The Plant Doctor's LANDSCAPE TIPS

By David L. Roberts, Ph.D, *Senior Academic Specialist, College of Agriculture and Natural Resources, Michigan State University*

THE CARE OF BIG, OLD TREES

"God has cared for these trees, saved them from drought, disease, avalanches, and a thousand tempests and floods. But he cannot save them from fools." *~ John Muir*

INTRODUCTION:

Trees are some of the oldest and largest living beings on earth. Because of the age and size that many trees attain, people tend to love and admire them. We often purchase residential homes or buildable lots based on the existence of large trees that have been growing there for decades if not centuries. Likewise, commercial sites are often developed in the presence of a large, old tree. These big, old trees sometime become the trademark and/or landmark of the property (Photos 1). Regrettably, human activity is often detrimental to trees and undoes all of the factors that enabled these trees to reach their grandeur.

KILLING WITH KINDNESS:

There are many ways to kill big, old trees. Many of the practices implemented by humans are well intentioned but nevertheless result in the eventual demise of the very beings we love and admire. Rarely is there one single factor that kills trees. Rather, it is usually the accumulation of cultural or environmental stresses that encourages secondary attack by diseases and insects, which ultimately results in decline and eventual death of the tree. Following are some of the more common examples of factors, among many, that may contribute to the decline and eventual death of old, large trees. One aspect that is poorly understood by the public is that it may take many years for the various human activities to cause decline and death of that big, old tree.

Disturbance/Construction: Many of the large, old trees achieved their admirable state in all-natural conditions, namely in natural wooded areas where ages of adaptation and adjustments provide for optimal health of trees. However, one of the most common practices by modern humans is the installation of homes, additions on homes, apartment/condo complexes, and commercial buildings in the vicinity of trees (Photos 2 & 3). Often, very little protection or understanding of a tree's anatomy (especially roots) and health are considered. In such construction zones, trees encounter severe damage or stress factors that lead to decline and death of that grand tree that was to become part of the new landscape. In other situations, relatively minor disturbances may be just as lethal (Photo 4).

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Photo 1 (left): An upscale mall was developed around this 300+ year-old burr oak, which became the landmark and trademark for the mall. An informational plaque, emphasizing the age and size of the tree, was installed in view of the tree and served to educate the public about this tree. Immeasurable care was purportedly implemented by the developer and landscape architect during mall construction; however, continual flooding beneath the tree eventually resulted in the tree's demise. Emergency measures could not reverse the decline.

Photo 2: A new business complex near Saline, Michigan was constructed in the vicinity of this old tree, which was "preserved" as a focal point for the landscape. Unfortunately, construction practices by carefree or unknowledgeable workers/developers involved grading, terrain changes, and compaction from constant driving over the root zone with backhoes, bulldozers and other heavy equipment. The tree trunk was even injured by collisions with the equipment. Now, every effort is being expended to save the tree.

Photo 3: Additions to homes almost always injure trees and/or cause other stresses that lead to their demise. Even though the trees in this photo are not particularly large, they were apparently natural, native trees admired by the homeowners in this wooded setting.

Photo 4: This old oak tree is a landmark in this community, whose citizens are accustomed to seeing annual flowers planted in a ring around the trunk every year. Frequent disturbance of the soil and injury to the roots and trunk of the tree is not advisable.

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Photo 5: Pruning at the wrong time of year can result in lethal oak wilt outbreaks, which can destroy a landscape. Regrettably, many so-called "arborists" and homeowners still do not know about oak wilt.

Photo 6: A drip irrigation system was installed in the landscape at this older Ann Arbor Estate several years ago. The owners apparently "suddenly" believed that because the trees were so large, they required much more water than they previously had received naturally. Hence, irrigation several times a day promptly resulted in the decline and death of some of these trees.

Photo 7: This old landmark oak near Bloomfield Hills was named the "Century Oak" (it's much older). It eventually declined and died as it was subjected to frequent irrigation, lawn herbicides and excessive fertilizer among compaction issues and other urban stresses.

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Pruning: Upon purchasing a property, and hence the accompanying trees, one of the first practices people like to implement is pruning, apparently believing that like people, trees require a "haircut." Sometimes, pruning is necessary and can be very beneficial. At other times, pruning is highly detrimental (Photo 5). Lions-tailing (cleaning out inner branches and shoots) is another procedure that has become popular is some affluent neighborhoods; this procedure creates numerous open wounds that stress trees and may serve as infection sites for insects and diseases. Topping is a practice that some so-called "arborists" use to supposedly limit tree height and size; topping also causes many open wounds for invasion by insects and diseases and increases the potential for future limb failure.

Water: Automatic irrigation systems are sometimes the bane of plant health in many landscapes. Once an irrigation system is installed, people believe they must use it every day or several times a day to improve plant growth and health. Excessive irrigation is especially detrimental to older, established trees (Photo 6); large, older trees have adapted to their environment, particularly soil conditions, over many decades or centuries. Younger trees, new transplants and turf can more easily adjust to and tolerate excessive moisture. Large old trees generally require very little additional moisture beyond what they receive from nature. Moderate irrigation can improve the health and vigor of older trees during drought conditions or where the soil and terrain has been changed.

Fertilization: Another practice that is commonly adopted to improve the health and vigor of trees, especially older ones, is the applications of fertilizers, soil amendments or many of the various elixirs, which in some cases can be helpful. Often trees are fertilized every year or several times a year. What is most astonishing is that in most cases, soil tests are rarely performed to determine what fertilizer nutrients are needed. And, soil pH is rarely determined or considered in the application of fertilizers. Soil pH is extremely important for tree health by affecting how available nutrients are and by affecting the interaction of various soil textures, soil flora and fauna and the nutrient components. Excess fertilizer often contributes to the demise of large, old trees.

Lawns: Lawns and trees don't get along that well. It has been well documented scientifically that conditions that favor lawns are not desirable for trees. For example, the soil pH and the flora and fauna in turf culture are quite different than those for tree culture. Unfortunately, even though people love their trees, they often take them for granted and give preference for a lush, green lawn beneath the tree ... until their large, old tree begins to decline. Lawn fertilizers, irrigation and herbicides are usually detrimental to the health of large, old trees (Photos 7 & 8).

Buried Roots: When new landscapes are installed around homes or new developments, buried roots are frequently one of the inevitable by-products (Photos 2 & 9). Buried roots cause compaction problems, poor soil aeration, poor water penetration, poor drainage, and root suffocation among a variety of other stresses.

MANAGING BIG, OLD TREES:

To avoid contributing to the decline and death of large old trees, it is imperative to avoid human-induced pitfalls, some of which are described above (Photo 10). Perhaps the most important inputs are accurate diagnosis of issues and continuous monitoring of the health of the tree so that proper, corrective practices can be implemented as necessary. Special attention should be devoted to the soil and root environment. It is important to remember that "more is not always better". In our industry, we should make a more concerted effort at educating developers and the public about the care of old, large trees. We must remember that people don't really own trees but must assume responsibility to maintain them for future generations.

For more information, please feel free to email David Roberts at robertsd@msu.edu or contact a professional plant health care provider. The author, MSU and MGIA do not endorse any particular products. If using pesticides, be sure to read and follow label directions.

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Photo 8 (above): This large tree is considered a vital, important focal point to the landscape at this commercial site in Traverse City. However, to the alarm of the owners, it was showing stress and leaf distortions from lawn-applied broadleaf weed killers (Inset). An old oak tree is nothing but an overgrown dandelion to broadleaf herbicides.

Photo 9 (right): Buried roots are an unfortunate but frequent occurrence to older or established trees in new developments and landscapes. Many trees eventually succumb to these conditions.

Photo 10 (right): Several years ago, a new corporate headquarters was constructed on this site that has been inhabited by this old tree for far longer than a century. Proper protection and care for the tree was integrated into the development plan and have thus resulted in no tree decline. Please note that the area within the drip line is lightly mulched and mimics as closely as possible the tree's natural setting; this ensures less exposure to herbicides, lawn fertilizers and excessive irrigation. With proper care, this tree should outlive most of the people inhabiting the building. Such trees represent prime examples that trees are not really owned by anyone but should be maintained and preserved for future generations to enjoy.