



The Plant Doctor's LANDSCAPE TIPS

By Dr. David L. Roberts, *The Plant Doctor LLC a.k.a. The Tree Doctor*

THE SURVIVAL OF TREES

(In an age of invasive aliens and human misunderstanding)

INTRODUCTION

Trees exhibit a will to live. Trees also have the capacity, life force if you will, through evolutionary genetics to overcome adversity and survive obstacles nature and humans throw at them. Perhaps never until recent history have so many native tree species been under attack from so many fronts. Some introduced aliens have destroyed not just species of plants, but whole genera: Dutch Elm Disease and *Ulmus* sp., Chestnut Blight and *Castanea*., Emerald Ash Borer and *Fraxinus* sp., Hemlock Woolly adelgid on *Tsuga*, Beech Bark Disease on *Fagus* sp. etc. More arrive almost daily in their attempt to gain a foothold here to take down our mighty forests: Asian Longhorned Beetle, Spotted Lantern Fly, Beech Leaf Disease, etc.

And if the aliens are not enough threat to the health of our urban forests, we as human tenders of trees have often failed miserably in promoting their health. We simply don't understand them! The destruction of trees by aliens is well documented elsewhere. However, the following examples demonstrate some less obvious examples of the assaults by humans and Mother Nature upon our trees, especially in our urban forests.

LIFE AFTER DEATH? (PHOTOS 1A-1E)

One year, this large old sycamore was

severely affected by some malady that in outward appearance killed the tree. The tree had lost all its foliage – Photo 1A was taken in early June. I identified the likely problem as anthracnose, a foliar fungal disease. Late frosts may have aided and abetted the aggressive disease. Foliage loss due to diseases, pests and environmental factors is not uncommon in many species of trees. The shameful result of such situations is that many people remove afflicted trees without realizing that such trees may recover. Traveling through the area again in late July, I snapped Photo 1B. The moral of the story: trees that appear dead may not be dead. Trees that are defoliated early in the season tend to re-foliate the same season; trees that are defoliated later in the summer may not re-foliate until next year. How do trees know what to do? Trust me, they just do.

Traveling through the area again a couple of years later, I noted that the tree had been struck by a tornado or straight-line winds (Photo 1C). Many trees in the area had gone down. It might be easy to again write this tree off as a “goner.” However with time, over the next several years, this tree once again rose from the clutches of death to resume its normal grand appearance (Photos 1D & 1E).

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Photo 1C



Photo 1D



Photo 1E



Photo 1A



Photo 1B



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MOTHER NATURE'S DROUGHT AND RECORD FREEZE: (PHOTOS 2A-2D)

I encountered this scene in an Ann Arbor Strip Mall during the summer of 2012 (Photo 2A). There was a severe drought and the owners of the property elected not to attempt to save the trees (Lindens) in this parking lot island with supplemental water (there was no irrigation, anyway). By checking the cambium and the buds of the tree on the right, I realized the tree still exhibited life even though to the average person, the tree might appear dead. As I predicted, the tree recovered



Photo 2A



Photo 2B



Photo 2C



Photo 2D

completely in 2013 (Photo 2B). The winter of 2013/2014 represented a record setter; complicating the record winter, snowplows had piled mountains of snow laden with deicing salts around these trees (Photo 2C). Surely the deicing salts and record temperatures would destroy these trees. Photo 2D shows fully recovered and healthy trees during the summer of 2014. Trees are tough at almost any age.

IS IT BAPTISM OR DROWNING? (PHOTOS 3A & 3B)

One of the modern developments for landscapes is automatic irrigation, which when used properly, can enhance the health and beauty of our landscapes. Regrettably, irrigation is rarely used correctly. I'm not sure why that is but I think people tend to think that if we must eat three square meals a day, trees must

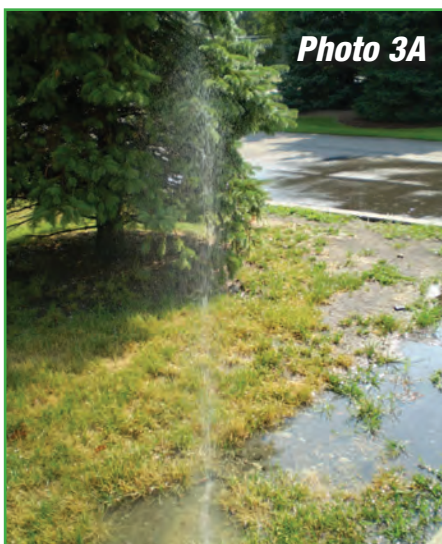


Photo 3A



Photo 3B

do so as well. Add in a happy hour and it's not unusual to find that some irrigation systems are running 3 or more times per day . . . whether it's raining or not (Photo 3A). The tree in Photo 3B was killed within months after an automatic irrigation system was installed. People seem to think that they need to use their newly installed irrigation system frequently. Why? To pay it off? Ironically, the English Ivy groundcover also succumbed. In many horticultural views, English Ivy is considered invasive and difficult to kill. But frequently, overhead irrigation will invite *Xanthomonas* (bacterial) leaf spot, which is better than some herbicides for eradication of this ground cover.

IT'S SPRINKLING!!! (PHOTO 4)

While "sprinkling" may be considered a ritual and symbolism in some religious faiths, that is not the case for landscapes. Overhead irrigation predisposes many landscape plants to diseases, particularly if plants remain wet for extended periods of time. While this article is supposed to be about trees, I couldn't resist sharing this one. In this landscape in downtown Ann Arbor, Michigan, the original English Ivy bed has been taken over by another

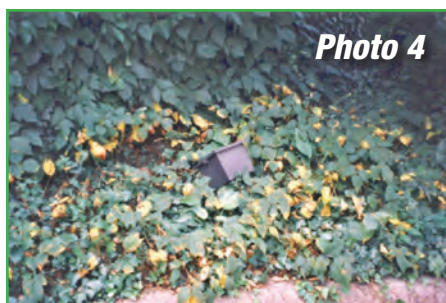


Photo 4

ground cover (Photo 4). Can you identify it? Correct, it is poison ivy. Note that due to frequent overhead irrigation in this high maintenance area, the poison ivy is now contracting its own disease due to the excess “overhead” moisture. There is a saying - “You build it and they will come”. There’s another saying as well - “You sprinkle it and they will come.”

IT'S SPRINKLING AGAIN (PHOTO 5A-5C)

Junipers come in a variety of configurations ranging from ground covers to shrubs to trees. The “trees” at this corporate world headquarters site in SE Michigan have been pruned into hedges (Photo 5A). The CEO of the company (that has nothing to do with plants) had specified that the turfgrass be watered 3X per day to maintain a lush, green, healthy turf (Photos 5A & 5B). The junipers began to severely decline (Photo 5B). I identified Phomopsis blight (fungus) as the primary causal factor, likely exacerbated by excessive overhead irrigation. Rather than destroying the entire hedge and installing replacements, an expensive undertaking



Photo 5A



Photo 5B

that would likely result in failure as well if the cultural practices were not modified, I recommended that the irrigation be reduced substantially accompanied by an occasional treatment of a fungicide. With a reasonable recuperation period by the junipers, the hedge eventually returned to full health (Photo 5C).



Photo 5C

TRANSGENER TREES? (PHOTOS 6A & 6B)

Hormones are powerful chemicals that even in minute amounts can significantly alter the growth and development of humans. Likewise, various chemicals can act as plant growth regulators or hormones, which can cause plant death in high doses, but which may significantly alter a tree's growth in lower doses. Sometimes, the minor difference in a dose of a hormone may represent the difference between the life and death of a tree. Photo 6A shows a tree and its foliage (inset); can the tree be identified based on these photos? Photo 6B shows the tree when it had returned to normal growth . . . after having been exposed to a toxic growth regulator herbicide applied to the walkway (Photo 6B). It's an ash tree under treatment for the EAB. The tree's growth pattern changed drastically with exposure to a non-lethal dose of a toxic herbicide. Luckily, the tree was not severely harmed by the exposure. If treatments had continued, it could have



Photo 6A



Photo 6B

been killed. Instead the tree was able to recover. The property owner wasn't aware of the problem and has been eternally grateful for my elucidation of the cause and its remediation.

“MY HALLOWED GROUND” CATALPA (PHOTOS 7A-7D)

At the family farm in Ohio, this catalpa tree has been growing close to a state highway for more than a hundred years (Photo 7A). That state highway, located in central Ohio where the rich farmland is very flat, meanders more than most rivers through hills. According to historical records, this meandering road closely follows the original path reportedly traveled by Indians and buffalos (bison). For over a hundred years, this catalpa had never been struck nor injured in any manner



Photo 7A

by passing vehicles, including oversized farm equipment. Only in more recent years has this catalpa and its neighboring trees been struck several times by current drivers who, as we all know, seem to be more aggressive in their driving habits.

Several years ago, in the early morning hours, an inebriated driver traveling at a speed well above the speed limit struck this tree head-on (Photo 7B). Regrettably, three of the four people in the car died that



Photo 7B

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night. Despite over half the bark around the circumference of the tree having been knocked-off during the impact (Photo 7C), the tree adjusted and remained reasonably healthy over the next several years. Just



this year (2019), the tree was removed by the Ohio Department of Transportation for fear that other aggressive drivers might be harmed by this tree. The tree was hollow and measured approximately



six feet across at its base (Photo 7D). In testimony of the physical attributes of trees, that 3000 pound vehicle traveling at 80-90 mph did not budge the tree nor split its hollow trunk. Prayers for the victims . . . and the tree, which tried to survive in this modern, often cruel world.



TREE GRAVES (PHOTOS 8A & 8B)

Perhaps in anticipation of a tree's expected demise, we sometimes bury them. As most of us know, this practice is highly detrimental to a tree's health. Despite having their roots buried, often 3-4 feet deep, trees make remarkable attempts in their struggle to adapt. Many eventually succumb.

SOME DID NOT SURVIVE (PHOTOS 9A & 9B)

The Real Estate sign in Photo 9A shows why trees require our understanding and



support. Trees usually outlive humans by generations if left unmolested. Transfer of property ownership often leads to differing care practices. The tree in Photo 9A and 9B was known as "The Century Oak" . . . a misnomer because the tree is more than 200 years old. One of the most significant misunderstandings by humans is that lawns and trees can peacefully coexist. Mother Nature has programed trees to an acidic, fungal based soil food web while lawns are programed for a higher pH (basic), bacterial-based soil food web. These two extremes invariably imply that trees will be disadvantaged. Add in other inputs for a lawn culture such as herbicides, lawn fertilizers and frequent irrigation, trees such as The Century Oak will usually eventually lose the battle. I am continually amazed that property owners will spend many \$1000s each year for the care of their lawns through mowing, irrigations and other maintenance inputs, but will often ignore the needs of trees. Ironically, a lawn can be replaced within two weeks while it may take at least two hundred years to replace "The Century Oak." The Century Oak is no longer with us. May it rest in peace. 🌳

Dr. David Roberts has retired from Michigan State University but intends to remain active with the industry. He is CEO and CBW (Chief Bottle Washer) for The Plant Doctor, LLC. Contact information: 248/320-7124 and treedoctordave@gmail.com