# The Plant Doctor's LANDSCAPE TIPS

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## THE EAB AT 15: A BRIEF LOOK BACK

### INTRODUCTION:

Even though it seems like yesterday, it has been 15 years since the Emerald Ash Borer (EAB=Agrilus planipennis) was discovered in the spring of 2002 in several counties in Southeast Michigan. In the ensuing 15 years the EAB has spread to many other states, as far away as Nebraska and Colorado and the East Coast (Photo 1); this is quite an accomplishment for an insect that was initially thought to only fly about ½ mile per year! As of this writing, only three Michigan counties remain outside the Michigan's Quarantine area.

The Emerald Ash Borer is without doubt the most controversial, political, confrontational and divisive project on which I have ever worked. The science on the EAB was often substandard and the subsequent government policy developed from that substandard science was often flawed. Because I was usually in the middle of the controversy, I thought it might be interesting to reflect on several of the interesting aspects of the EAB Project, as it became to be known. Because it is not often discussed, many individuals in the public domain do not realize who discovered the EAB. I did, so I thought it might be useful to begin this story with a brief summary of the discovery.

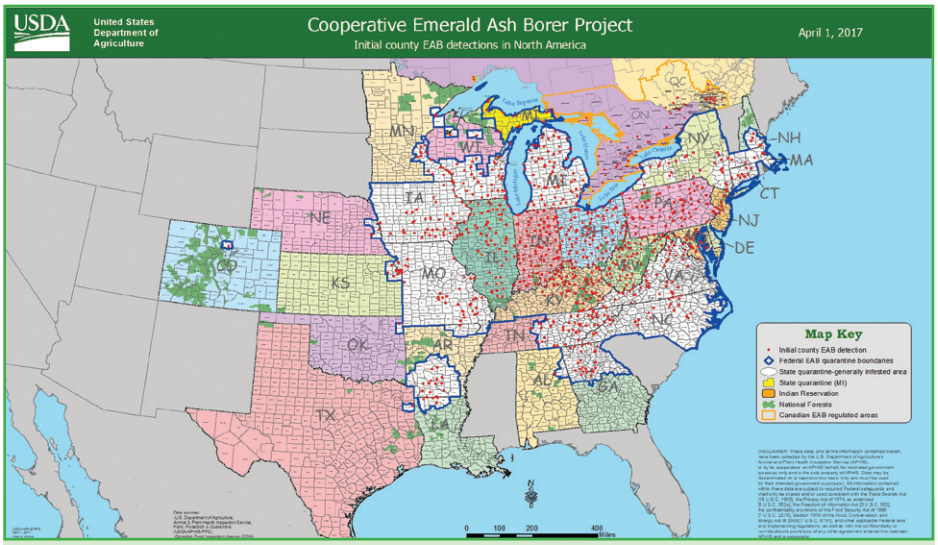


**Photo 1:** A recent map of the distribution of the Emerald Ash Borer. The invasive pest has moved fairly quickly and far since its discovery in several counties in SE Michigan in 2002 . . .in fact all the way to Nebraska and Colorado and the East Coast.

### THE DISCOVERY OF THE EAB:

In June of 2001, I was asked to investigate some declining ash trees at a condominium site known as Bradbury Condominiums off Joy Road in Canton, Michigan. All 80+ mature ash trees at this site exhibited symptoms seen in Photo 2. For such broad ranging effects, I initially suspected that herbicide injury or some other cultural/ environmental factor might be involved. Surveying the Canton area, I saw many other ash trees with similar symptoms, which led to my nebulous labeling of the problem as "Ash Decline". Because I had many other ongoing projects, I was not able to pursue ash decline to the fullest extent. However, by the fall of 2001, I had collected some larvae from the ash trees and submitted them to my colleagues at MSU; they were identified as most likely the Two-Lined Chestnut Borer (TLCB). In the following months and into early 2002, my literature search revealed that the TLCB had been reported on ash trees only in the state of Michigan and by the USDA. Apparently, Michigan Department of Agriculture inspectors had been concluding for several years that the D-shaped holes they witnessed on nursery ash trees were caused by the TLCB- the USDA apparently picked up on Michigan's report regarding TLCB on ash trees. There were many news articles about ash decline during late 2001 and into 2002 as ash decline was determined to be of greater magnitude than anyone imagined. Most scientists who were interviewed during this time period concluded that the primary problem was ash yellows, a disease caused by Phytoplasmas (bacterial-like organisms)….even though no one did any research to prove or disprove this theory. I was skeptical of ash yellows because the epicormic shoots emanating from the ash trees in SE Michigan (Photo 2) were not consistent with the mottled, stunted shoots

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**Photo 2:** Although I may have seen evidence of the EAB attacking ash trees previously, a visit to Bradbury Condominiums near Canton, Michigan in June 2001 suggested something very important was happening here.

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typically associated with ash yellows. In January of 2002, I held an evening meeting at a MSU Extension facility in western Wayne County to update interested citizens and administrators from Metro Detroit area cities, who were experiencing a significant loss of street trees and canopy from "ash decline". Recall that ash trees were the primary species of choice to replace the millions of American elm trees that had been lost to Dutch Elm Disease in the decades before. During this meeting, I received commitments of approximately $5,000 in funds to pursue research on this growing problem, which cities reported would bankrupt their budgets just to remove declining/dead ash trees. In order to prove/disprove the #1 theory, that ash yellows was the culprit, in the early spring of 2002, I collected foliage from trees all over SE Michigan to be analyzed by DNA technology for the ash yellows Phytoplasma. In short, only three samples out of 50 tested positive for ash yellows. Two of those positive were from a tree exhibiting standard ash yellows symptoms from outside of the SE Michigan (TLCB?) "borer epicenter" area. Hence, it was easy to conclude that ash yellows was not a major contributor to ash decline in SE Michigan. Because of my literature search findings, that the TLCB had not been reported with ash trees in any other state but Michigan, I wanted to pursue the theory of the TLCB attacking ash trees in Michigan. So, in the early spring of 2002, I collected groups of logs from declining ash trees representing a wide geographical range in SE Michigan and brought them back to my lab on the MSU campus in East Lansing. I wanted to be certain that whatever insect I reared out of those logs was consistent with the widespread ash decline symptoms I had noted. Subsequently, I reared out Agrilus planipennis, which we named and all know now as The Emerald Ash Borer (Photos 3A, 3B, & 3C). It is startling to me that many individuals have stepped forward to lay claim to discovery or co-discovery of the EAB. No one discovered the EAB but me; it's just a fact. Equaling startling is that no other scientists were interested in Ash Decline in SE Michigan until after I discovered the EAB. Then, all Hell broke loose.

### THE FAILED CUT AND CHIP PROGRAM:

After my discovery of the EAB, the Michigan Department of Agriculture (MDA) immediately initiated quarantines for several counties in SE Michigan. Two scientists, one from MSU and one from the USDA, designed an experiment to determine if chipping trees would kill the EAB; they concluded that chipping trees to one inch or less would destroy the insect. With this in mind, a containment and eradication strategy was developed and implemented by MDA, supported by the USDA and Washington; this containment and eradication program essentially became the national program to send the EAB packing back to China. Infested trees were taken to marshalling yards at different locations around the Metro-Detroit area. Once the trees were chipped, the chips were considered non-regulated items by MDA and could be taken out of the quarantine area. Many of the chips were transported to a Cogeneration Power Plant in Flint Michigan. I questioned the accuracy of the chipping research, so I designed some experiments to further test the theory about chipping and destruction of the insect. My research showed that the insect could survive the chipping process in direct contradiction to the former researchers' conclusions. In survey work, I also showed that the EAB had infested ash trees in the immediate vicinity of the Flint power plant, where no one, not even MDA, had anticipated an outbreak (Photo 4 and Inset). The citizens of Flint were livid, almost as much as they are today with the Lead/Water crisis. As you might imagine, there were many people very upset with my research revelations. I received tremendous push back from various state departments and even MSU. Even so, my research results were correct and essentially brought an end to the failed and fruitless national containment and eradication program.

**Photo 3A, 3B & 3C:** Most likely the first ever photos in the history of humankind taken of an emerging EAB, taken by the author near Ypsilanti Michigan in May, 2002.

### DO TREATMENTS WORK?

One of the more controversial EAB subjects involved treating ash trees to save them from destruction by the EAB. Michigan's state departments had put out information and even videos that the only proven EAB control procedure was to cut down trees and chip them up (obviously this technique was never proven). Many scientists and policy makers wanted the "cut and chip" program advanced so that they could reap the benefits of the millions of dollars pouring into Michigan from Washington D.C. After I discovered the EAB in 2002, I was contacted by Mark Baldwin of Mark Baldwin and Associates who had begun treating some small, newly installed ash trees in a gated community near Plymouth Michigan in 2001; he had seen the borer damage on these new transplants and assumed a Wedgle treatment using Pointer (Imidacloprid) might help. He had also contacted other scientists and

**Photo 4 and Inset:** The pile of ash chips at Flint's Cogen Power Plant in October 2004 dwarfs not only the trees (background) but the D-9 Cat, which is working the piles. Trees around the plant were being attacked by the numerous adult EAB emerging from the "deregulated" chips. Photo was taken when Flint was outside the SE MI quarantine area. The movement of ash wood chips from the Metro Detroit area to Flint infested the whole area around the power plant, much to the anger of Flint residents.

**Photo 5A & 5B:** This is the world's oldest and longest running EAB test site. Thirty small ash trees (5A) had been viciously attacked by the EAB by 2002; most were almost girdled from insect "cankers." Wedgle injections with Pointer (Imidacloprid) turned these trees around, and all 30 trees have grown tremendously in the last 15 years (5B)…and all have survived despite some scientists' claims that this treatment doesn't work.

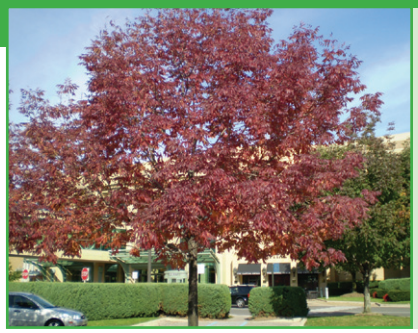

**Photo 6:** The beauty of Autumn Purple white ash in the fall at Somerset Mall in Troy, MI. These trees have been saved by Wayne White of Emerald Tree Care using the Wedgle and Pointer.

**Photo 7:** Perhaps this is poetic justice: an ash tree killed by the invasive EAB (from Asia) falls onto a car imported from Asia!

the state departments but no one else was interested. I took over and managed these trees for many years as part of my EAB management tests, supported by Mark, Banner Sales and Consulting, and Arborsystems, Inc. This site is the world's oldest and longest running EAB treatment site (Photos 5A & 5B). The controversy surrounding the Plymouth site and the Wedgle is that some scientists claimed the Wedgle/Pointer treatment was not effective. It was… or could be if used correctly (Photo 6). Obviously over the ensuing years a variety of treatments were found to be effective. Most trees that have not been treated in Michigan have either died or are in a serious state of decline. Dead ash trees represent liabilities to Michiganders and their property (Photo 7).

## THE HARSENS ISLAND STANDOFF:

I have enough information to publish a very interesting and revealing book about the EAB struggle in Michigan. Among many stories, one of the more interesting involved John & Donna Horvath of Harsens Island (Photo 8). As many of us probably remember, EAB "trap trees" were established at many locations around Michigan to try to determine where the EAB actually existed. It was believed that girdled ash trees would attract EAB adults to these trees where they would lay eggs and where larvae would develop. The MDA had found that one of their trap trees adjacent to the Horvath's farm contained evidence of the EAB. Based on some other less than accurate research, all ash trees within a half mile radius of a positive trap tree would be destroyed to stop the spread of the EAB. When John and Donna were informed that many of their trees would have to be destroyed, John drove his bulldozer out to block the tree cutters from entering his property. With the threat of gun violence, the tree cutters backed off instead…at least for the time being. Representatives from the state departments and the Governor's office descended onto John and Donna's property in an effort to convince them that his trees needed to be destroyed as part of the national EAB eradication plan and to protect Walpole Island in Canada, which was only several miles away. When John and Donna refused, the MDA proposed a hearing at the Capitol to let John and Donna plead their case. When John asked these government people who he could get to help him plead his case, someone accidently released my name. The representative from the Governor's office immediately replied, "Dave Roberts is

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controversial." John replied, "Well then, that's who I want." When John contacted me about helping him, I was initially wary because I had heard about the potential gun violence that had almost erupted on Harsens Island. After meeting John and Donna, I grew to admire and respect them for being good, patriotic Americans

**Photo 8:** John and Donna Horvath on Harsens Island "fought the law and the law" . . . didn't win. Standing in front of a blue ash tree (Fraxinus quadrangula) that the author had given them as a small seedling several years previously, they nursed it with "special fertilizer" from their horse farm to a height of 12 feet before a hired hand accidently killed it with a dose of herbicide containing Imazapyr. Sad but true.

who simply were devoted to protecting their trees, their land and their rights. In short and there is much more to this story: John and Donna won their hearing and were able to keep their trees. Most of their ash trees are still alive today because of treatments. Although John would probably not regard himself as a scientist, he did his homework on the EAB. He actually found a highly infested ash tree much closer to Canada than his farm and near an MDA trap tree that showed no evidence of infestation. John, Donna and I are still friends to this day.

### SCIENCE AND THE EAB:

Obviously, there were many "science-based" failures in regards to the EAB program, ranging from detection, to identification, to treatment, and to the failed containment and eradication plan. The EAB Project was by far the most controversial project with which I have ever been associated, even though I seem to be in some sort of controversy much of the time. Early after my discovery of the EAB, I was booted off the MSU EAB Project Team. Even so, I continued on with my research without funding and support. I received extensive pressure from certain factions within MDA and MSU to not publish or publicize my research, even though my research was correct and truthful. Much of the scientific controversy seemed to be related to egos, competition for funding, and competition for control of EAB publications and policy. Science is evidence-based and advances when many alternative experiments are run to determine facts. Good science, including discussion and dissent, was not particularly welcome during the EAB fight.

An investigative reporter for the Detroit News and Free Press had been maintaining an interest in the EAB struggle; he summarized his findings in an extensive (3 page) October 10, 2004 Detroit News and Free Press article, entitled "Flaws Riddle Ash Borer Fight." The investigative reporter compared my travails to MSU's Ornithologist & Biologist Wallace who in 1960 correlated dead robins on campus with the use of the insecticide DDT. Wallace had come under pressure from the state department to not publish his findings. A then young Washington congressman from Detroit by the name of John Dingell stepped into the fray and warned MDA that if any harm comes to Wallace, "hair and hides" will be "flying" at the department.

Now, about that book. If I could find some romance or sex to weave through the EAB story, it might become a bestseller!

### ACKNOWLEDGEMENTS!!!!

This is probably the most important section of this article. During the EAB struggle, I (Photo 9) was immediately labeled as "controversial" simply because I thought outside the box and because I pursued what any good scientist would consider THE basic tenet of science: "unfettered search for the truth." Many of the readers of this article probably didn't realize how deeply "in trouble" I really was. I was in great danger of being totally isolated and marginalized to the point where I couldn't function; there were numerous threats towards me from the Power Structure. So, the list of people I need to thank would be very long…too long to cover in this meager space. However, here are just a few I want to thank. I want to acknowledge Diane Andrews (Banks) for continuing to publish my articles in *the Landsculptor®* when she and the MGIA were coming under intense pressure from the Power Structure to not do so or interact with me. I need to thank Dan and Doug at Banner Sales and Consulting, and Chip Doolittle at Arborsystems Inc. for supporting my research with grants and "In Kind" support. But most of all, I need to thank all of you in this wonderful industry who stood shoulder to shoulder with me as we marshalled on to glory in search of The Truth.

*The author, MSU and MGIA do not endorse any particular products. If using pesticides, be sure to read and follow label directions.*

**Photo 9:** The controversial scientist known as Dr. Roberts, doing what he does best, hugging a gigantic ash tree.

***Development of Landscape Tips was sponsored by MSU & MGIA.***

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