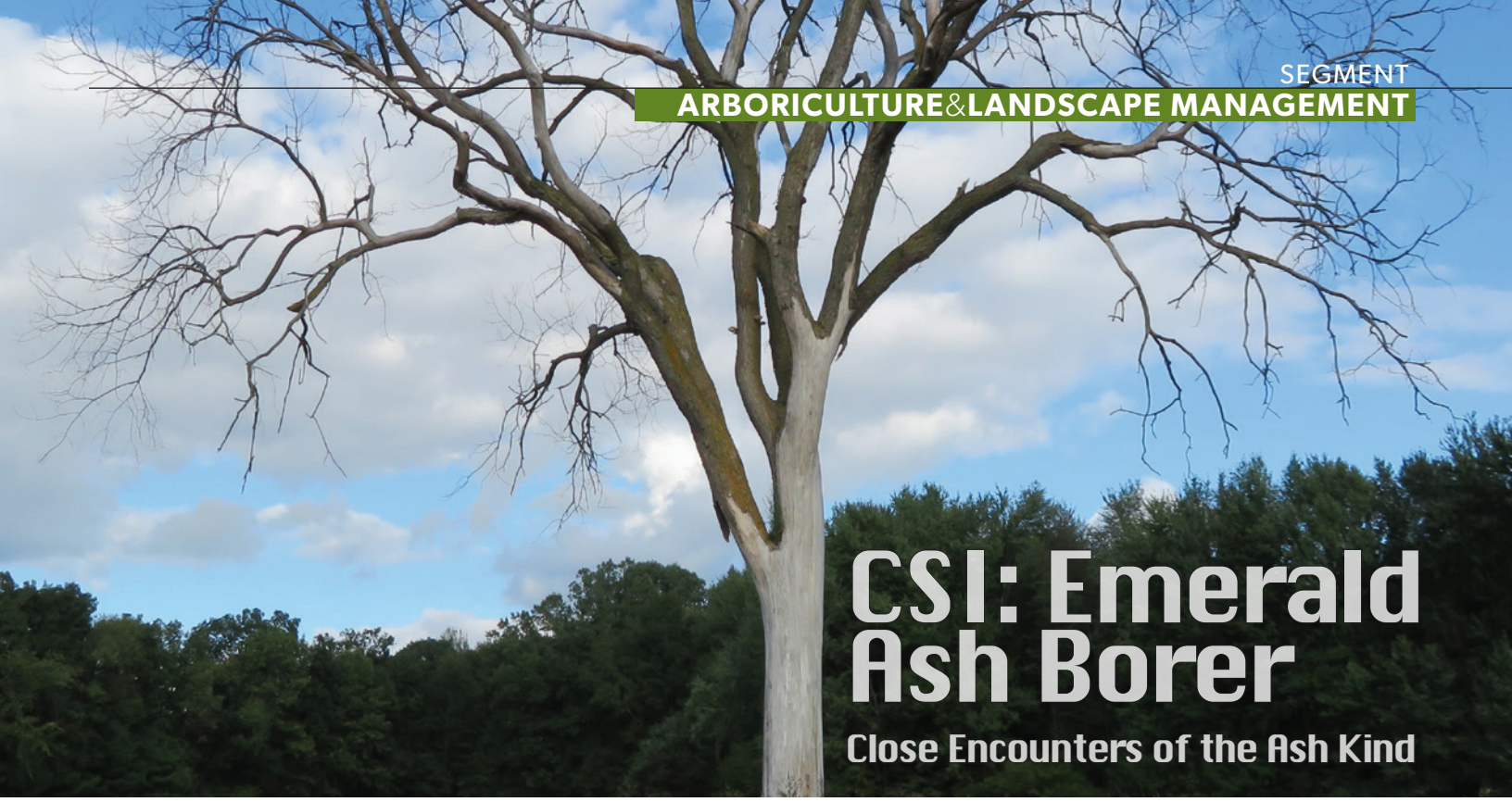

CSI: Emerald Ash Borer

Close Encounters of the Ash Kind

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Dr. Roberts retired from Michigan State University in 2018 after committing four decades to advancing MSU's Land Grant Mission, originally signed into law by President Abraham Lincoln during the midst of the American Civil War. He has published hundreds of articles and has taught hundreds of lectures and workshops.

Dr. Roberts has researched many issues in Michigan's plant industry, including Oak Wilt, Dutch Elm Disease, Diplodia Tip Blight of Pines, along with a variety of cultural problems such as plant nutrition and herbicide toxicity. During his career, he has discovered a variety of new diseases and pests such as Phomopsis Canker of Spruce and the first bacterial wilt disease of turfgrasses in North America.

In the early 2000s, his research on Ash Decline in Southeast Michigan led to the discovery of the invasive Emerald Ash Borer in North America.

In his retirement, Dr. Roberts intends to remain active with the Arboriculture/Landscape/Nursery industries. Dr. Roberts is President, CEO and CBW (Chief Bottle Washer) of The Plant Doctor, LLC…aka The Tree Doctor.

INTRODUCTION:

Since my research into ash decline in Southeast Michigan discovered the Emerald Ash Borer (EAB=*Agrilus planipennis*) in 2002, the invasive insect has pranced across large portions of the United States from its entry point into North America in Southeast Michigan. In 17 years, the insect has extended its range of operations westward to North Dakota and Colorado and eastward to New England and other East Coast states. It's hard to believe that some scientists initially believed the insect could only fly approximately ½ mile per year, a notion which contributed mightily to Michigan's and the federal government's containment and eradication program… which failed miserably.

Billions of ash trees have been killed by the EAB, and billions of dollars in property value have been lost from this invasive, introduced pest (Photos 1 & 1A). A factor not often considered is the threat that the EAB plays directly or indirectly, depending on how one views the matter, to humans. Dead ash trees are failing structurally (falling) at an alarming rate (Photo 2). In Michigan, millions of dead ash trees are still standing; these dead trees represent a significant threat to all of us.

Accidents and Deaths:

Ash trees are literally falling daily. Accidents from falling ash trees are occurring very frequently, whether those accidents concern people, automobiles or property. Regarding accidents, people are being injured or killed almost daily (Photos 3 & 4). While the incidents of human deaths from ash trees is relatively low, the potential for human injury and death increases every day as millions of trees succumb to the EAB. Many of the dying/dead ash trees are in isolated locations and show little threat to humans, except for those who like the woodlands to hunt and fish or those who prefer to spend time in natural areas camping or hiking (Photos 5A & 5B). Nevertheless, dead ash trees pose a serious threat to wildlife, other trees and the environment. As an example, killed ash trees that fall can injure oak trees, which can predispose them to Oak Wilt at certain times of the year. However, many ash trees in landscapes, parks, publicly used woodlots, and along public roads represent a significant threat to the safety of people (Photos 2, 3 & 4).

The "Biology" of Dead Trees:

There's an old saying from the arboriculture community, "There are two kinds of trees… those that have fallen and those that will fall." Put another way, all trees eventually will fail structurally from their upright growth habit due to Planet Earth's gravitational pull, unless, of course, the trees are physically removed by humans. Trees that have died (or been killed)

begin to decompose immediately. Actually, some trees are compromised by various diseases, pests, environmental issues or human activities **before** they die; said trees may fail structurally while appearing quite healthy (Photo 6). Ash trees tend to pose greater risk and fall much earlier after death than other species (Photo 2 & Photo 7). As examples, dead oaks and elms are more likely to stand for many years after they die or have been killed (Photos 8 & 9), possibly providing people more time in our ever-procrastinating nature to consider their removal before catastrophic failure. Another observation is that ash trees commonly break off above the soil line rather than "uproot" as other species do.

Ron Goodger's Admirable Mission:

Many people have had a seriously close encounter of the ash kind. Debbie, Ron Goodger's wife, was returning home from St. Joseph one day after her grandson and his girlfriend competed in a robotics event. As she topped the crest of a hill, a fallen ash tree suddenly appeared across the road. There was insufficient time and space for her to stop; her Dodge Caravan hit the tree, breaking the tree into two major pieces. In striking the tree, the Caravan's steering linkage broke, which meant she no longer had control of the direction of the minivan (Photo 10). Fortunately, as the vehicle veered uncontrollably off of the road, taking Debbie and her family with it, there were no other trees blocking the van's path. Even though the minivan was totaled by the insurance company, it was the Goodgers' great fortune that no one in the minivan was injured that day. This was a seriously close call for sure, especially when we think of all of the bad outcomes that could have happened!

As a loving father and husband, Ron questioned why this ash tree had fallen across a publicly traveled thoroughfare, threatening the well-being of his family. In his subsequent investigations, he found that there were many dead ash trees along that road and other Michigan roadways. Ron began searching for other accidents and victims caused by falling trees and ash trees. His findings were rather alarming, and he has documented these accidents in Figure 1. Ron started using Google Earth and found that he could readily determine dead trees along state roads, county roads and elsewhere, particularly in high risk areas (Photo 11). In some situations, for example on heavily traveled roads leading to schools, he has been able to provide sufficient influence through his warning efforts to stimulate some road sections be cleared of dead trees. Eliminating these dead ashes largely removed the threats imposed to vulnerable people such as children on their way to school.

Ron is a retired electrical engineer, and he has made it his mission to raise awareness about dead trees, especially ash trees, to try to prevent accidents and deaths from falling trees. Because of the Emerald Ash Borer impacts and the high number of dead ash trees, ash trees pose the highest risk to all of us as targets. Ron's Website is **https://sites.google.com/site/deadashtreeskillingpeople/wrecks**; he has been interviewed in quite a few news media outlets. Because of Ron's efforts, we may never know how many lives he has already saved. Ron would be very receptive to learn of any experiences that you might be able to contribute to his website. Any photos that you may have would be extremely helpful to add to Ron's website to graphically demonstrate the serious nature of this problem. If you wish to contact Ron directly, his email is lrgoodger@gmail.com.

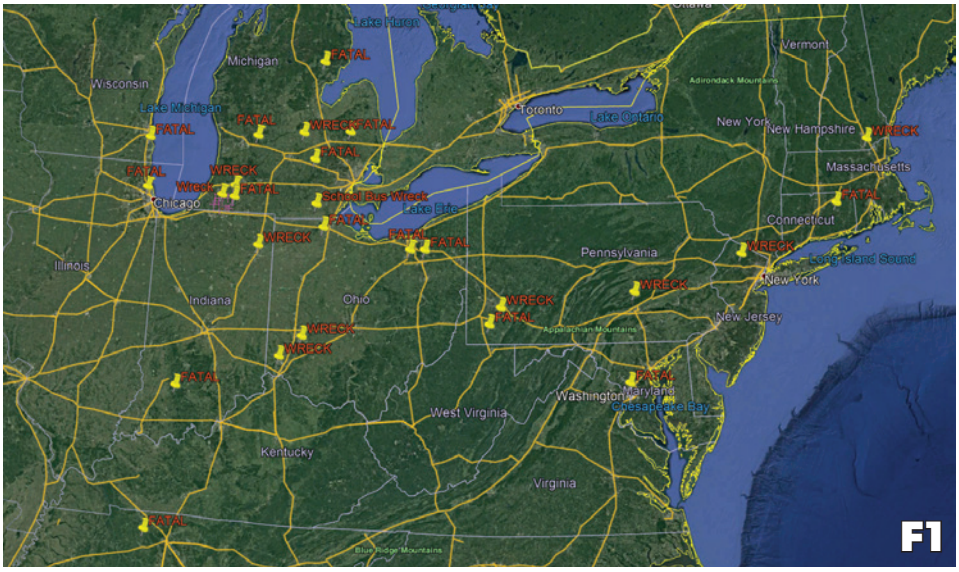
My Close Encounters of the Ash Kind:

Close Encounter #1: One day in 2009, I was traveling down a gravel, back-country road to visit a friend and partake in a glass of wine for Happy Hour when I noted an ash tree just beginning to fall with the unusually windy conditions that day. I floored my Jeep Cherokee just making it past the falling tree in the nick of time (Photo 12). Although the tree was fairly small, it could have penetrated my windshield, caused damage to my Jeep or caused me to lose control of my vehicle. In avoiding obstacles in the road, drivers often make sudden maneuvers that cause them to lose control and strike other trees in confined areas.

Close Encounter #2: One day last spring (April 2019), a lovely day and my first motorcycle ride of the season, I was travelling towards the small town of Holt, Michigan. I happened upon a scene in which an ash tree had crashed onto the road 15 minutes previously. A Police Patrol SUV was blocking my lane, holding up traffic. A group of fellow travelers helped the patrolman drag a small to medium-sized ash tree off of the road (Photo 13). Luckily, no one was injured despite the heavy traffic commonly encountered on this road. My initial thought was that I had missed a

potentially serious or fatal accident by just minutes. If this ash tree had either fallen directly in my path or on me as I was riding along, I might not be present today to write this article. Even though people in automobiles can being killed by falling ash trees, at least that mode of transportation provides some measure of protection. Those individuals who ride motorcycles or bicycles, or those who jog or are pedestrians, including those who walk "man's best friend", are particularly at risk.

I'm not a big conspiracy theorist, but as discoverer of the EAB in North America, I think the EAB is out to get me.



1& 1A In 2001, the author began researching Ash Decline, which led to the discovery of the Emerald Ash Borer (EAB) in 2002. This photo shows an intermediate decline of ash trees by the EAB. Photo 1A discloses a very rare image of an emerging adult EAB taken by the author in June 2002.

2 In a recent trip up north, I came across this massive ash tree that had previously fallen across this roadway. To my knowledge, at least I hope, no one was injured with this ash structural failure. Dead ash trees are falling at a very high frequency.

3 In Livingston County in March 2016, this tree fell on Gary Cox's Ford Explorer and killed him. (Photo from Ron Goodger's website https://sites.google.com/site/deadashtreeskillingpeople/ and https://www.freep.com/story/news/local/michigan/2016/03/16/gary-cox-driver-killed-tree/81884676/)

4 The driver of this car was injured when an ash tree fell on a road in Kentucky and impaled the windshield. Thankfully, the driver was only injured. (Photo from Ron Goodger's website https://sites.google.com/site/deadashtreeskillingpeople/ and https://www.wpsdlocal6.com/2018/06/27/driver-recovering-from-broken-arm-after-tree-impaled-windshield/)

5A &B Natural woodlands have varying degrees of ash populations. Some woodlands have high populations of ash (Photo 5A) and other woodlands have a very low percentage of ash trees (Photo 5B). Regardless, dead ash trees pose a threat to the safety of humans, wildlife and even other species of plants regardless of their location.

6 This large oak tree toppled several years ago during a windstorm near Ann Arbor, Michigan. The tree was full-foliaged, healthy in appearance and exhibited no outward signs of issues. Not evident in the lower regions of the trunk and root collar area was a progressive fungal decay. Fortunately, the tree fell alongside a road rather than on it.

7 Luckily, no one was injured when this tree fell on this SUV, caving in its roof. Perhaps the irony of this situation is that an invasive agent from Asia killed this native American tree, which then fell on this SUV imported from Asia.

8 I've monitored the decline of this oak tree for several years; the decline is probably due to the Two-Lined Chestnut Borer, possibly exacerbated by *Armillaria* Root Rot. Although the tree is not likely to fall anytime soon, the brittle limbs will probably break off in chunks, threatening passersby.

9 This large American Elm died from a Dutch Elm Disease infection several years ago. As the tree continues to lose bark over the next few years, the underlying exposed cambium will bleach white by the sun and eventually create "ghostly" natural art. It's not likely to topple anytime soon but may begin dropping branches just as expected like the oak in Photo 8.

10 Ron and Debbie Goodger's Dodge Caravan was "totaled" when Debbie inadvertently struck a tree laying in the road on the opposite invisible crest of a hill. The collision was unavoidable and broke the dead ash tree in two. Her steering linkage separated on impact and the van careened uncontrollably off of the road. Fortunately, no other trees blocked the trajectory of the out-of-control vehicle, and no one was seriously injured.

F1 Ron Goodger has documented accidents and deaths from falling ash trees on this map that I borrowed from his website. https://sites.google.com/site/deadashtreeskillingpeople/

Who's Responsible?

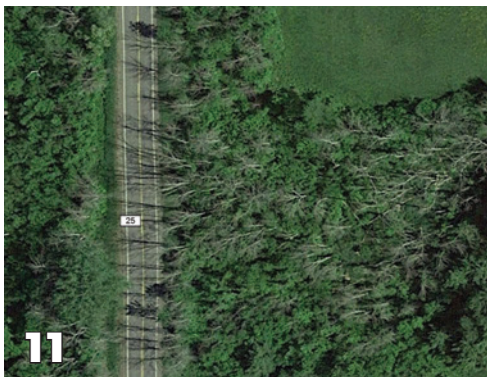
Many of the (ash) trees that pose the greatest threat to us exist in high target areas such as roadways, whether they are in the right-of-way of the township, county, state (Photo 14), or the federal government's interstate highways. The responsibility for managing these dead trees varies from state to state, from county to county and from township to township. Here's what I have learned about that responsibility from my involvement in unfortunate situations such as court cases and from Ron Goodger's inquiries. In Michigan, government entities (whether state, county or township, etc.) may decide to remove trees in their right-of-way if they pose a risk. Or, they may decide to not remove them, a seemingly more common scenario. The government entity may also ask a property owner if they can remove a tree that they believe poses a risk to their right-of-way, even if the tree resides outside of the governmental entity's right-of-way. However, in Michigan as well as in many other states, our government has decided that it is the property owner's responsibility to remove risky trees even if the tree exists in the government's right-of-way. That is why so many dead (ash) trees are still standing along governmental right-of-ways. When accidents do happen, government entities often declare "government immunity", squarely placing the culpability on the private citizen/property owner (Photos 15A & 15B).

Our Industry and Our Responsibilities:

Our Green Industry engages in tree care, landscape maintenance and lawn care. When we perform our services, it is vitally important that we educate our clients and the public about the risks of dead trees or hazardous trees, not only to protect ourselves but also to protect our clients and the public. When we see dead or hazardous trees, we should warn people of their responsibility even if many of us are not experts in Tree Risk Assessment. Because the public regards us as the "experts" in this industry of tree care, it is prudent that we perform our due diligence by advising people about the potential for harm to humans and properties by hazardous trees, especially dead trees. While it might be advisable to keep notes, it would be far better to document our efforts of public service through a paper trail.

One never knows when someone might try to hold us accountable for an accident after we have been on a property. In our valiant efforts to try to help people, it is highly probable that many of us will be blamed for trying to "hustle" the public for more work. However, it is far better to protect ourselves and the public through our efforts than to do nothing because we are concerned about public perceptions of our efforts. Many property owners do not appear to understand the risk that even dead trees pose to others…or to themselves (Photo 16).

14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15A

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15B

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Acknowledgements: Much appreciation is expressed to Ron Goodger and his efforts to bring attention to the threat of dead ash trees to people and property.

11 In using satellite imagery such as Google Earth, Ron Goodger could spot dead trees practically anywhere, but especially along roadways where people are most likely to be threatened by falling trees. His efforts to warn local communities about roadways leading to schools, for example, has undoubtedly saved lives. (Photo from Ron Goodger's website. https://sites.google.com/site/deadashtreeskillingpeople/)

12 In 2009, this ash tree was wavering and began falling during windy conditions just as I was traveling past it on this gravel road to a friend's house. Luckily, in "gunning" my Jeep, I had just avoided a potential catastrophe.

13 This ash tree fell on Holt Road just 15 minutes before I traveled through the area on my first motorcycle ride of the 2019 season. Passersby helped the patrolman drag the fallen ash to the side of the road. If I had traveled through the area just 15 minutes earlier, I might have been struck by the falling tree, possibly precluding me from writing any future articles, such as this one.

14 This rather large ash tree died several years ago along Route 115, a heavily traveled state highway leading to Cadillac, Michigan and ultimately via M37 to Traverse City, a destination for many tourists. Because this tree inhabits the west side of the road, it is simply a matter of time before this tree falls with prevailing winds eastward across the road, possibly onto travelers. One would think that with Michigan's highly successful "Pure Michigan" campaign that we would be very worried about the threats that dead ash trees pose to our tourist industry.

15A This tree was pruned by the county road commission approximately 12 years before the top portion of the tree separated from the lower trunk (arrow), falling onto an automobile (Photo 15B) during a violent thunderstorm. The bad pruning practices created a wound that did not heal properly, subsequently resulting in decay and carpenter ant activity, ultimately weakening the structural integrity of the pruned area of the tree.

15B The top portion of the tree (from Photo 15A) that separated from the main trunk fell on this car and killed the young driver who was married and a recent father. His baby in the back seat survived. The county who performed the pruning claimed "government immunity", placing the liability for the death of the young man on the property owners.

16 The relative of a young, pregnant woman took this photo of a dead birch tree that had fallen on the young woman as she was walking on this public sidewalk in a city. The young woman was knocked unconscious; wondrously, she and her baby survived. Apparently, many property owners do not recognize the risk of dead trees on their property to themselves or others. Isn't it our responsibility to inform them?