

# Ten Years in Country

# EAB Update

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PHOTO CREDITS: LUKE CELLA

It has been ten years since the Emerald Ash Borer was discovered in the United States (Detroit) and a lot of work has been done from a research standpoint, but what does it all mean to golf course superintendents and other ash tree owners and managers?

On June 9, 2006, two ash trees in “The Windings” subdivision, near Lilly Lake in Kane county were positively identified as being infested with the Emerald Ash Borer (EAB), starting our battle with the bug in Illinois.

EAB, *Agrilus planipennis* Fairmaire (Coleoptera: Buprestidae), is identified as the causative agent in ash tree mortality and decline. No bigger than a penny, this green menace has wreaked havoc on millions of ash trees in the Midwest and if not controlled it could wipe out the ash tree species in North America. The adult beetles nibble on ash foliage but cause little damage. The larvae (the immature stage) feed on the inner bark or cambium layer,

which is the crucial layer between the bark and wood of ash trees, disrupting the tree’s ability to transport water and nutrients. 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.

The Illinois Department of Agriculture, and its Emerald Ash Borer Program, believe systemic insecticidal treatments of ash trees, in response to or in preparation for Emerald Ash Borer infestation(s), can be a very useful component of a management plan. Insecticidal treatments can be an effective management strategy for high numbers of ash trees when integrated with the removal of known infested trees and continued monitoring of ash health, as a measure to potentially preserve and/or prolong the life of apparently yet unaffected ash trees. The department believes that by focusing treatment efforts on ash trees that are not showing signs and symptoms of EAB infestation, and are in overall good condition, and are desirable trees to preserve, there will be a better chance of successfully preserving those trees through a treatment program. The Illinois Department of Agriculture does not and will not endorse any specific treatment method, insecticide, company, or applicator.

Members of the Midwest have taken many different approaches to managing or not managing this bug.

**John Gurke, CGCS and Aurora Country Club**

We are not treating ash trees for emerald ash borer. We removed 27 ash trees last winter, 9 this season, with another 15 to 20 scheduled for removal this winter. We have initiated a reforestation program here at ACC whereby we solicit donations from members. They commit \$250, we purchase and plant a tree complete with donor plaque, if desired. This spring we had



33 donated and planted, with 6 commitments thus far for fall planting. To avoid the inevitable, we produced a list of desirable trees that we will plant, so we don't get the requests for 'Crimson King' Norway maples or other undesirable varieties. Of the 33 planted, 25 were oaks, with a mix of hackberry, ginkgo, and horse chestnut filling out the list. We also retain the right to plant where we feel is necessary, and not where the donor would like (unless the two agree).

#### Bob Lively and Flossmoor Country Club

"We treat them with chainsaws."

#### Chuck Barber and St. Charles Country Club

Here at St. Charles Country Club we have removed approximately 200 ash trees of various varieties. Many of these were large, specimen trees in very strategic locations. We removed the bulk of the dead or dying trees in 2011 and 2012. We transplanted a variety of trees from around the property from less strategic to more strategic locations to overcome the loss of those trees. The cost to remove the trees, debris, grind stumps, soil, seed, tree transplanting and labor was approximately \$30,000. One hundred percent of tree removals were done in-house and the stump grinding, tub grinding and debris hauling was contracted through various local companies. There are approximately two dozen ash trees that remain on property and all are infected to various degrees and will be removed in the Autumn of 2013 and the following winter.



*Tree removal companies are popping up all over as the EAB devastates neighborhoods. I fearfully watched as a neighbor had a large ash removed from their backyard this summer. It was a good reminder to hire responsible and reputable companies like the ones found in your membership directory.*

#### Steve Van Acker and Crystal Lake Country Club

Here at Crystal Lake we have a 150 ash trees. 100% are infected. 60 have been cut down in the past year, the 90 remaining will be cut down in the near future. The trees that looked the worst were cut down first.

#### Dan Dinelli, CGCS and North Shore Country Club

Chris Williamson, PhD, U of Wisconsin conducted a several year research project here at NSCC. Several chemistries proved effective as did various application strategies. The issue is that treatments will need to be on-going, at best every three years and up to annual applications depending on chemistry and application method. Like many locations, all our ash trees, Green, Blue, and White comprised 10% of our tree species on the property. We had the golf course architect review these trees and generated a priority of those that would impact playability. It ended up that very few did. We also have near 300 American Elms on the property, (susceptible to Dutch Elm Disease) requiring treatments every three years. With limited resources it was decided to keep treating elms and remove the ash, which we did last winter. I will miss the fall color of the white ash...but the green ash, not so much.

#### Justin Kirtland, Arrowhead Golf Club

We are treating 20 high profile, hole changing ash trees with Tree-age. We'll be cutting down 97 that are in bad shape over the next two years and re-planting about 30. The remaining 109 trees will be evaluated over the next 3-5 years and cut down as needed.

#### Dave Radaj, CGCS and Green Acres Country Club

We have ten high profile trees that we are treating at the Club. We've used Safari on an every other year treatment plan along with a Merit drench. The rest of our ash trees are only 25 years old or so and we've decided not to treat them at all.

#### Andy Dauksas, Glen Oak Country Club

We started doing Merit drenches around ash trees 3 years ago. Unfortunately, these trees are heavily infested right now and most will be removed. Several weeks ago, Nels Johnson treated with Tree-age injections to the remaining trees that show less damage. When looking at our ash population as a whole we found, surprisingly the white ash group shows no wood pecker damage or the tree suckering associated with the infection. Dr. Kris Bachtell explained that the EAB prefer the green ash because of the rougher bark (easier to overwinter) compared to the smoother barked white ash. However, he thinks EAB will eventually destroy the white ash once the green ash are gone.

#### Many Options Available

There are many different treatments options available to the professional land manager, if you choose to go that way. There is a great booklet on insecticide option that can be found at [emeraldashborer.info](http://emeraldashborer.info) It is written by scientists from our local colleges and universities and covers the growing number of effective chemical options, based on research and practical applications.

One of the largest questions or unknowns, if you choose a

treatment option for those highly valued trees, is how long will I have to treat? We know, as the pest moves into an area, the population of the bug will increase. After it has devastated a community of trees and the food source is in decline, the population of the bug will also diminish. If the pest moves out, because a shortage of food, some believe treatments could stop at some point in the future. However, scientists believe the pest will never go away – it may decrease but native ash seedlings and saplings found in forests, rights of ways and woodlots could be enough to nourish the pest for many years after the initial devastating wave is over. Because of this, treatments may have to continue, although application rates and frequencies may be lessened.

### Math Made Easy

If you are wondering whether to treat or remove your ash trees, there is very simple and clear-cut (ha-ha) cost calculator put out by Purdue University. It is designed for land managers, especially cities and urban areas, but works well for those managing smaller forests as well. To use it, you'll need:

The inventory of ash trees (including the general size and number).

- An estimate for removing the trees based on size.
- An estimate for treating the trees based on size.
- An estimate of replacing each tree that is removed if so desired.

The calculator creates a cost estimate using three options that are available (or a combination of these options):

- Treat ash trees with insecticides
- Remove ash trees
- Replace ash trees with resistant species

The calculator has a tutorial to go through, however it is pretty self-explanatory.

The tree inventory data is simply the number of ash trees on property based upon their trunk diameter as below:

Size Span (inches)	Number of Trees
1 - 3	<input type="text"/>
3 - 6	<input type="text"/>
6 - 12	<input type="text"/>
12 - 18	<input type="text"/>

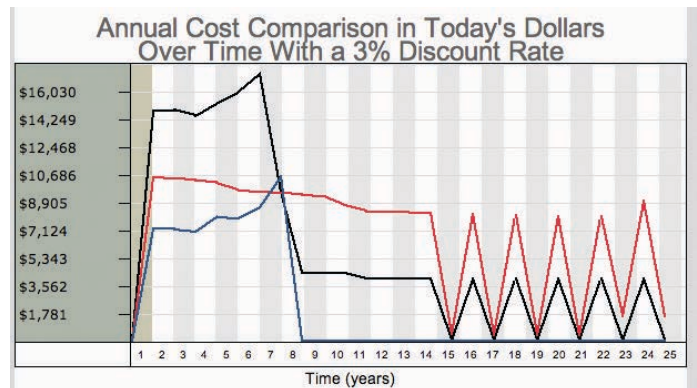
Next you'll answer a few questions based upon the extent of current infestation and how long it will take to remove those trees not planned for treatment (all trees will die or become too hazardous if not treated). After that, you'll enter information based upon treatments costs per tree and tree replacement cost and total removal cost.

The last set of data you will enter describes your management plan. You can select to remove all your trees, treat all or some, and build your own management plan by exploring the implications of removing, replacing or treating any combination of trees.

Option 1	Option 2	Option 3
Remove All	Remove All	Remove All
Replace All	Replace All	Replace All
Treat All	Treat All	Treat All
Remove Unsafe Ash	Remove Unsafe Ash	Remove Unsafe Ash
Replace Unsafe Ash	Replace Unsafe Ash	Replace Unsafe Ash
Replace >12	Replace >12	Replace >12
Replace <12	Replace <12	Replace <12
Replace <24	Replace <24	Replace <24
Save 50%	Save 50%	Save 50%
Treat 30% More to Buy Time	Treat 30% More to Buy Time	Treat 30% More to Buy Time
URBAN SLAM	URBAN SLAM	URBAN SLAM

*This is where the comparison occurs. You can select three different management options for your ash population. This criteria will be used to compare costs based on your selections.*

Once the data is entered you can select up to three options of action and the calculations will take place. Graphs will be spit out that compare your strategies and the costs associated with each. For a few minutes of work it creates a nice presentation that can be made to your membership or committee when deciding what steps to take.



*Treating 50% and removing the other 50% (black line) is the most costly option during the first 8 years. Removing all ash species (blue line) is cheapest way to go in the long run.*

In the ten years since the borer was discovered in the United States, much has been done to learn about the insect through studying its biology, insecticide treatments, cold temperature hardiness, developing traps and monitoring procedures, and studying transport and quarantine issues. Work continues looking at the cost and economics of the pest, possible biological controls, and ways to save and preserve the ash species. Unfortunately, most have given into this pest and have begun planting alternatives. ©

## Recommended Ash Replacements\*

Common Name	Botanical Name
'Autumn blaze' Freeman maple	<i>Acer x freemanii</i>
Trident maple	<i>Acer buergeranum</i>
Hedge maple	<i>Acer campestre</i>
Miyabe maple	<i>Acer miyabei</i>
Norway maple	<i>Acer platanoides</i>
Red maple	<i>Acer rubrum</i>
Sugar maple	<i>Acer saccharum</i>
Shantung maple	<i>Acer truncatum</i>
Horse chestnut	<i>Aesculus hippocastanea</i>
Upright European hornbeam	<i>Carpinus betulus 'Fastigiata'</i>
American hornbeam	<i>Carpinus caroliniana</i>
Hackberry	<i>Celtis occidentalis</i>
Katsura tree	<i>Cercidiphyllum japonicum</i>
Yellowwood	<i>Cladrastis kentukea</i>
Turkish filbert	<i>Corylus colurna</i>
Hardy rubber tree	<i>Eucommia ulmoides</i>
Gingko	<i>Gingko biloba</i>
Thornless honeylocust	<i>Gleditsia triacanthos inermis</i>
Kentucky coffee tree	<i>Gymnocladus dioicus</i>
Sweetgum	<i>Liquidambar styraciflua</i>
Tulip tree	<i>Liriodendron tulipifera</i>
Amur maackia	<i>Maackia amurensis</i>
Dawn redwood	<i>Metasequoia glyptostroboides</i>
Tupelo	<i>Nyssa sylvatica</i>
American hophornbeam	<i>Ostrya virginiana</i>
Amur corktree	<i>Phellodendron amurense</i>
London planetree	<i>Platanus acerifolia</i>
Common chokecherry	<i>Prunus virginiana</i>
Callery pear	<i>Pyrus calleryana</i>
Sawtooth oak	<i>Quercus acutissima</i>
Swamp white oak	<i>Quercus bicolor</i>
Northern pin oak	<i>Quercus ellipsoidalis</i>
Shingle oak	<i>Quercus imbricaria</i>
Bur oak	<i>Quercus macrocarpa</i>
Chinkapin oak	<i>Quercus muehlenbergii</i>
Japanese pagodatree	<i>Sophora japonica</i>
Linden or Basswood	<i>Tilia americana</i>
Little-leaf linden	<i>Tilia cordata</i>
Silver linden	<i>Tilia tomentosa</i>
Elm hybrids	<i>Ulmus spp.</i>
Japanese zelkova	<i>Zelkova serrata</i>

\* Suggestions from Michigan State University Extension Bulletin E2925

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