FROM THE WOODS

American Chestnut

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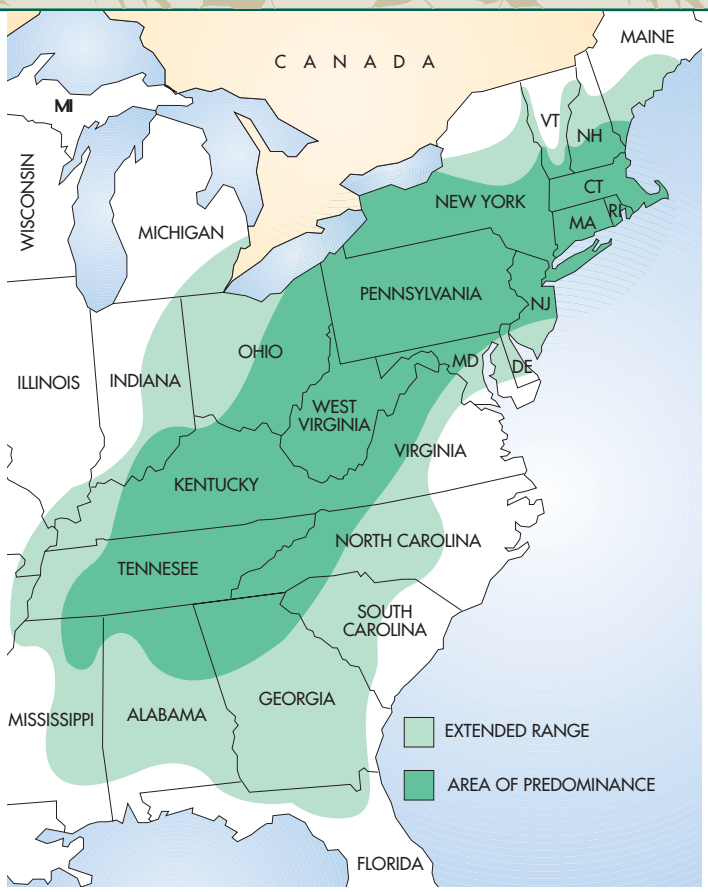
A tree species once thrived in the forests of eastern North America that was greatly prized for its many uses. Perhaps more than any other species, this tree helped people survive in and settle on the land. It produced huge quantities of delicious nuts, which provided food and extra income for rural families. It was fast growing; it grew tall, straight, and often large. Its easily worked wood was made into everything from log cabins to musical instruments. It grew from Maine to Georgia and west to Alabama. It was everyone's favorite. Then, suddenly, it died off . . . *almost* to extinction. Only dead trees, stump sprouts, and memories remained.

This is the story of the American chestnut (*Castanea dentata*). It is a true story and one of great loss. It is also a tale of sadness for those old enough to remember and for those whose families grieved the decline of this tree. However, for many, the loss of American chestnut is hard to imagine. This publication is for those who never knew or heard of the American chestnut. Keep reading—the sad story may have a good ending.



American chestnut grew over a wide range in eastern North America (above). It was most commonly found on hillsides and ridges. Because it was one of the largest trees in eastern forests, it earned the title of "mighty giant." This photo (below) was taken in Bedford County, Pennsylvania, c.1912.

SOURCE: THE CHESTNUT TREE BLIGHT COMMISSION

AN INCREDIBLE TREE

The American chestnut was one of the largest trees in the forests of eastern North America. Some individual trees grew to be 100 feet tall and 10 feet broad (diameter) in the trunk. It grew in most areas, especially on hillsides and ridges. It was also grown in towns and around homes because of its beauty. The American chestnut was a common tree, and in many areas it composed over 25 percent of the forest.

The American chestnut was best known for its fruit and wood. The fruit is a nut enclosed in a round spiny cover called a *bur*. The bur splits open after autumn frosts. The nuts were important for human, livestock, and wildlife food. The nuts are not only delicious and sweet, but they are also nutritious because they are higher in usable protein than acorns or beechnuts. They were once an important source of food for deer, bears, squirrels, turkeys, and other forest species. People would compete with wildlife for the nuts. They waited for the nuts to drop, or they climbed the trees and shook the branches to speed the process. Extra nuts were sold or bartered (traded) in the marketplace. The American chestnuts were a dependable nut crop. Each year, this "free gift from the forest" arrived on time.

The wood and bark of American chestnut were also valuable. The wood is lightweight, strong, and brownish yellow

Chestnuts roasting on an open fire...

SOURCE: THE AMERICAN CHESTNUT FOUNDATION

The fruit is a nut enclosed in a round spiny cover called a *bur* (left). The bur splits open after autumn frosts. The nuts (right) are not only delicious and sweet, but they are also nutritious because they are higher in usable protein than acorns or beechnuts.

in color. Its grain is similar to that of oak. Because of its high resistance to decay, it made long-lasting split-rail fences, fence posts, log cabins, shingles, mine timbers, telegraph poles, and railroad ties. It also made sturdy beams for barns and homes, as well as beautiful furniture and paneling. Additionally, the wood made excellent (lump) charcoal for firing iron furnaces. After the trees were cut for making charcoal, they resprouted from the stump and grew back quickly. They were ready for a charcoal cutting again within 25 to 30 years. It is estimated that nearly half the monetary value of the forests of Pennsylvania was in the wood of American chestnut. This may have been true in other eastern states as well.

Chestnut bark was also critical for tanning leather, especially in its southern range. It is rich in *tannic acid*, which softens and darkens leather. While it is hard to imagine, in the mid-1800s tanneries were some of the largest corporations in the United States. Leather for shoes, belts (for people and machines), and horse harnesses all required tanning.

THE BLIGHT

The ruin of American chestnut was caused by a *blight*. Blights are diseases that kill the leaves, flowers, and stems of plants. The chestnut blight (*Cryphonectria parasitica*) may have come accidentally into this country on several Asian chestnut trees. Asian chestnut trees are smaller, less winter hardy, and not as useful for wood as American chestnuts.

Infected American chestnut trees were discovered at the New York Botanical Garden in New York City around 1904. It was here that the blight was first observed and identified. Few realized at the time what a serious disease this would become. It spread rapidly by wind, rain, and even on the feet of birds. Externally, the blight caused swollen or sunken wounds, called *cankers*, on the tree's trunk and branches. These cankers killed the upper portions of the tree. The roots, however, were not killed by the blight.

SOURCE: THE AMERICAN CHESTNUT FOUNDATION

The chestnut blight causes swollen or sunken wounds called cankers on the trunk and branches of the tree. Every part of the tree growing above a canker eventually dies.

The disease spread in all directions from New York City. American chestnuts usually died within two years after the blight reached them. States and the federal government made many efforts to control the disease and stop its spread, but none worked. Unlike their Asian counterparts, American chestnut trees had no natural resistance to the blight. By 1911, the chestnut trees in Philadelphia, Pennsylvania, were dying. By the mid-1920s, the disease was rapidly spreading south and north through the Appalachian Mountains.

By the 1950s, the American chestnut was wiped out throughout its range. Only standing dead trees and their small stump sprouts remained. These sprouts came up and lived for several years before being infected and dying back. Because the wood is rot resistant, the trees were useful for many years after they died. However, the wood did suffer insect attacks. "Wormy chestnut" wood sawn from these trees is still available today. It has small pinhead-sized holes in it.

The research required to produce a blight resistant American chestnut is laborious, time consuming, and expensive. It involves both laboratory and field work and demands patience as trees are crossed, nuts are produced, and trees are grown and then evaluated for their resistance to the blight.

Further, the loss of this rich food source for wildlife was tragic. The nut-producing oaks and hickories that grew in the forests only partially filled the gap left by American Chestnut. Red maple often grew widely in place of American chestnut, but its value to wildlife is low.

TODAY AND TOMORROW

Soon after the blight began killing off the American chestnut, people searched for trees that had resistance to the disease. Though they had great hopes, their search was unsuccessful. Others attempted to cross the American chestnut with its disease-resistant Asian cousins. Unfortunately, this initial work failed. Meanwhile in the forest, the American chestnut hung on.

To this day, the American chestnut survives as small stump sprouts from some of the large trees that died years ago. Increased sunlight shining on the forest floor often stimulates new stump sprouting. However, these sprouts seldom live long enough to produce nuts. Many believe that even the surviving roots will eventually die off.

But there is hope. Concerned volunteers established two organizations in the 1980s. The American Chestnut Cooperators Foundation (ACCF) and The American Chestnut Foundation (TACF) are both working hard to restore the American chestnut. The ACCF is attempting to breed disease-resistant trees using only the American chestnut. At the same time, TACF reinitiated efforts to cross American chestnuts with Asian trees. They are now breeding these trees back with American chestnuts to create a tree that is not only disease resistant but also 94 percent American chestnut. Additionally, genetic research may aid in these plant-breeding efforts, and scientists are also using a weakened form of the blight to combat the disease directly.

There is great hope that someday the American chestnut will be restored into the forests of eastern North America. Exactly how his will happen and how nature will adapt to a return of this “king” is not completely understood. Clearly, it will still take time and much effort. If the tree can be restored to even part of its former range and glory, it will be a major accomplishment, and one certainly worth pursuing.

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