

Emerald Ash Borer

City of Crystal Lake
Public Works Department
Response

Prepared by:
City of Crystal Lake
Department of Public Works
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Background.

Emerald Ash Borer (EAB) is an invasive beetle native to Asia that was first discovered in southeastern Michigan, near Detroit, in the summer of 2002. The adult beetles nibble on ash foliage but cause little damage. The larvae (the immature stage) feed on the inner bark of ash trees, disrupting the tree's ability to transport water and nutrients, ultimately killing the tree. Emerald ash borer probably arrived in the United States on solid wood packing material carried in cargo ships or airplanes originating in its native Asia. Emerald Ash Borer is also established in Windsor, Ontario was found in Ohio in 2003, northern Indiana in 2004, and northern Illinois in 2006. Most recently, EAB's have been discovered in Algonquin and Huntley, communities very near Crystal Lake. Since its discovery, EAB has:

- Killed more than 20 million ash trees in Michigan, Ohio and Indiana. Most of the devastation is in southeastern Michigan.
- Caused regulatory agencies to enforce quarantines (Ohio, Indiana, Michigan, and Illinois) and fines to prevent potentially infested ash trees, logs or firewood from moving out of areas where EAB occurs.
- Cost municipalities, property owners, nursery operators and forest products industries tens of millions of dollars.

In the summer of 2006, the Emerald Ash Borer was discovered in several locations in Illinois. The first infestation was discovered in June, in rural Kane County. In July, the EAB was discovered in Wilmette and Evanston, and in August, discovered in Winnetka. In July 2007, the EAB was discovered in LaSalle and DuPage Counties and in McHenry County in July, 2008.

EAB is a possibly devastating threat to Crystal Lake's urban forest. Over 5,996 of the Crystal Lake's public trees, and many more private trees, are Ash varieties and are susceptible to this pest.

State and Federal Response

Over the past few years, the State of Illinois has developed an "Emerald Ash Borer Readiness Plan", which put procedures in place to respond to the presence of EAB in neighboring states. When EAB was discovered in Illinois in June and July of 2006, the Illinois Department of Agriculture (IDA) implemented several of the action items contained in the readiness plan.

IDA inspectors began surveying Ash trees in and around the areas of infestation in an effort to identify infested trees and to determine the extent of the infestation. The survey effort consisted of a visual inspection of a portion of the public Ash trees in northeastern Cook County, central Kane County, LaSalle County, and DuPage County, at locations where infestations have been confirmed. In many cases, municipal forestry personnel assisted in these inspections. The bulk of these inspections were non-destructive, and because an EAB infestation can be asymptomatic in its early stages, the absence of evidence of EAB cannot be considered conclusive. Based upon these inspections, conclusive evidence of EAB is limited to the four initial infestations, however a significant number of additional inspections, including destructive testing, are needed. At present, this effort falls back almost entirely on local forestry crews.

In response to the identification of EAB, the IDA, Morton Arboretum, and various other local, state, and Federal agencies engaged in multiple public awareness campaigns aimed at educating the public to the presence and ramifications of EAB. This is a very important step because the primary EAB transport mechanism over long distances is the transport of infested firewood and/or nursery products. This public information has been disseminated by press release, news coverage, the Internet, public meetings, mailers, and a host of other methods. Continued public education efforts will be critical in identifying and responding to infestations.

As a result of the survey work in the infested areas, the IDA established quarantine zones in an effort to prevent the further spread of the EAB. These quarantine zones impose restrictions on the processing and transport on Ash products and on firewood. This quarantine zone encompasses the area from north at the Wisconsin State line, south to I-80, west to I-39 and east to Indiana/Lake Michigan. Information on these quarantine zones is contained on the IDA's website, www.agr.state.il.us. A federal quarantine has also been established.

Proposed Crystal Lake Response

1. Inventory: The City's Arborist(s) have completed an inventory of all of the Ash trees on public streets and on City owned properties. The inventory includes location, condition, size, and type. There are 5,996 such trees (total DBH 49,338), ranging in size from 2" volunteer trees to 48". The inventory can be viewed on the "I" Drive/Water, Sewer, WWT, & Streets/Street Division/Trees/Miscellaneous Tree Items 2006/City of Crystal Lake Ash Tree Inventory-2006. This data will be used to map potential infestations, pinpoint areas for further inspection, establish detection trees, manage treatment applications, and manage removal of infested or susceptible Ash trees.
2. Detection Trees. The City's Arborist(s) have identified 20 trees to use as "Detection Trees". These trees are showing signs of die back and decay from the Native Ash Borer (not the Emerald Ash Borer), which is a common borer that causes stress to Ash trees. Of the 20 trees identified, 8 trees will be removed this fall and intentionally girdled by removing a 6 to 8 inch wide strip of bark and cambium wood to see if the EAB is present or showing signs of an infestation.
3. For detection trees, a healthy, smaller diameter Ash tree is intentionally girdled by removing a 6 to 8 inch wide strip of bark and cambium wood. As a result of this girdling, the Ash tree becomes distressed and emits a chemical signal that attracts EAB adults during the flight cycle. The tree is then removed during the larval period and completely inspected for signs of EAB infestation. While this unfortunately kills the tree, it does permit us to attempt to assess the spread of the infestation.
4. In addition, several IDA "Purple Traps" have been installed within the City and are monitored by the IDA for the presence of EAB's.
5. Tree Removal. An important strategy in attempting to contain the spread of EAB is the removal of infested or suspect trees. This is important because removal and destruction of infested trees kills the larvae and prevents the further spread of adult beetles. Removal of

suspect trees, trees in poor health or conditions that are more likely to attract and be infested by EAB, limits the area to which the adult beetle can easily spread, which should slow the spread of any infestation. During the flight season for EAB (April 30th to September 1st) the City of Crystal Lake will not remove or trim an ash tree unless it poses a hazardous condition. The trees will be marked and tracked for removal after September 1st. The Public Works Street Division and City Arborist(s) plan to aggressively remove sick, dying, diseased, misshapen, or otherwise unhealthy Ash trees over the next few years, and to replant these areas with a variety of tree species from the City's master planting list. As these trees are removed, they will be thoroughly inspected for signs of EAB infestation. **Unless specifically mandated by the State of Illinois, the City does not plan to remove healthy Ash trees.**

6. Treatment. One aspect of experience gained from the EAB infestation in southeastern Michigan is the emergence of some insecticidal treatments that have shown some promise in protecting healthy Ash trees from infestation by the EAB. An insecticide called Imidacloprid (brand name Merit, Bayer Advanced, Imicide, Mauget, Pointer, and others) has been shown to be effective against the larval stage of the Emerald Ash Borer under some conditions. Imidacloprid is a systemic insecticide, meaning it is absorbed by the tree and the EAB larvae ingest the insecticide as if feeds on the tree. This insecticide can be applied by soil drench or injection (spraying is not effective), and can be done by licensed applicators, or by private citizens, depending upon the formulation used. While the research is still ongoing, some general conclusions can be drawn:
 - Imidacloprid appears to be more effective when applied to smaller diameter healthy trees
 - Imidacloprid appears to be more effective in white Ash than green Ash
 - Imidacloprid is not 100% effective
 - Imidacloprid is best applied early in the season (April – May).
7. Disposal. A very important tool in controlling the spread of EAB is proper treatment and disposal of Ash wood products. Even after a tree has been removed, EAB larvae can survive in the felled tree for some period of time. As part of the Illinois Department of Agriculture's quarantine, Ash wood **must** be chipped to a size smaller than 1 inch. Most standard tree chipping equipment does not grind the wood into small enough chips, so special handling is required. The City plans to require that its tree removal contractor appropriately treat all of the wood products resulting from its contracted public Ash removals. Since these requirements also extend to branch and brush collection, the City will need to assure that Ash branches larger than 1" are not inadvertently sent out of the quarantine zone. As the City collects brush through its brush drop-off program, it is not feasible to separate Ash brush and branches from other brush and branches. The likely procedure will be to haul the all brush and branches to the compost facility to grind into pieces smaller than 1 inch for disposal.
8. Replanting. The City will replant to fill parkway tree voids created by the removal of Ash trees with a variety of appropriate tree species to achieve a broad diversity of parkway trees, avoiding a monoculture of any one particular species.

9. Private Trees. **Unless specifically mandated by the State of Illinois, the City of Crystal Lake does not plan to require removal of healthy Ash trees from privately owned properties.** The City of Crystal Lake requires a permit for removal of trees. Several additional provisions should be imposed on permits for removal of Ash trees.

- Ash tree removals may only be performed by a contractor who has signed a State of Illinois Compliance Agreement, pledging to comply with all of the provisions of the EAB quarantine.
- No Ash tree removals will be permitted to occur between April 30 and September 1 – the flight cycle of the EAB adult but trees and limbs must be transported in an enclosed truck or covered with plastic, canvas or other tightly woven fabric in order to prevent the distribution of EAB's during the fly season.
- As the Ash tree is being removed, the City Arborist(s) will perform or observe a bark-peeling survey to inspect the tree for symptoms of EAB infestation.

The City of Crystal Lake revised Disease Tree ordinance will require a tree removal permit for the removal of EAB infested trees in order to assure that the waste tree material is properly managed.

The City's Arborist(s) will perform visual inspections of Ash trees on private property, either if the property owner requests one, or if a privately owned tree is observed to be showing visual symptoms of an infestation.

Treatment of Ash trees has been shown, under certain conditions, to be effective in preventing EAB infestations in Ash trees. However, there is no treatment that is guaranteed to prevent EAB infestations. The Public Works Department and City Arborist(s) will provide homeowners with literature, resources, and guidance on various treatments that may help prevent EAB infestations in healthy trees, should they wish to treat their Ash trees.

10. Proposed Ordinance and Policy Changes. In order to most effectively meet the challenge of EAB, the City will need to modify some of its current policies and ordinances to provide City staff with additional tools for use in combating EAB. The following changes to the Tree Ordinance will be recommended to the City Council:

- Ash tree debris must be transported within an enclosed truck or covered with plastic, canvas or other tightly woven fabric in order to prevent the distribution of EAB's during the fly season.
- All contractors must sign a Compliance Agreement with the Illinois Department of Agriculture to perform ash tree removal.
- Any Ash tree that is positively identified as infested with Emerald Ash Borer (EAB) shall be declared a nuisance and shall be removed and processed to less than 1-inch in size.
- In order to assure the implementation of proper inspections, removals, and processing procedures for Ash trees, a permit shall be required for the removal of any Ash tree, regardless of size.

In addition to these requirements, the City of Crystal Lake should sign and enter the Compliance Agreement prepared by the Illinois Department of Agriculture. The City should also require its contractors to sign this Compliance Agreement.

11. Public Education. It will be very important to effectively and continually provide information to the citizens of Crystal Lake. Public education will include general information on the Emerald Ash Borer, EAB identification information, information on treatments, information on the City's response, and other information that may be useful. Information will be provided in a variety of ways, including mailers, the city newsletter, the City's website, and other methods.

Budget Impact.

In its worst-case scenario, the EAB will have a significant financial impact upon the City of Crystal Lake. Based on the experience of Detroit-area suburbs, the worst-case scenario consists of the infestation and death of all of the City's Ash trees over a 3-5 year period. It is estimated that the removal and replacement of all 5,996 of the City's Ash trees could cost up to \$4.5 million (average cost of about \$750.00 per tree). Crystal Lake will need to budget approximately \$900,000.00 per year over a 5-year period as a contingency for this worst-case scenario. This \$900,000 will also fund treatments and public education as discussed above.

At this time, it is unlikely that any significant State or Federal money will become available for municipalities to combat EAB.

Future Steps. The City of Crystal Lake's strategy is designed with the intention of slowing the spread of EAB, and limiting the number of Ash trees removed, in an effort to buy time so that additional research can be performed, hopefully leading to an effective preventative measure for EAB. This policy will need to be reviewed and updated from time to time to assure that current best management practices are being followed.

Additional information can be obtained by visiting the following links:

www.emeraldashborer.info

www.IllinoisEAB.com

www.na.fs.fed.us/fhp/eab/index.shtm

www.mortonarb.org/main.taf?p=3,5,3

www.agr.state.il.us/newsrels/r0727062.html

Attachments.

1. EAB General Information
2. EAB Quarantine Information
3. Ash Tree Inventory Spreadsheet
4. Imidacloprid Information
5. Compliance Agreement
6. Village Code Section 615: Trees