects should not be planted immediately adjacent to treated trees as they may also absorb insecticide."

If ash trees are to be protected "in-house" using insecticides, town employees (on payroll) need to be certified as non-commercial applicators in Vermont category 3a - Ornamental & Shade Tree pest control. Otherwise, the town needs to hire a company that employs at least one person certified in Vermont Category 3A to treat public street trees. Specialized equipment is often required.

H. Disposal and Utilization of Infested Wood

Disposal of infested wood will depend on the phase of the outbreak. If Danville is within a "regulated infested zone", movement of infested wood will be restricted to within the zone unless there are compliance permits for transport to specific sites (e.g., sawmills) outside of the zone. (Note: this is a State regulation and may change as the infestation progresses.)

Disposal Site:

At this stage of the game, the designated disposal site for infested wood is the "stump dump" area of Rodger Lot Town Forest. This will be the area that town, tree services, utilities and individuals will bring cut material for "processing and disposal in a manner to prevent the artificial spread of EAB". Processing usually consists of chipping, grinding, debarking and other activities related to marketing.

(At this time, suggestions and proposals for the disposal and utilization of infested wood are being considered. Hopefully, requirements will be clarified as the area around the current infestation enlarges, and the processes for dealing with infested wood are presented by The Vermont FPR, APHIS, and/or other agencies.)

Disposal or Utilization of EAB harvested wood

(a) Disposal: (See above)

(b) Utilization:
- Sawmills:
- Furniture makers:
- Flooring and panel makers:
- Chip (biomass operations)
- Composters

I. Replacement of Killed and Removed Trees

The only ash trees that might be considered for replacement are three growing in the park on Hill Street. Their replacement costs will be relatively minor.

J. Community Public Policy

The Danville Conservation Commission has drafted a Tree Ordinance to provide the town with guidelines for dealing with hazardous tree problems and authority for the Tree Warden to deal with hazardous tree inspection and control.

K. Estimate of Costs

Estimated costs of removing Ash trees in the ROWs range from $60-$400. An estimate derived by the USDA Forest Service for the Northeast region suggested $18.33 per inch DBH as a guide for removal costs. This estimate works well for street and shade trees in developed areas. The cost will likely be reduced along rural roads. Because of the increased risks involved with removing standing dead trees, the cost of removing a dead ash tree may be double the cost of removing a live one.

Using the conservative figure of $40 per tree with 38 trees per mile on 100 miles of Danville road ROWs, it is estimated that the cost will be $152,000 (approx. $30,000 per year over 5 years).

L. Educating and Communicating with Community Members

Communication Method	Target Audience	Timing (i.e. monthly, etc.)
Town Website	Danville residents	Continually
Front Porch Forum	"	As appropriate
North Star Newspaper	"	"
Caledonian Record	"	"
Public Meeting	"	"
Display at Town Events	"	"
Other: Audrey DeProspero	Danville Selectboard	As needed or requested

Communication with the Danville School and the Danville School Board is suggested regarding possible use of chipped wood in the school furnace for heating.

M. Policies, Resources and Next Steps

This document outlines an action plan for the Town of Danville to follow before and after the arrival of the emerald ash borer (EAB). EAB is an introduced forest pest that is currently killing all species of ash trees as it moves across the north central and northeastern U.S. and Canada.

This action plan consolidates essential information within one useable reference document and details what the Town of Danville will do before these pests are detected, what we will do when they are detected, and what we will do once they become established.

Ash Trees at Risk

There are an estimated 1,011 (1,231)* (rural ROWs) and 34 (village) ash trees > 12" at risk on public land or in areas affecting public right-of-ways based on tree inventory data acquired in 2017. Of these, 930 (1,132*) (rural ROW) and 19 (village) are the responsibility of the Town; the remainders, 81 (98*) (rural ROWs) and 15 (village) are near utility lines and are the responsibility of Green Mtn. Power (See calculations on p. 23).

- Estimates are for Class 2 and 3 roads. Numbers in parentheses include the estimates for Class 4 roads. Class 4 roads, which were not surveyed, may have higher numbers of ash trees per mile than Class 2 and 3 roads. Similarly, ash trees along the Lamoille Valley Rail Trail were not included in the survey.

Plan Recommendations

- Establish budget for trees/pest related activities. Although timelines are uncertain, funding used to implement this plan will greatly increase the town's capacity to respond to current demands and to address future threats to the community forest

- A key weakness identified in the Town of Danville is the lack of a **Tree Ordinance** that gives the town authority to enter private property for inspection of diseased or hazardous trees, the ability to order the removal or treatment of diseased/infected tree(s), and the ability to remove or treat diseased/infected tree(s) upon non-compliance of a property owner**. It is highly recommended that a tree ordinance be developed to address the management of public trees and pest infestation.**

- Engage citizens, business owners and decision makers to educate and inform them of forest pests. Utilizing the town website, newspapers, mailings and public meetings will help prevent early introduction and help garner public support.

- Cultivate beneficial partnerships with neighboring towns. Similar municipalities have used partnerships to effectively find cost-effective solutions to equipment needs and wood utilization programs.

Our understanding of forest pest management is constantly expanding as managers gain experience dealing with these invasive pests and as new research is conducted. *Accordingly, this plan will be updated on an as-needed basis*. Many of the actions accomplished from this plan will have positive, long term benefits for the community. Our citizens will have a greater understanding and appreciation for our forest and urban tree resource, our community will be much better prepared for future invasive pests, and we will have established relationships with people and organizations that will be invaluable to us in maintaining the many environmental, economic and societal benefits of a healthy urban forest. **VTinvasives.org**

N. Definitions

compliance agreement- means a written agreement between the State of Vermont and any person engaged in growing, handling or moving regulated articles, plant pests, plants, parts of plants, or regulated plant products, where the person agrees to comply with stipulated requirements.

DBH – diameter at breast height; represents the diameter in inches of a trunk cross-section measured at 4 ½' above ground level; a basis for estimating or identifying tree volume, value, management needs and costs, utilization options, etc.

delimit – to establish geographic limits or boundaries; emerald ash borer infestation zones are determined after delimiting or determining the extent of area infested by EAB.

EAB- the emerald ash borer insect; as an adult it measures approximately ½" in length by 1/8" wide, is metallic green in color and somewhat bullet shaped. The larvae can reach a length of a little more than 1" in length, are white to cream colored, have a 10 segmented abdomen with a pair of brown, pincer-like appendages on the last segment.

preparedness plan- a document delineating local forest pest readiness activities and processes; includes scope & purpose, authority, responsibility, policies &

procedures, actions/tasks, available resources, forms & contracts, technical references & support information (such as surveying and reporting protocols), and similar content.

host- means any plant pest, plant, plant product or other organism upon which a pest or beneficial organism is dependent for completion of any portion of its life cycle.

infestation- refers to an area where the trees have been positively identified as having an established population of a forest pest.

marshaling yard- a fenced-in location where infested or infested zone trees are collected and held for further handling.

preemptive removal- in the case of EAB it refers to removing trees prior to them becoming infested with EAB. Although it has not been recommended by either the VT Agency of Agriculture or VT Department of Forests Parks and Recreation to perform this practice, it does seem reasonable that if a community has ash trees that are declining or are in conflict with buildings or utilities, that instead of performing a remedial pruning, removal may be a strong option. And, preemptive removal of living trees is both cheaper and safer than removing dead trees.

quarantine- means a legal declaration by the Vermont Secretary of Agriculture to prevent the spread of highly injurious plant pests which specifies the plant pest, plants, parts of plants, plant products or the regulated articles, conditions governing movement, the area or areas quarantined, and any exemptions.

quarantine area – a defined geographic area from which goods may not be transported; quarantines will be established by federal or state agencies to restrict ash wood movement out of infested areas to avoid emerald ash borer infestation of new areas; quarantines can be applied to an individual property, township, county or entire state. (As noted earlier, the Federal quarantine earlier established has been abolished.)

regulated article – means an article of any character, i.e. logs, firewood, or other plant material, carrying or capable of carrying a plant pest.
ROW - Right of Way: The width of the highway right of way is typically three (3) rods (49.5 feet) or 24.75 feet on each side of the highway centerline. There are situations where the right of way exceeds the typical value. A list of exceptions is available at the Town Office.

tree: Any self-supporting woody plant with its root system, growing upon the earth with one trunk of at least three inches DBH, or a multi-stemmed trunk system with a definitely formed crown.

public Tree - Any tree located on public land.

private Tree - Any tree located on private land.

trees in the ROW - Trees in the ROW are owned by the land owner but the town has the right to remove trees that are a hazard to public safety or are limiting road maintenance and drainage. The wood from cut trees can be claimed by the land owner.

public shade tree - any tree within the Village specifically planted for its shade or ornamental value.

hazard Tree - any tree or part of a tree that is deemed a public hazard by decision of the Tree Warden or the Road Foreman.

routine highway maintenance - Care and maintenance of the Town roads within the ROW including the pruning or removal of trees for safety, visibility and drainage.

public notice - Major maintenance and removal projects will be posted by the Tree Warden or Road Foreman on the Town bulletin board (outside of Town Hall) and other public media sites for example the Danville Town Website and Front Porch Forum at least 2 weeks prior to the start of the project. As a courtesy, the Road Foreman will notify the affected landowners of such a project. In the case of emergencies it may be necessary to waive this requirement.

VTinvasives.org Last updated 2/28/13

O. Appendix

Danville Map showing roads surveyed with # of ash trees per mile color-coded.

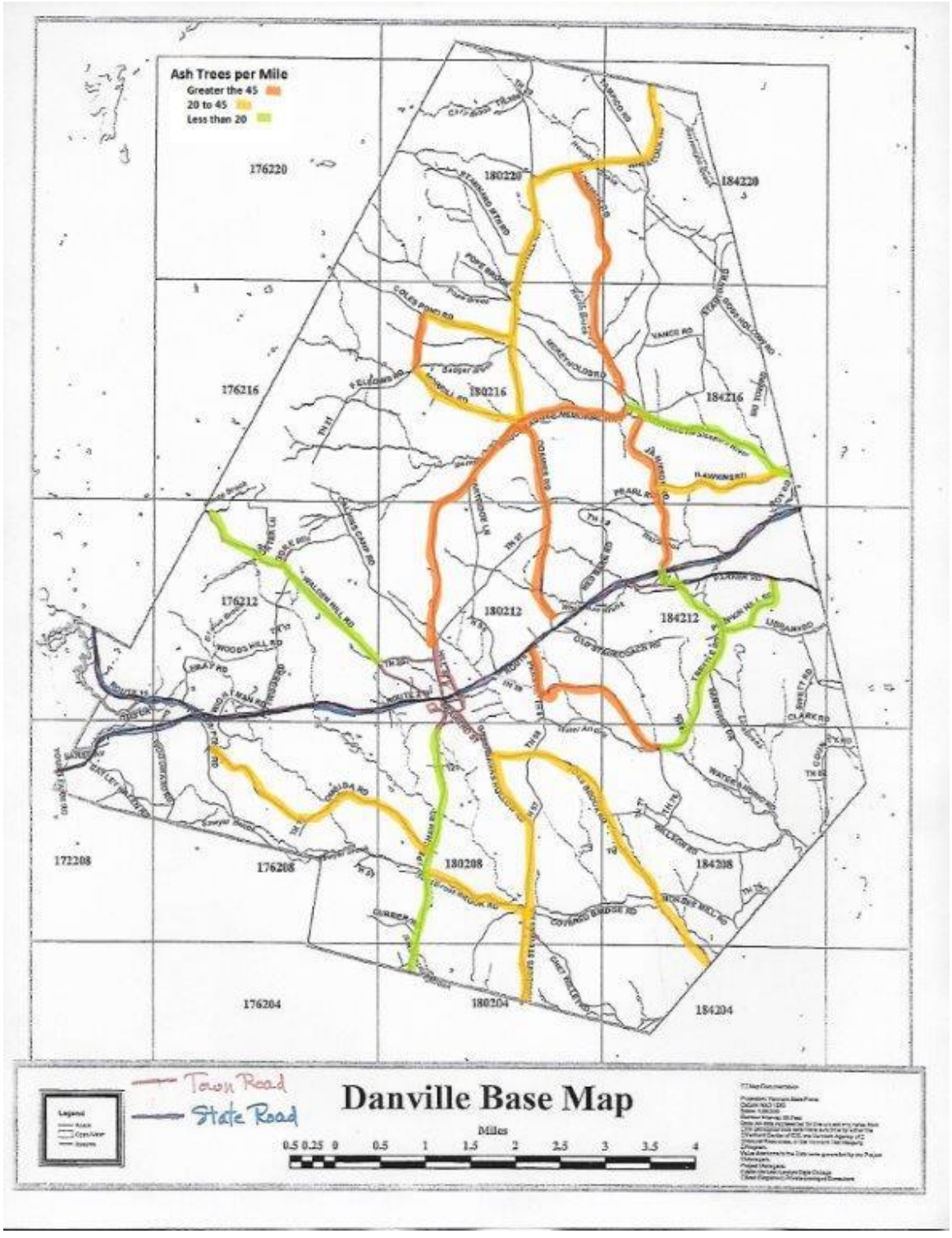


Table 1. *Number of ash trees per mile in ROWs along surveyed rural roads.*

Ash Trees / Mile on Surveyed Rural Roads

Street Name	Total #	> 45	20 - 45	< 20
Penny Lane	99	#		
No. Church Rd.	76	#		
Bruce Badger Mem Hwy	64	#		
Fellows Rd.	55	#		
Jamieson Rd.	48	#		
Cormier Rd.	45	#		
Thaddeus Stevens Rd.	42		*	
Oneida Rd.	41		*	
Wheelock Rd.	36		*	
Brook Rd.	35		*	
Morrill Rd.	34		*	
McDowell Rd.	33		*	
Hawkins Rd.	33		*	
Coles Pond Rd.	32		*	
Joe's Brook Rd.	26		*	
Greenbanks Hollow Rd.	21		*	
Walden Hill Rd.	14			+
Trestle Rd.	14			+
Peacham Rd.	12			+
Pumpkin Hill Rd.	12			+
No. Danville Rd.	10			+
Parker Rd.	8			+

Table 2. *Number of ash trees within the village ROWs.*

		ROW-all DBH	OUT-all DBH	DBH>12"in ROW	UTIL in ROW	UTIL OUT
Village Ash Tree Survey Quick Summary						
Mountain View Drive		11	6	14	11	6
Hill Street		5	2	7	2	
Crystal Ave.		3		3	2	
Danville-Peacham Rd.			3	3		1
Danville School Drive		17		7		
Brainerd St.		0				
Cedar Lane		0				
Walden Hill Rd.		0				
TOTALS	**~ 4 miles**	**36**	**11**	**34**	**15**	**7**
				94% > 12 inch	41.60%	63.60%

Table 3. *Number of ash trees within surveyed rural road ROWs.*

ROAD NAME	MILES	ROW-all DBH	OUT-all DBH	DBH> 12"in Row	UTIL in ROW	UTIL OUT
Rural Ash Tree Survey Quick Summary						
Wheelock Rd.	2.5	90	17	18	2	13
No. Church Rd.	2.7	207	7	51	28	
McDowell Rd.	2.6	86	55	34	1	13
Coles Pond Rd.	1	32	3	14		
Fellows Rd.	0.6	33	7	12		6
Morrill Rd.	1.5	51	10	29		9
No. Danville Rd.	2	20	2	3		2
Bruce Badger Mem. Hwy	4	256	49	36	13	37
Cormier Rd.	2.3	103	3	12	22	3
Jamieson Rd.	1.9	91	16	35	21	14
Hawkins Rd.	1.5	50	6	20		5
Parker Rd.	0.9	8		2		
Walden Hill Rd.	2.7	39	55	10	31	40
Peacham Rd.	2.7	33	32	7	1	1
Greenbanks Hollow Rd.	1.8	38	48	5		45
Joe's Brook Rd.	3.7	99	37	36	3	16
Brook Rd.	1.2	42	7	12		
Thaddeus Stevens Rd.	1	42	7	5	1	1
Penny Lane	2.2	218		98	12	
Trestle Rd.	2.4	35		11		
Pumpkin Hill Rd.	1	12		8		
Oneida Rd.	3.2	131	4	6	2	4
TOTALS	**45.4**	**1716**	**365**	**464**	**137**	**209**
		38 ash per mile		27% > 12inch	8.00%	57%

Calculations:

The following calculations of numbers of ash trees in ROWs of Class 2 and 3 rural roads, and in Danville Village, are based on surveys conducted in 2017 (Tables 1-3).

Danville has 98.5 miles of class 2 and 3 roads, 45.4 miles of which were surveyed. None of the 22 miles of class 4 roads were surveyed. The numbers of ash trees per mile obtained in the survey were used to estimate the numbers on all 120 miles of rural roads. The numbers given below are for class 2 and 3 roads, the numbers in parentheses are estimates when class 4 roads are included.

Along Town ROWs:

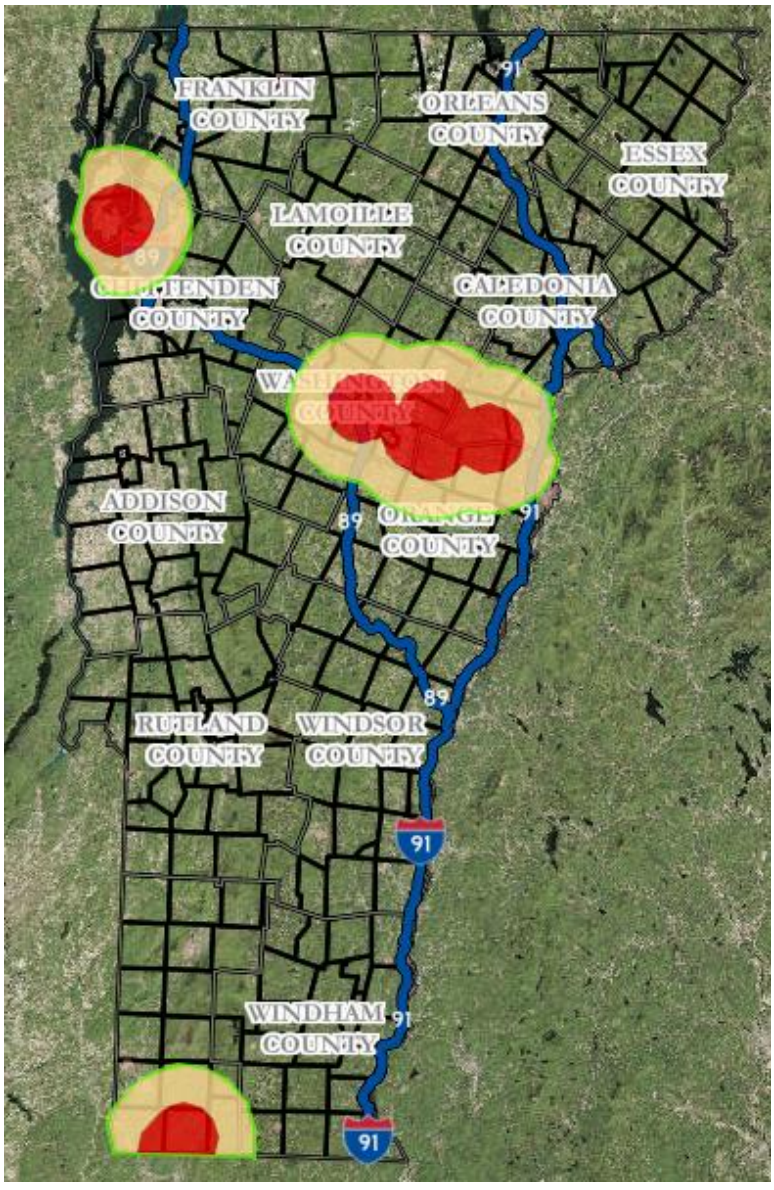
- 38 ash trees per mile on surveyed roads
- 3,743 (4,560) ash trees in ROWs
- 1,011 (1,231) ash trees in ROWs > 12" DBH (27%)
- 81 (98.5) ash trees in ROWs close to utility lines (8%)
- 930 (1,132) ash trees >12" DBH are the responsibility of the Town

In Danville Village:

- 34 ash trees > 12" DBH
- 15 of these ash trees are close to utility lines
- 19 of these ash trees are the responsibility of the Town

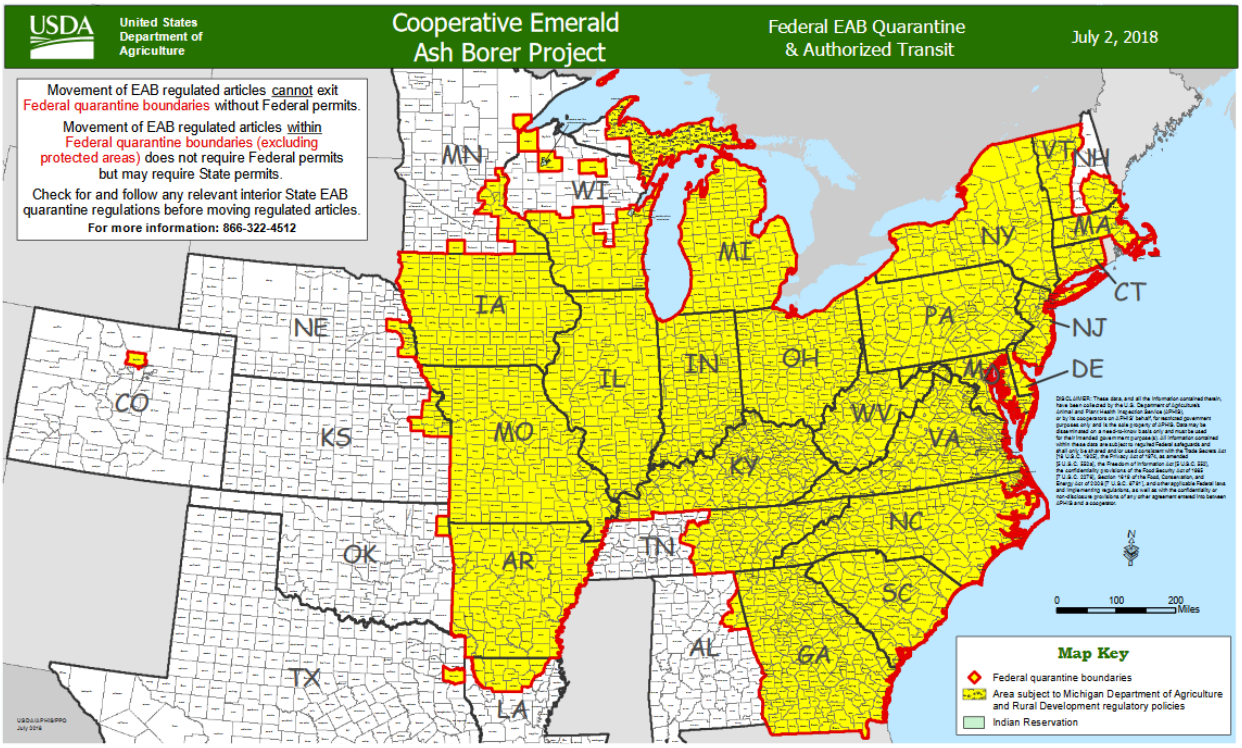
Map of Emerald Ash Borer Infested Area in Vermont updated October 2018

Red area: Confirmed Infested Areas are within 5 miles of known infestation.
Yellow area: High Risk Areas extend 5 miles from outer edge of Confirmed Infested Areas.



Updated maps are available at: www.vtinvasives.org

Map of Federal Emerald Ash Borer Quarantine as of July 2, 2018



Updated maps are available at: www.vtinvasives.org

Note: As of Nov. 2018, EAB now occurs in Maine in southern areas near the NH infestation and in the north adjacent to Quebec.