

# Restoration of the American Chestnut in New Jersey

The American chestnut (*Castanea dentata*) is a tree native to New Jersey that once grew from Maine to Mississippi and as far west as Indiana and Tennessee. This tree with wide-spreading branches and a deep broad-rounded crown can live 500-800 years and reach a height of 100 feet and a diameter of more than 10 feet. Once estimated at 4 billion trees, the American chestnut has almost been extirpated in the last 100 years. The U.S. Fish and Wildlife Service, New Jersey Field Office (Service) and its partners, including American Chestnut Cooperators' Foundation, American Chestnut Foundation, Monmouth County Parks, Bayside State Prison, Natural Lands Trust, and several volunteers, are working to recover the American chestnut in New Jersey.



American chestnut leaf (4"-8").



Harvested chestnuts, early 1900's.



Old growth chestnuts.

## History

Chestnuts have a long history of cultivation and use. The European chestnut (*Castanea sativa*) formed the basis of a vital economy in the Mediterranean Basin during Roman times. More recently, areas in Southern Europe (such as the Italian and Swiss Alps) were called the "Chestnut Civilization" for several hundred years. Native Americans relied on the American chestnut as a dietary staple. The chestnut was also used extensively during the colonization of America as a premier tree, providing wood for railroad ties, house framing, barns, fences, and fuel. Chestnuts were once so numerous along the eastern forests of the U.S. that it is said a squirrel could jump from chestnut tree to chestnut tree all the way from Georgia to New York without ever touching the ground.

## Value

The American chestnut is valued for its fruit and lumber. Chestnuts are referred to as the "bread tree" because their nuts are so high in starch that they can be milled into flour. Chestnuts can be roasted, boiled, dried, or candied. The nuts that fell to the ground were an important cash crop for families in the northeast U.S. and southern Appalachians up until the twentieth century. Chestnuts were taken into towns by wagonload and then shipped by train to major markets in New York, Boston, and Philadelphia. The fruit of the American chestnut is also a valuable food source for wildlife, providing remarkable nutritional value to deer, black bear, raccoon, rabbit, squirrel, chipmunk, turkey, grouse, and quail. Wood from chestnuts is valuable for posts, poles, pilings, railroad ties, shingles, paneling, fine furniture, musical instruments, and fences. The wood is also rich in tannic acid. More than half of the tannin used by the American leather industry at the turn of the century came from the American chestnut.



**Historical Distribution of American Chestnut.**

## *Restoration Efforts*

Currently, many chestnut trees that are dead above ground maintain living roots from which sprouts grow. Healthy chestnut sprouts will eventually be killed by the blight, which continues to persist in eastern forests. However, the sprouts do contain genetic information necessary to finding and breeding resistant trees. Only by growing and observing offspring and back-crossing and interbreeding trees that have shown resistance will strains be developed that retain the hardiness and other desirable qualities of the American chestnut. The Service through the *Partners for Fish and Wildlife* Program has participated in this effort by planting resistant seedlings on lands owned by our partners. Specifically, the Service has obtained chestnuts from trees that have demonstrated resistance to blight and has these seeds grown to seedlings at Bayside State Prison through a cooperative program. The seedlings are then provided to landowners with appropriate planting areas to promote restoration of the American chestnut. In addition, the Service has worked cooperatively with Monmouth



**Chestnut tree in Monmouth County.**



**American chestnut fruit.**

County Parks to cross-breed local trees (at Huber Woods and Hartshorne Woods Parks) isolated from other American chestnuts by transporting pollinating catkins (male flowers) to the local trees. In this manner, the Service and its partners hope to produce viable fruit and grow seedlings for dispersal in other areas of New Jersey.

The Service and its partners are active in trying to restore American chestnuts to New Jersey. However, assistance from federal, State, county, and municipal agencies as well as growers, collaborators, volunteers, and landowners is critical to the success of this restoration effort. If you would like more information or would like to participate in this restoration effort please contact the *Partners for Fish and Wildlife* Program at the U.S. Fish and Wildlife Service's New Jersey Field Office at 609/646 9310.

## *Chestnut Blight*

The decline of the American chestnut began in 1904 with the discovery of chestnut blight [*Endothia parasitica* (synonym: *Cryphonectria parasitica*)]. Chestnut blight was first found in chestnut trees on the grounds of the New York Zoological Gardens by Herman W. Merkel, a forester at the Bronx Zoo. It is believed that Asian chestnut trees (*Castanea mollissima*) imported as nursery stock were the source of this new invasive fungus. The fungus enters the tree through cracks in the bark then “eats” away the inner layers (vascular cambium and phloem) that transports nutrients to and from the leaves and roots. Within two to ten years the entire tree is dead. The threat was recognized, and in 1911 – 1913 special funds were appropriated to study and combat chestnut blight. However, by World War I, war appropriations and the evident futility of control efforts caused cuts in funds for chestnut blight research. Most of the American chestnut trees in the eastern U.S. were completely destroyed within 40 years. This represented 50 percent of the overall value of eastern hardwood timber stands.



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