University of New Hampshire

Cooperative Extension

Big Tree for September 2006

American Chestnut *(Casanea dentate)*

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"Under the spreading chestnut tree,
The village smithy stands,"

The opening line in Longfellow's famous poem, The Village Blacksmith, 1842, creates a pastoral but confusing image. When assigned to memorize the poem as a child, I knew only horse chestnut trees, and had never seen American chestnut trees. So I imagined a big blacksmith shoeing a horse in a cramped space under a low-branching horsechestnut tree, all tangled up in tree branches.

Not until an adult did I realize that I had the wrong tree in mind, and the majestic, tall tree of the legendary poem is virtually gone. Only saplings that sprout from old chestnut tree roots survive. I first noticed these shrubby trees with their distinctive long, serrated, canoe-shaped leaves when we moved to NH. While taking the UNH Extension Community Tree Steward Training, I recognized a fairly large chestnut tree growing in the woods right across the street. I watched it grow to over 20 feet tall with about a six-inch diameter trunk, and was amazed one summer when it produced blossoms. Of course I figured this was the resistant tree that chestnut tree lovers have been looking for since its demise in the 1950s. Alas, the next summer it died. I have learned since that this is typical – the infected tree produces one final crop of seeds as it declines. Death was fast as the fungus attacked all around the trunk, girdling the tree by destroying the cambium layer and preventing water and nutrients from flowing up and down the tree.

Another deadly fungal disease imported from Asia, the Cryphonectria parasitica arrived on Chinese chestnut nursery stock about 1904. Our native chestnut bark beetle helped to spread the disease. It also moved about on newly cut timber and cordwood that still had bark, when sent to market. Eradication efforts by government agencies were obviously futile. The Federal Department of Agriculture investigated control measures beginning in 1907, and suggested cutting out infected trees and destroying the bark. The State of Pennsylvania allocated $275,000 in 1911-12, to eradicate the disease. Liberty Hyde Bailey in his Standard Cyclopedia of Horticulture, 1935, explains that in forests, the disease is exceedingly difficult to eradicate because the minute infection is very difficult to see and find on the trees. Chestnut blight destroyed the entire range of American Chestnut trees from Georgia to NH in 50 years.

The loss was devastating not only because they were beautiful shade trees and an important element of the eastern forest canopy, but also because chestnut trees were so versatile: they were valuable lumber trees with incredibly rot resistant wood. The massive dead trunks lasted in the forests for years. A few years ago I saw the last remains of a huge hollowed trunk in southern NH that must have been 4-5 feet in diameter. Chestnut nuts were an added bonus, they were gathered and shipped to east coast cities where they were roasted and sold on street corners – an early fast food.

Chestnuts trees were said to naturally comprise about 25 % of the trees in the Appalachian forest. Along with wonderful old photos, The American Chestnut Foundation has a good map on its web site: http://www.acf.org/ that shows the former range of chestnut trees. NH is on the northern edge of the range, which means that they were probably not as dominant or huge as in the center of the range in the Appalachian Smoky Mountains.

Foresters continue to hope to find and cultivate chestnut trees resistant to the blight. In addition to the Chestnut Foundation, individual foresters like A. J. Dupere, Community Forester at the DRED Urban Forestry Center in Portsmouth, NH, are growing saplings from seed collected from healthy, mature chestnut trees. A. J. explained that he found two nut producing chestnut trees growing in an area with the usual root sprout saplings. The large trees had cross-pollinated (lone trees don't seen to produce fertile seed) and produced nuts that he collected and later germinated. The saplings are now two and three years old. Because the nuts came from trees growing where the disease destroyed the prior generation, he hopes they will be resistant trees, but it will be awhile before he finds out.

Although the chestnut tree is remembered in lore as a perfect tree, the dominance of the chestnut tree underscores the problem of too much of a good thing and the value of diversity of tree species in a forest for it to better survive deadly infestations of a species.
I even saw it referred to as a weedy tree – I guess it grew everywhere, along fences and hedgerows becoming a nuisance for farmers who needed clear fence lines. Another less than wonderful feature was that the leaves just turn yellow in the fall, no spectacular show of reds and oranges that we assume as the fall standard today.

Amazingly, the NH State Champion big chestnut tree is 82 feet tall and a few others scattered around the state. NH Big Tree Committee welcomes reports of new chestnut Big Tree candidates. If you notice an unusually big one, contact carolyn_page@hotmail.com, who will pass the information on to the appropriate county coordinator.

Also visit the NH Big Tree web site at: NH Big Trees.org for the complete list champion Big Trees. The UNH Cooperative Extension and the NH Division of Forests and Lands sponsor the NH Big Tree program in cooperation with the National Register of Big Trees through American Forests.