



BIG TREES: Stirring the Senses

By David L. Roberts, Ph.D, *Michigan State University*

I like big trees. So do many others. Perhaps, I might even be called a tree hugger. Nothing instills emotion like that of a huge tree. If you've ever seen a child stare up in awe at a large tree's massive branches, or try to encircle the trunk with his arms, you know what I mean. Some people kill big trees with kindness. Others ignore and abuse them. Yet, others feel justified in cutting down trees thousands of years old for immediate gain for themselves. If large trees are destined to be destroyed in the name of progress, some people are also willing to protect them with their life.



Photo 1A: The Buckley elm was once considered to be the largest American elm (*Ulmus americana*) in North America. The farmer who owned this tree claimed he didn't have a chainsaw big enough to cut it down; so, he just left it there. The tree, growing in a corn field near Buckley, Michigan, probably contracted Dutch Elm Disease (DED) sometime during the 1998-2000 period. People who were monitoring the tree with the possibility to produce commercial seedlings from this giant may have believed the tree was resistant to Dutch Elm Disease, perhaps a logical deduction since the tree survived for so many years to achieve this great size. Regrettably, this same theme is believed throughout the Midwest where large elms still exist. These long-lived, large trees are "escapes," having avoided infection from the lethal disease primarily through luck. One of the prime DED management techniques is sanitation. In this photo, the Buckley elm is viewed through two weedy elms which are dying in large groups along the roadside. These small trees were probably the source of the infection for the big tree.

What allows trees to become so large? A variety of factors can determine the size and longevity of trees. Of course, genetic characteristics are highly involved in the potential size and length of life that trees may attain. Some individuals who monitor and promote large trees (e.g., commercial off spring) often attribute superior genetics as the reason for their old age and grand size. Sometimes, this may be true. Other times, just plain luck may be involved. The growing site also contributes immensely to the well being of trees. Environmental factors, such as lightning injury, flooding, drought and ice loads, can play huge roles as well. Lightning and wind are especially big problems for large, old trees.

Large, old trees in important sites can require special care if they are to survive into even older age. Often, specialized diagnostic tests are needed to determine what special needs the trees require. Soil tests and tissue tests will assist in the determination of nutritional deficiencies and nutritional needs. Other diagnostic tests can determine if any pests or diseases are threatening the health of the tree. In some cases, the soundness of the wood can be ascertained and structural deficiencies can be corrected with engineered devices.

Join the author for a brief view and history of a few of the trees he has visited over the years. Note: the author is not particularly vain but believes that the size of a tree can best be compared when viewed with a person.

Continued on page 20

BIG TREES: Stirring the Senses

Continued from page 19



Photo 1B: Attempts were made to save the tree after symptoms of DED developed by injecting high levels of strong fungicides. Our attempts to save the tree failed. Here, Gary Kuhlman, the Northern Tree Doctor, prepares the tree for injection. The size of the tree trunk can be readily observed.



Photo 1C: When standing beneath the Buckley Elm and looking up, you can develop a sense of something spiritual under the massive cathedral of huge branches.



Photo 2B: When viewed up close, one can experience the massive trunk and buttress roots of the Moreton Bay Fig Tree.



Photo 2A: Similar to many large trees when viewed from a distance, this Moreton Bay Fig (*Ficus macrophylla*) tree appears like a bonsai plant in its Santa Barbara home. The tree was transplanted as a seedling from Australia in 1878.



Photo 3A: This may be the largest Ash tree in North America. The tree is located near Elk Rapids, Michigan, and grows practically on the shores of Elk Lake. Due to the introduction of the Emerald Ash Borer, this tree, like all native *Fraxinus* species, is threatened with complete destruction.



Photo 3B: The author poses next to the trunk of the large ash tree. Through cooperative efforts with the author and private companies, the tree has been receiving regular care and prophylactic insecticide treatments to guard against destruction by the EAB. To our knowledge, the tree has not yet been challenged even though the EAB is known to be within a few miles.



Photo 4: This is one of the more massive and oldest Cottonwood (*Populus deltoids*) trees the author has witnessed. This tree is located in downtown Leland, Michigan, where it is surrounded by street, sidewalk and buildings. It is starting to show some decline and it has occasionally been bruised by automobiles, which bump into it. Such large tall trees are especially susceptible to wind storms and lightning injury. Contrary to the old adage that lightning never strikes twice in the same place, tall trees that are located in elevated areas are often hit repeatedly by lightning.



Photo 5: This large Black Willow (*Salix nigra*) is a champion. It is one of the twins straddling a street on the old hospital grounds in Traverse City, Michigan. The tree is now showing some decline compared to the author's visit about ten years earlier.



Photo 6: Unbelievable as it may seem, this is one tree; much of it is not visible because its growth extends for several dozens of feet into the depth of the picture. The Banyan tree (*Ficus benghalensis*) originates from India and produces many trunks to support massive upper branches. This Banyan tree is located at the Thomas Edison summer home in Fort Meyers, Florida, and is a Florida state champion. The author's 94-year-young father poses with the tree.



Photo 7: Burr Oaks (*Quercus macrocarpa*) grow very large and to very old age in the Midwestern U.S. This old family photo shows the author's father and grandfather having cut this tree down with the old cross-cut saw (near tree). Apparently, over 20 sheep were killed by a lightning strike which caused the decline and eventual death of the tree. Only years later did the author's father claim that the tree was hollow and rather easy to cut down with the hand saw.



Photo 8: This is a Kapok tree (*Ceiba pentandra*), located in Key West, Florida. This tree is capable of reaching 140 feet in height and may grow as much as 10 feet per year. The wood resists water and was used in flotation devices during World War II. The wood is also used for a variety of products, including furniture. 📌