American Chestnut Trees in Cuyahoga Valley National Park

Past, Present, and Future

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Abstract

The American chestnut was once a keystone species in the forests of the eastern United States, where as many as one out of every four trees was an American chestnut. These trees were important to wildlife, and also to humans and their way of life, before an invasive fungus began to wipe out 90% of the American chestnut population more than a century ago. The purpose of this paper is to describe the park's response in the 1930 and 1940's to the loss of the American chestnut and to document the plantings of hundreds of Asian chestnuts and Asian-American hybrids in the park as potential replacements for the American chestnut. To put these local restoration efforts into historical context, the early breeding work on chestnuts that was conducted outside of the park, primarily by the USDA, will be discussed. In addition, the more recent outside research to develop blight-resistant hybrid chestnuts, as well as genetically-modified chestnuts, will be described later in the paper. A brief summary of the few, known American chestnut trees and sprouts in CVNP will be provided. We will close by proposing that small-scale demonstration plantings of American chestnuts in CVNP be considered after blight-tolerant chestnuts are approved for distribution by federal agencies and plant material becomes available. Such plantings, especially if placed in accessible and historically relevant locations in the park, will provide educational opportunities for the public to contrast the past uses of the dead chestnut with the future prospects of a blight-tolerant variety of this once-mighty giant.

Importance of American Chestnuts

The American chestnut (*Castanea dentata*) was once a dominant tree of the eastern United States before a non-native fungus began in the early 20th century to kill most of the population. Approximately four billion[1-5] American chestnut trees grew in its natural range from Maine to Mississippi and from the North Carolina piedmont west through Tennessee, Figure 1.[6] The greatest abundance of American chestnut was found in the Appalachian Mountains, where one out of every four trees was an American chestnut.[7] The American chestnut was one of the largest and fastest growing tree species in the Eastern United States, with heights up to 120 feet tall, trunks as large as seven feet in diameter, and limbs as long as 50 feet.[4,8-10] Healthy trees lived up to 400 to 600 years.[4] The American chestnut was an

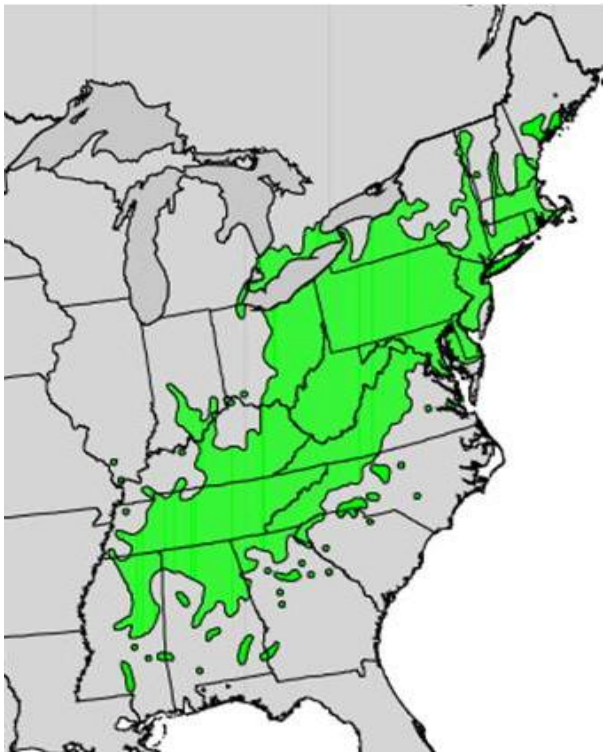


Figure 1: Pre-blight geographic distribution of American chestnut shown in green. (Ref. 6)



Figure 2: American chestnut tree, circa 1920, in what is now Great Smoky Mountains National Park. Library of Congress. (Ref. 15)

important foundation species that influenced the structure of the forest community and modulated ecosystem processes.[3,11]

Here in Ohio, the American chestnut was predominantly located in the eastern half of the state on the Allegheny Plateau, where it constituted 10-20% of the forests.[12] American chestnut trees in Ohio typically reached a diameter at breast height (dbh) of 3 to 4 feet,[12] with some having a dbh as large as 5 feet.[13] It was most commonly growing with oaks on ridges and slopes in soils that were acidic, moist, and well drained.[13] Extensive analyses of original land surveys that were conducted circa 1800 indicate that the American chestnut was the fourth-most dominant tree in Cuyahoga County, Ohio, after beech, oak, and maple.[14]

American chestnut trees were awe-inspiring because of their size (Figure 2),[15] but were also highly desirable because of the timber and food they provided. Being rich in tannins, its wood was rot-resistant and used extensively in log cabins, barns, houses, roof shingles, fencing, telegraph and telephone poles, and railroad ties. It was a mainstay in American woodcraft and prized for furniture and musical instruments.[5,16-20] The tree came with an added bonus - an ample and reliable source of edible nuts for squirrels, deer, bears, blue jays, turkeys, livestock, and humans.[10,16,17] A mature tree produced several bushels of nuts every year.[4] Chestnuts were roasted, ground into flour for baking, and stewed into puddings.[21] Newspapers in the late 19th century described train cars filled to the rim with chestnuts as they rolled into major cities to be sold fresh or roasted during the Thanksgiving-Christmas holiday season.[5,10,16]

In the Cuyahoga Valley, Charles Oviatt Hale, a grandson of Jonathan Hale, held “nutting parties” to gather the chestnuts on his property in the fall circa 1900.[22,23] Children from families in Cleveland were

invited to the parties and took the railway to the Hale Farm in Ira, Ohio, for this much-anticipated event. The family of Eugene and Nettie Cranz in the Cuyahoga Valley participated in nutting parties throughout the month of October in the early 1900's.[24] An artist's rendition of a chestnutting party in the 1870's shows people of all ages participating, with some climbing the trees to knock down the prickly chestnut burrs that contained the nuts, Figure 3.[25] The American chestnut was truly a heritage tree.

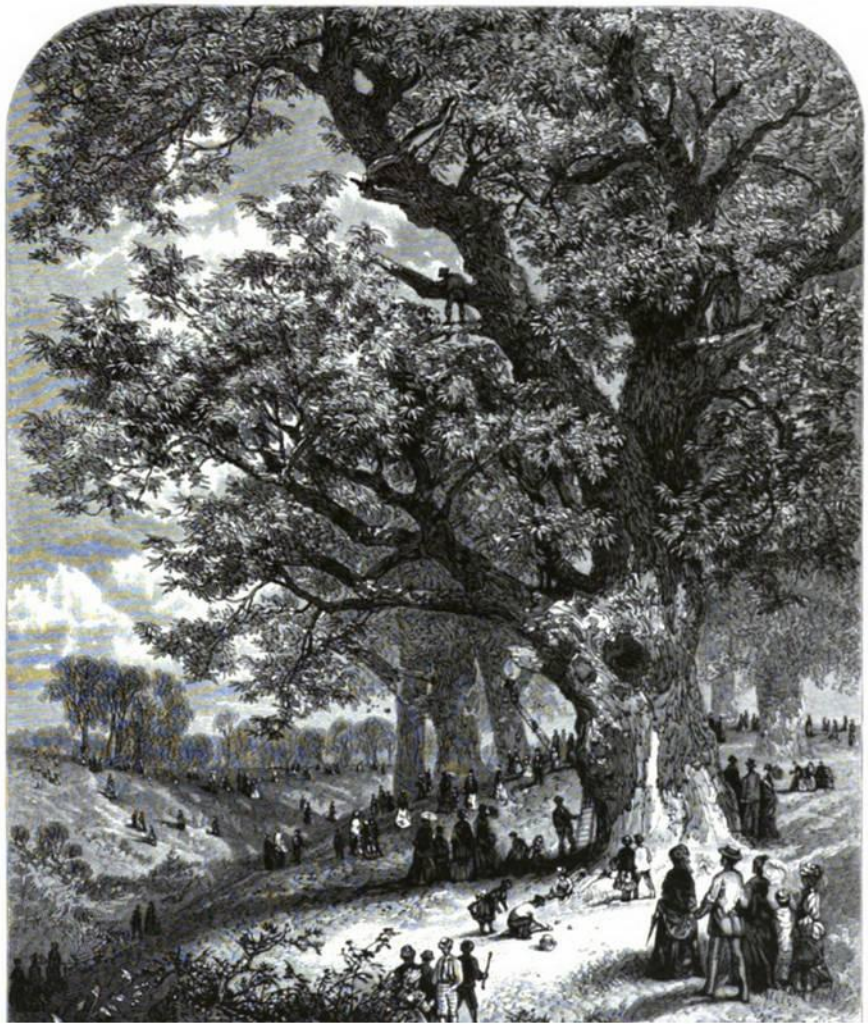


Figure 3: Slate etching depicts over 200 people gathering chestnuts during a nutting party in Philadelphia in 1878. Ladders were used to climb to upper branches. (Ref. 25)

A Deadly Disease: The Chestnut Blight

This all began to change, however, after the accidental introduction of a non-native fungus that was first observed on American chestnut trees in the Bronx Zoo in 1904.[7,26] The fungus *Cryphonectria parasitica* (*C. parasitica*) caused the disease that became known as the chestnut blight. The fungus enters through a wound in the bark, colonizes the cambium layer, and produces a canker that girdles the affected stem or limb and obstructs the flow of nutrients and water above the point of infection.[3] This eventually results in the death of the aboveground stem.

C. parasitica initially came into the United States from Japan in the late 1800's on imported Japanese chestnut (*Castanea crenata*) trees that were used as ornamental trees. Japanese chestnut had a high resistance to the blight.[18,27] Unlike the Japanese chestnut that had co-evolved with the pathogen, the American chestnut had not been exposed to *C. parasitica* and was extremely susceptible to it.[4,17] Mitigation efforts to stop the spread of the blight included chemical treatments to kill the fungus, cutting out affected tree tissue, burning infected trees, and even destroying healthy chestnut trees in a ten-mile-wide zone ahead of the advancing disease front.[10,17,28,29] None of these methods proved successful, and the fungus spread rapidly through the eastern United States. Forests were left with either toppled trees, or tree trunks with bare, dead branches (Figure 4[30]). By 1950, most of the American chestnut trees in their native range were dead or dying,[31,32] and the appearance and composition of the Eastern forests was drastically altered.[26]



Figure 4: Ghost forest of blighted chestnut, Skyline Drive, Virginia. (Ref. 30)

American chestnuts played a very significant role in the economy of rural areas, especially that of Appalachia.[9,33] Farms and businesses that relied on the tree went bankrupt. It is estimated that billions of today's dollars in value had been lost.[10,33] The chestnut blight is still considered to be one of the worst ecological disasters in North America.[33]

However, the American chestnut is not extinct, and some survivors may still be found in forests today. It is estimated that 10% of the pre-blight population exists, but the vast majority are sprouts, with less than a 1-inch diameter stem, that grow from the root collars of old chestnut stumps.[2,3] Figure 5 shows an American chestnut sprout growing in CVNP.



Figure 5: American chestnut sprout in CVNP. May 29, 2023. Photo credit: Becky MacKay

C. parasitica does not kill the root system of the chestnut because the fungus does not survive in the soil.[5,10,34] The fungus does persist, however, by harboring in oak,[10,35,36] red maple, and shagbark hickory[37] trees.

Chestnut sprouts grow vigorously in full sun conditions and can flower for short periods,[1] but eventually the sprouts succumb to the blight fungus. When the canopy cover becomes dense, chestnut roots stop producing sprouts altogether because of dwindling energy reserves.[34,38] The cycle of sprouting, infection with blight, and sprout dieback can persist for decades, but reproduction of American chestnuts in wild forests is rare.[3] The American Chestnut Foundation (TACF) currently designates the American chestnut tree as "functionally extinct," because although the species survives, it does not reproduce in any self-sustaining manner and does not play a significant role in the ecosystem.[2,4,5,39]

Early Breeding Work of Chestnut Species in the United States

Experimentation with chestnuts actually began in the United States before the blight was identified. In the late 1800's, nut growers became interested in obtaining larger chestnuts, such as those obtained from European or Japanese chestnut trees, but they wanted to retain the flavor of the American chestnut.[27] Limited hybridization was carried out by botanists and nut growers. Cross-pollination between American and European chestnut trees and between American and Japanese chestnut trees was done by hand pollination,[8,40] where the pollen from the male catkin was placed on the female flower of another chestnut tree. From 1899 to 1902, the USDA began importing chestnuts, as well as root cuttings and grafting wood, from Spain, Italy, China, and Japan for the purpose of procuring improved types for chestnut breeding for nut orchards.[41]

After the blight was identified, however, chestnut breeding between different *Castanea* species became more critical, in an effort to replace the American chestnut with a blight-resistant variety. Of all the *Castanea* species native to Asia, Europe, and the United States, only the American chestnut (*C. dentata*) was a notable timber tree because of its straight form and height.[42] The European (*Castanea sativa*), Chinese hairy (*Castanea mollissima*), and Japanese (*Castanea crenata*) chestnut had been valued more for nut production than for wood. The European chestnut (*C. sativa*) trees growing in the United States showed little to no resistance to the chestnut blight disease, but the Asian chestnut trees were observed to be more resistant to the disease since they had co-evolved with *C. parasitica*. It was hoped that new hybrids could be developed that combined the Asian species' blight resistance with the timber form of the American chestnut.

In 1907, Walter Van Fleet, a well-known botanist, began crossing Japanese chestnut (*C. crenata*) trees with native Allegheny chinquapin (*Castanea pumila*) via hand pollination.[40] Van Fleet was hired in 1910 by the USDA, where he expanded his hybridization efforts to include some of the newly imported Chinese hairy chestnut (*C. mollissima*).[40] USDA plant explorer Frank N. Meyer reported that *Castanea* species in Asia had a range of resistance to the blight, but that many were very resistant to the disease and developed few symptoms after becoming infected.[40,41] Van Fleet proceeded to make thousands of crosses using several *Castanea* species.[8] Seedlings of his best crosses between *C. pumila* and a Japanese cultivar were widely distributed by the USDA, and multi-stemmed, bush-like survivors may still be found.[40] Some of these hybrids were sent to Senecaville, Ohio, in 1939.[43]

The USDA, through its Division of Forest Pathology in the Bureau of Plant Industry, further expanded chestnut breeding under the direction of G. F. Gravatt and R. B. Clapper from 1925 to 1949. The first approach used was to cross the most blight-resistant Asian species (*C. mollissima* and *C. crenata*) with each other, as well as with Van Fleet's best hybrids.[44] However, after 1932, more emphasis was placed on using the blight-susceptible American chestnut (*C. dentata*) as one parent and either *C. mollissima* or a cultivated Japanese variety as the other parent.[44] The goal was to produce first-generation (F_1) offspring with a high blight resistance, a rapid growth rate, and a forest-tree form.[16,44]

Eventually, it was determined that *C. mollissima* possessed the greatest resistance to the blight compared to *C. crenata*.[8,45,46] *C. mollissima* also produced a relatively large nut that was of a quality and taste somewhat comparable to that of the *C. dentata*.[8] The main disadvantage of *C. mollissima* was its height and lateral growth form, as it was considerably shorter than the American species and only slightly taller than the Japanese species. The low-growth habit of *C. mollissima* was a big disadvantage for competing with other trees in a dense forest canopy. Despite the fact that it lacked the qualities of a forest tree, *C. mollissima* was believed to offer the greatest opportunity for improvement by breeding and promise for nut orchard planting.[8]

The USDA ultimately produced over 10,000 hybrids from 1925 to 1960[44,47] from crosses between thirteen *Castanea* species.[46,48] The majority of crosses were made between *C. mollissima*, *C. crenata*, and *C. dentata*, but *C. seguinii* (a Chinese dwarf chinquapin from China), *C. henryi* (a timber chinquapin from China), and a number of chinquapins native to the U.S. were also used.[46] The hybrids were planted in test plots at the USDA nursery in Glenn Dale (Bell), Maryland.[48] Hybrid chestnut plots were also established on cleared forest lands in 13 eastern states.[40,49] Chestnut breeding programs were also conducted by Arthur H. Graves of the Brooklyn Botanical Garden and later by the Connecticut Agricultural Experiment Station.[47]

As part of this effort, the USDA distributed chestnuts from Japan and China, as well as their hybrids, to assist efforts in obtaining suitable replacement trees. The USDA sent seedlings to public parks, foresters, test nurseries, nut farmers, and private experimenters.[41] In the spring of 1939, Chinese chestnuts and their hybrids from the USDA nursery were shipped to the Akron Metropolitan Park District (AMPD) for planting in what is now Virginia Kendall Park. Eugene Cranz also planted Chinese chestnuts on his farm in the Cuyahoga Valley during this time period. The procurement, planting, and

nut production of Chinese chestnuts in the Cuyahoga Valley will be discussed in subsequent sections of this paper.

How the Chestnut Blight Impacted the Management of Virginia Kendall Park

Since Ohio is in the western part of *C. dentata*'s natural range and the blight started in New York City, it took a couple of decades before the blight severely impacted the chestnuts in the Cuyahoga Valley. The State Forester of Ohio, Edmund Secrest, stated in 1929 that the "chestnuts in the Akron area are very badly infected with chestnut blight" and the "chestnut trees on the Kendall property are dying very rapidly."[50]

The Kendall property was in a prime wilderness area in the Cuyahoga Valley and was donated in 1930 to the State of Ohio after Hayward Kendall's death.[51] Kendall's will stipulated that his property be used in perpetuity for park purposes and be named "Virginia Kendall Park," in honor of his mother.[51,52] The State Forestry Department under Edmund Secrest began managing the Kendall property. At that time, Harold S. Wagner was the Director-Secretary of the AMPD, now known as Summit Metro Parks.

Wagner thought that Virginia Kendall Park would be well cared for under Secrest's leadership until "Secrest sent some flunkies up here and….they started to cut about everything that was merchantable timber… All that they cut were the chestnuts. They had a pile of chestnuts that was 100 feet high and a big crane to throw the logs up on the pile."[53] The public saw the piles of chestnut and became outraged; they erroneously blamed the AMPD for cutting the trees down.[53] In response, the AMPD Board began pressuring the state to stop this logging activity. Wagner believed that this set of events provided the impetus for the Park Board to advocate to the trustees of Kendall's estate that the management of Virginia Kendall Park be transferred to the AMPD,[53] which was granted in 1933.[51,52,54]

With the AMPD having management authority of Virginia Kendall Park, one of Harold Wagner's top priorities was to transform the park into a recreation destination for the public. Wagner used Civilian Conservation Corps (CCC) labor from December 1933 to 1939 to construct several shelters, reforest the park, and establish foot trails and picnic areas, along with many other major projects. Because of the chestnut blight, the use of readily available, blighted chestnut timber was incorporated extensively into the park's infrastructure.

Widespread Use of Blighted Chestnut Timber in Virginia Kendall Park

The chestnut blight not only changed the forest composition in Virginia Kendall Park, but it undoubtedly influenced the appearance of the park's infrastructure, much of which still stands today. Blighted chestnut lumber was used extensively in numerous CCC projects in Virginia Kendall Park through the 1930's. The State Forester, Edmund Secrest, advised Wagner that the dead chestnut be removed from the forest and converted into something useful, since the state had taken out only about half the chestnut.[55] The USDA reported in 1930 that blighted chestnut could be utilized for many purposes, because the condition of lumber from dead chestnut trees was "nearly as good" as that from green timber, if harvested within five years after the tree died from blight.[56]

One of the first tasks for the CCC workers was to remove the remaining dead chestnut trees and downed wood from Virginia Kendall Park.[57] The blighted chestnut logs were hauled on sleds drawn by horses (Figure 6[58]) to the on-site sawmill (Figure 7[59]), where the logs were cut into useable lumber. Due to its resistance to rotting and decay, chestnut was utilized for many outdoor applications in Virginia Kendall Park. Chestnut was used to construct rustic foot bridges, post and split rail fences, picnic tables and benches, log steps on foot trails, a 32-foot long vehicle bridge, as well as the public latrine buildings that served the picnic and grassy playstead areas at the Ledges.[60]



Figure 6: Civilian Conservation Corps workers hauling wormy chestnut logs by horse for construction in Virginia Kendall Park. Date unknown. Courtesy: National Park Service, Cuyahoga Valley National Park. (Ref. 58)



Figure 7: Steam-powered sawmill used by Civilian Conservation Corps during construction in Virginia Kendall Park. Courtesy: National Park Service, Cuyahoga Valley National Park. (Ref. 59)

However, the most notable use of chestnut was in the construction of the park's shelters: Happy Days, Ledges, Octagon, and the Virginia Kendall Lake bathhouse (now known as Kendall Lake Shelter). Harold Wagner stated that "all of the buildings have been constructed throughout with chestnut milled on the property by the CCC boys, the mill having been provided by the federal government and the logs having been cut from the stump, confining the cutting to the dead chestnut."[61] It should be noted that Harold Wagner also inquired in November 1935 about local lumber dealers who supplied rough-sawed chestnut boards,[62] presumably to supplement the on-site supply.

The Virginia Kendall shelters are best known for their "wormy" chestnut, which refers to the wood from blighted chestnut trees that was subsequently damaged by insects that left holes and discoloration.[63] Happy Days Lodge, with its wormy chestnut interior walls, is considered to be one of the world's largest structures built out of wormy chestnut.[52] Wormy chestnut provided a rustic character that meshed well with the landscape and with the simple designs of the Virginia Kendall shelters. After completing the design of the Ledges Shelter, architect A. H. Good explained that he "tried to make the building as simple as possible, leaving off the superfluous and gadgetry," due to the organization and carpentry skill level of the CCC workers.[64] Wagner specified that the lumber and finish used throughout the Ledges Shelter be chestnut, and that its toilet walls and ceilings be sheathed with solid ship-lap chestnut.[65]

Harold Wagner relayed in a 1979 interview that the post in the middle of the Octagon shelter created months of discussion and consternation. Wagner said, "We had…a lot to do about that post in the middle. We went round and round for months on that."[66] The center post had to be a spiral-reinforced concrete column for structural integrity,[66,67] but its appearance apparently was not expected to integrate well with the natural materials used throughout the structure. Wagner insisted, "Okay, if there's going to be concrete, I'm going to cover it up," and he had the concrete post faced with chestnut.[66] The work was done so well that no one, even today, would suspect it has a concrete core. Figure 8[68] shows the center post and the chestnut rafters that support the conical roof of the Octagon Shelter, as seen during its early construction.



Figure 8: Octagon Shelter during its early construction with Foreman Roland Arnold of the Civilian Conservation Corps. Courtesy: National Park Service, Cuyahoga Valley National Park. (Ref. 68)

Interestingly, a "shrine to the American chestnut" was to be built in Virginia Kendall Park. The project was first described in 1935 as a trailside museum that was "ideally located" in the heart of the trail system at the northern tip of the Ledges plateau.[69] In the 1930's, three trailside museums were built in the nearby Cleveland Metropolitan Park System (now Cleveland Metroparks) by the Works Progress Administration.[70] The trailside museum in Virginia Kendall Park was intended to be built by revamping Hayward Kendall's former house, Figure 9[71]. Kendall acquired the house in 1918 after purchasing James H. and Edna Thompson's property[72] that extended from Rt. 303 to the north end of the Ledges. The house was labeled on Virginia Kendall Park master plan maps from 1937 to 1941[73,74] as the "Stone House Museum" at the northern tip of the Ledges. The remodeling was to involve "removing the entire structure above the one story stone portion."[69] It was estimated to cost $500 for materials and would require an estimated 800 man-days to complete.[75]



Figure 9: Hayward Kendall's former house was the proposed site for the shrine to the American chestnut. Courtesy of the Peninsula Library & Historical Society (Peninsula, Ohio). (Ref. 71)



Figure 10: Drawing of one of the designs for the proposed shrine to the American chestnut. (Ref. 79)

Later records appear to show that the idea for the trailside museum morphed into a shrine to the American chestnut.[76,77] Formal blueprints of several different designs for the shrine were produced,[78] and color drawings were also created for one of the designs.[79] Figure 10[79] illustrates a cut-through section of the main room of the shrine, where a large, standing chestnut log was to be displayed. Three dioramas were also considered that would show the original chestnut forest, the forest at the height of the chestnut blight, and the post-blight forest.[77] Displays of leaves, twigs, moths, butterflies, and a portrait of Hayward Kendall were also planned. Although AMPD correspondences regarding the chestnut shrine continued through March 1942,[80] the trailside museum was never built. Foundation stones and a sturdy stone wall are all

that remain today of Hayward Kendall's stone house and the proposed site for the shrine to the American chestnut.

Asian Chestnuts Planted in Virginia Kendall Park

As the chestnut blight spread, many people across the U.S. became engaged in efforts to plant other chestnut varieties and hybrids that might prove to be more blight-resistant than the American chestnut. Harold Wagner also participated in this endeavor by planting Asian chestnuts and their hybrids in Virginia Kendall Park in the 1930's.

Wagner first sought to determine which varieties of chestnuts were believed at the time to be the most blight-resistant.[81,82] In April 1930, he announced that the Park Board was buying seeds of two species of Chinese chestnut for the purpose of experimentation with blight-resistant trees.[83] Wagner procured seeds of *C. mollissima* and *C. henryi*.[84] These seeds were purchased directly from C. T. Chang, a horticulturalist from the University of Nanking, at a cost of $13.92.[85] Students had collected the seeds in the woods near Nanking, China.[86]

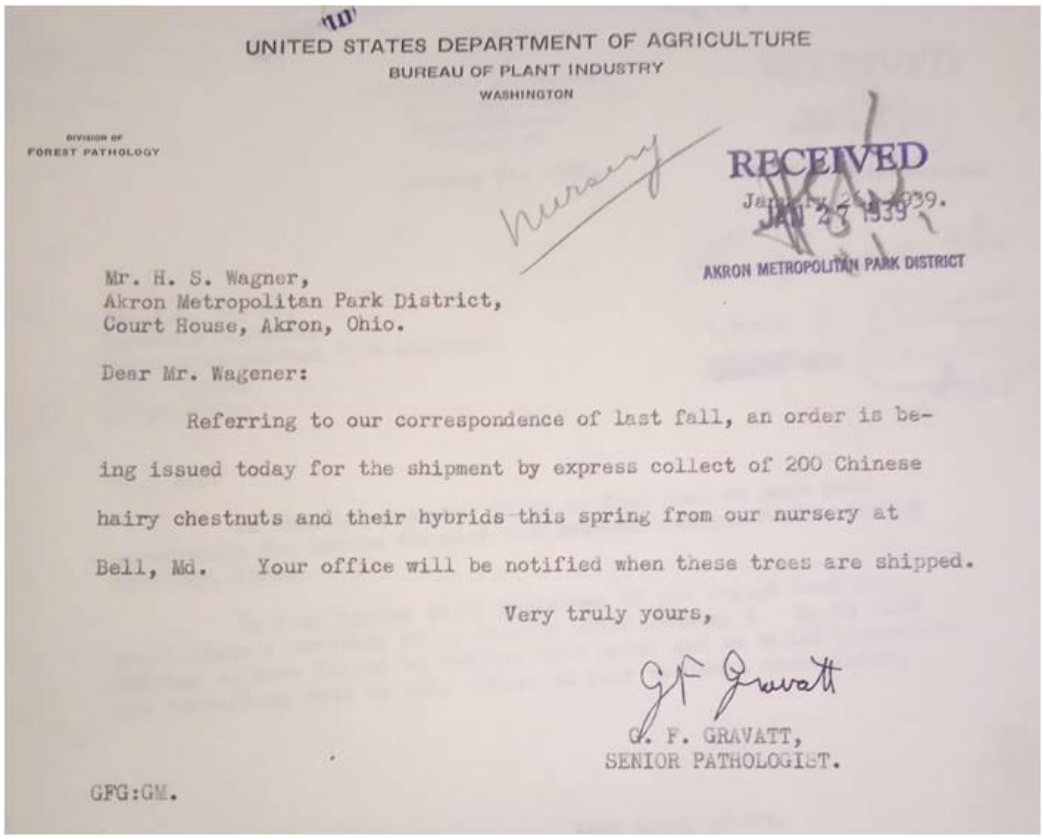
The *C. henryi* seeds arrived in a "desiccated state" and were not viable for planting; however, the *C. mollissima* seeds "arrived in somewhat better condition."[84] Eighty-two *C. mollissima* seeds were sent to the Everett nursery on April 6, 1932, to establish them prior to permanent planting in the park district.[87] The Everett tree nursery was one of several tree nurseries set up within the AMPD to propagate seedlings and to establish and maintain tree stock before their final planting at another site in the AMPD. A tree nursery was also established later, by 1934, in Virginia Kendall Park on the south side of Truxell Road near its junction with Octagon Road.[52,88,89]

In a letter to State Forester Edmund Secrest dated March 21, 1934, Wagner wrote: "There is a great deal of interest among park people and in the general public in the planting of nut trees on a forest planting scale. I am wondering whether you have for sale, or whether you know of nurseries who have stocks of shagbark hickory, butternut and American chestnut. Of course, we know how deadly the chestnut blight disease is, but it looks as though somebody ought to continue to experiment with small plantings of seed from many habitats. For our own part, we are going to do this."[90] In 1936, the AMPD also purchased 1,000 *C. pumila* (chinquapin) trees that were 2-3 feet high.[91] Wagner may have wanted to experiment with this *Castanea* species as well, since the USDA had hybridized the bush-like chinquapins with Asian chestnuts.

By March 4, 1936, a number of healthy seedlings of *C. mollissima* from Nanking had grown to a height of four feet in the Everett nursery.[92] Wagner informed Judge Dean F. May that at the Everett nursery "there are a number of specimens of a rare Chinese chestnut which is supposed to be blight-resistant and which may prove to be of some value in replacing the American chestnut which is practically extinct as a result of the malignant chestnut bark [blight] disease."[54]

In addition to procuring chestnut seeds directly from China, Wagner also received chestnut saplings from the USDA. In 1939, Senior Pathologist G. F. Gravatt of the USDA sent a confirmation letter to

Wagner that an order was issued for the shipment of 200 Chinese hairy chestnuts and their hybrids that spring from their nursery at Bell, Maryland, as seen in Figure 11.[93]



UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
WASHINGTON

DIVISION OF
FOREST PATHOLOGY

RECEIVED
JAN 27 1939
AKRON METROPOLITAN PARK DISTRICT

Mr. H. S. Wagner,
Akron Metropolitan Park District,
Court House, Akron, Ohio.

Dear Mr. Wagener:

Referring to our correspondence of last fall, an order is being issued today for the shipment by express collect of 200 Chinese hairy chestnuts and their hybrids this spring from our nursery at Bell, Md. Your office will be notified when these trees are shipped.

Very truly yours,

G. F. GRAVATT,
SENIOR PATHOLOGIST.

GFG:GM.

Figure 11: USDA letter confirming order of 200 Chinese Chestnuts to Harold Wagner in January 1939. (Ref. 93)

Ample evidence was found that showed that the Asian chestnut trees were surviving and producing nuts in Virginia Kendall Park. A local newspaper article reported in October 1940 that the Japanese and Chinese chestnut saplings were developing rapidly and showing no signs of blight.[85] The article also indicated that a chestnutting expedition in Virginia Kendall Park would be a successful one. Wagner informed the State Forester in October 1940 that "our U.S. Department of Agriculture and seedlings from our own importation of Chinese chestnuts (*C. mollissima*) are bearing nuts for the first time this year."[94] In December 1940, only 20 *C. mollissima*, four to eight feet high, remained in the Everett Nursery Inventory,[95] so some fraction of these trees had been transplanted to Virginia Kendall Park. In 1944, the Chinese chestnut trees at Virginia Kendall Park were still producing nuts. Wagner reported that the trees had produced the biggest crop of chestnuts harvested in the park district in years and that there were 50 to 75 Chinese chestnut trees in Virginia Kendall Park.[86]

The USDA distributed nearly 17,000 chestnut seedlings to Ohio through the Department of Forestry between 1930 and 1943.[96] However, by 1945, the USDA stopped supplying Asian chestnuts because of their wide-spread commercial availability.[43] Hundreds of varieties of Chinese chestnut trees became available for sale at local Ohio nurseries and were used by homeowners as ornamental trees.[28]

In 1962, the AMPD received a donation of 100 Chinese chestnut trees that were planted in a grove at Virginia Kendall Park.[97,98] The tree donation was in fulfillment of the wishes of Herbert S. Porter of Akron, who had bequeathed $500 to the Akron Chapter of the Izaak Walton League. The League purchased five-foot tall Chinese chestnut trees that were expected to produce nuts in 6 to 7 years.[98]

A land management map originally dated June 14, 1961, provides the strongest evidence to date for the location of the grove of Chinese chestnuts donated by the Izaak Walton League, as well as for the location of Harold Wagner's plantings of Chinese chestnuts. A portion of this map is shown in Figure 12.[99] It displays numerous green "turf areas" in Virginia Kendall Park.

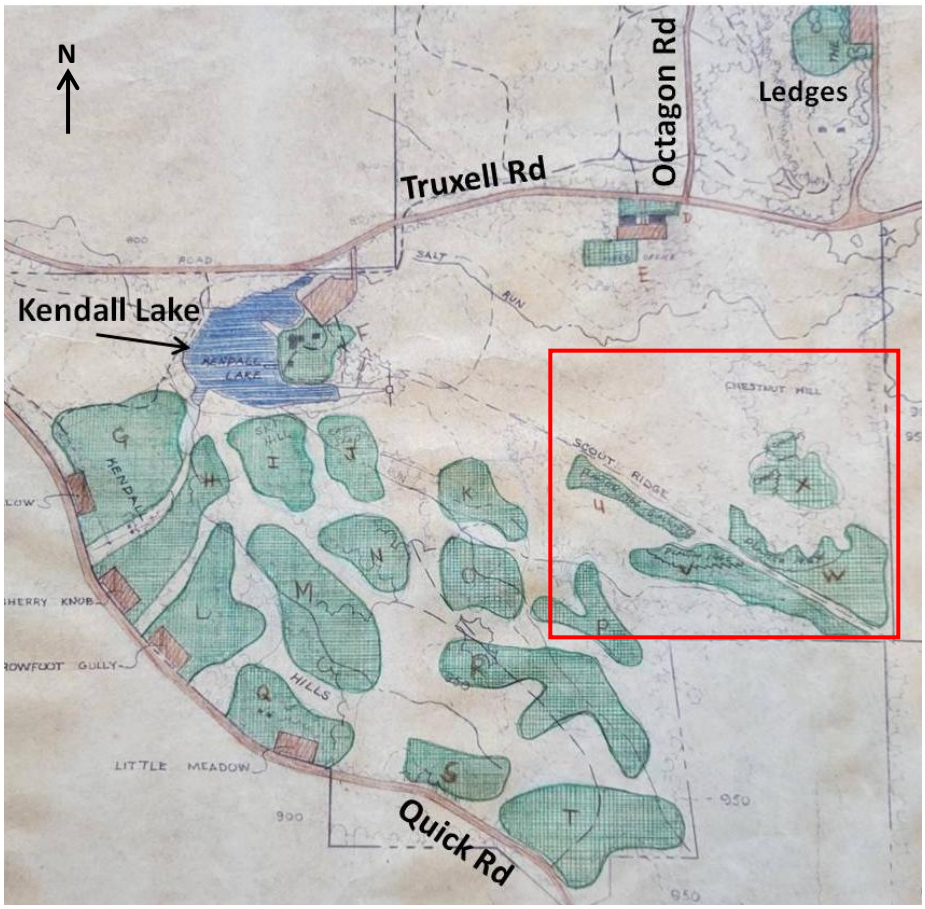


Figure 12: Turf area map showing southern portion of Virginia Kendall Park. Map was originally drawn in 1961. (Ref. 99) The areas within the red box are of particular interest.

Close examination reveals that turf areas "U," "V," "W," and "X" (in red box in Figure 12) include hand-written notations that were added after 1961. These notations are more easily seen in the enlarged area of interest, Figure 13. Interestingly, "chestnuts" was hand-written on the northern section of Area X and was abbreviated in the western section of Area X. Green-colored Area X is south of the Ledges and east-southeast of Kendall Lake. As seen in Figure 13, other hand-written notations in turf areas U, V, and W indicate tree plantings in 1964 and 1966. Given the timing of the various tree plantings in this specific area of the park, it seems almost certain that Area X is the location for the 100 Chinese chestnuts donated by the Izaak Walton League in 1962.



Figure 13: Area of interest is enlarged for viewing the hand-written notes that were added to turf map after 1961. (Ref. 99)

Notably, Area X also lies slightly south of "Chestnut Hill" on the turf map. Chestnut Hill is likely the site for Wagner's plantings of Chinese chestnuts and their hybrids. This is further supported by comparison of the turf map in Figure 12 with the 1933 aerials[100] of Virginia Kendall Park in Figure 14. Chestnut Hill corresponds to a farmed area, devoid of trees, on William Hainsworth's former property in 1933. This property was acquired by the AMPD in 1942.[101] Area X also appears to coincide with this same large plot of farmland that was treeless in 1933. No surviving Asian chestnuts have been found in Virginia Kendall Park at the time of this writing. However, Chestnut Hill and Area X areas are heavily wooded today, and the high canopy that has developed would not support the survival of the short Chinese chestnuts.

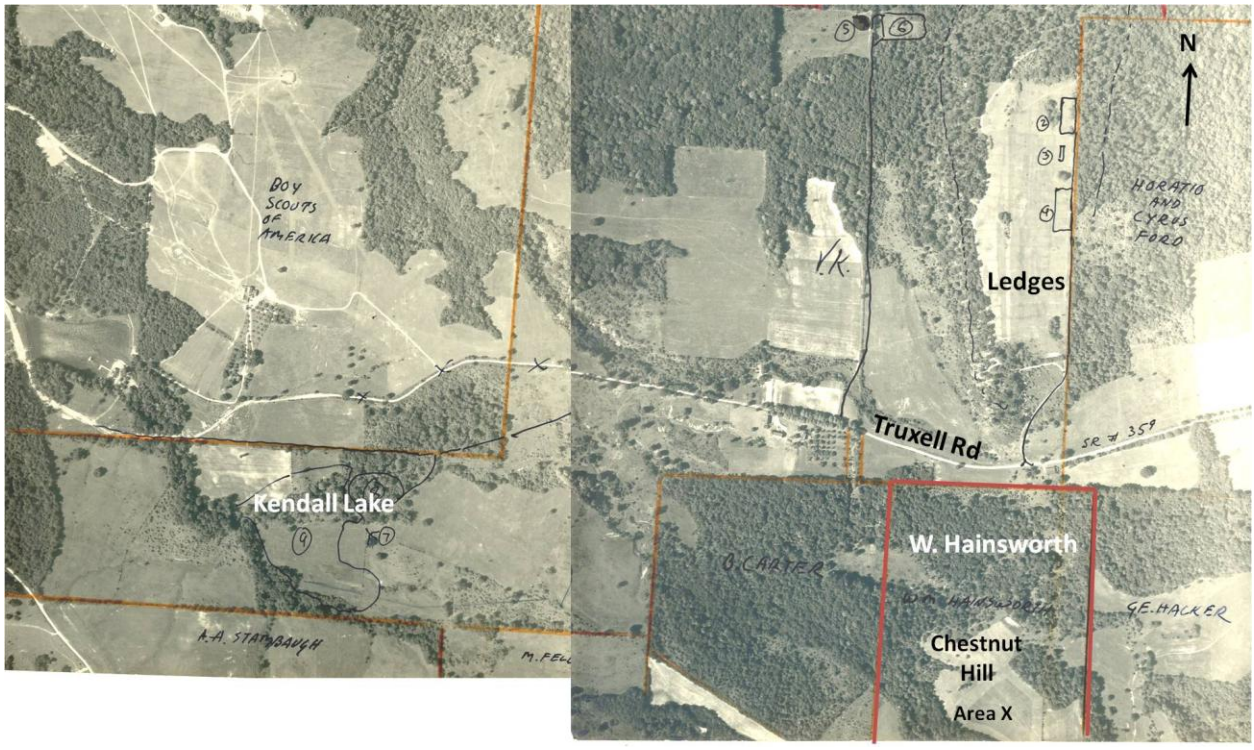
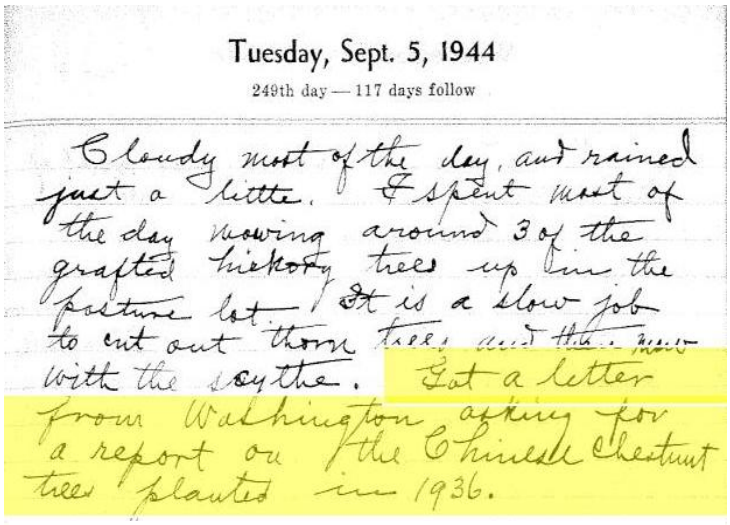


Figure 14: Aerial photographs of Virginia Kendall Park taken on August 2, 1933. (Ref. 100) The locations of Chestnut Hill and Turf Area X are labeled. Kendall Lake had not yet been created but its horseshoe-shape was outlined in ink in the 1930's.

Eugene Cranz's Chestnut Tree Plantings in Cuyahoga Valley

Eugene F. Cranz was also planting Chinese chestnut trees during the 1930's and 1940's on his farm in the Cuyahoga Valley in Ira, Ohio. He specialized in nut trees, and planted black walnuts, hickories, filberts, and Chinese chestnuts.[102-104] Cranz kept journals detailing his daily farm chores and activities with his family and in the local community. Handwritten journals from 1940, 1942, 1943, 1944, and 1946 still exist and were made available for study (Courtesy of the Peninsula Library & Historical Society, Peninsula, Ohio). Based on an intensive review of these records by the primary author, Eugene Cranz acquired Chinese chestnuts between 1936 and 1946 and planted them in different areas on his farm.


Tuesday, Sept. 5, 1944

249th day — 117 days follow

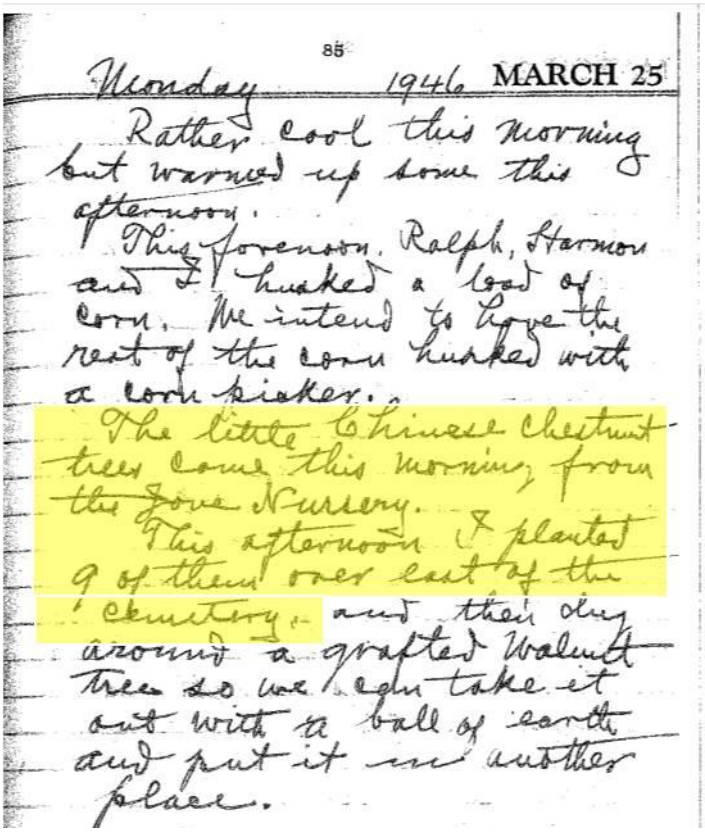
Cloudy most of the day, and rained just a little. I spent most of the day mowing around 3 of the grafted hickory trees up in the pasture lot. It is a slow job to cut out thorn trees and then mow with the scythe. Got a letter from Washington asking for a report on the Chinese Chestnut trees planted in 1936.

Figure 15: Eugene Cranz jounal entry from Sept 1944. (Ref. 105). Courtesy of the Peninsula Library & Historical Society (Peninsula, Ohio).

One of Cranz's journal entries, shown in Figure 15,[105] indicates that "Washington [is] asking for a report on the Chinese chestnut trees planted in 1936," which suggests that some of his trees came from the USDA. These trees that Cranz planted in 1936 were *C. mollissima* yearlings that later produced nuts.[106] They were planted on what Cranz called Mt. Tom, which was the hill between his farm fields along Ira Road and present-day Indigo Lake.

The earliest available journal of Eugene Cranz was from 1940.[107] No Chinese chestnut trees were mentioned during that year, but numerous journal entries during and after 1942 described the care of these trees and their nut production. Cranz wrote on April 24, 1942, "I took some of the Sulfate of Ammonia up to the hill orchard and spread it around the apple, peach, and Chinese chestnut trees."[108] In September 16, 1942, he stated that "…some of the Chinese chestnuts are ripe and I brought some of them home. I intend to take some of them to the Bath Grange Fair Saturday at the Town Hall." [108] Cranz periodically tended the hill orchard by mowing "along the East fence and around the young chestnut trees," [108] as he did on September 21, 1942. Similar journal entries about fertilization, mowing maintenance, and nut harvesting of the Chinese chestnut trees were written in 1943[109] and 1944[105]. During the fall of 1944, the nut production was particularly noteworthy. Cranz wrote on October 1, 1944, "I took a walk up to the hill orchard and got the last of the Chinese chestnuts. About 1 qt. Altogether the chestnut trees produced about 5 or 6 quarts. They vary in size and in time of ripening."[105]

Cranz placed an order for three grafted and four seedling chestnut trees on April 19, 1944,[105] and ordered more Chinese chestnuts on February 13, 1946.[110] In early March 1946, he chopped down four Norway spruce trees at the Ira Cemetery, because he wanted to plant some nut trees there.[110] As seen in Figure 16,[110] Cranz wrote that he planted nine "little Chinese Chestnuts trees… over east of the cemetery" on March 25, 1946,[110] and had six more left to plant. These 15 trees all came from the "Jove



85

Monday 1946 MARCH 25

Rather cool this morning but warmed up some this afternoon.

This forenoon, Ralph, Harmon and I husked a load of corn. We intend to have the rest of the corn husked with a corn picker.

The little Chinese chestnut trees came this morning from the Love Nursery.

This afternoon I planted 9 of them over east of the cemetery and then dug around a grafted Walnut tree so we can take it out with a ball of earth and put it in another place.

Figure 16: Eugene Cranz journal entry, March 25, 1946. (Ref. 110) Courtesy of the Peninsula Library & Historical Society (Peninsula, Ohio).

Nursery." Three days later, he wrote, "Harmon [his son] went along over to the cemetery and helped me move the grafted black walnut tree with a ball of dirt. It stood too close to the one that is in line."[110] These journal entries provide key landmarks for the placement of the Chinese chestnuts planted in 1946, and as will be discussed later, some of these trees are still standing today.

Dry weather in 1946 impacted the Chinese chestnut trees growing in Ohio. Cranz continued to fertilize and mow the hill orchard in 1946, but wrote on July 18, 1946, "I could not find a burr so I guess there will not be any chestnuts this year."[110] During a September 1946 visit to the Agriculture Experiment Station in Wooster, Ohio, Cranz observed that the Chinese chestnuts there also had very few burrs.[110] Later that month, Cranz commented, "I went over to the Cemetery and mowed around the 9 Chinese chestnut trees I had planted over there. They are all nice and green but did not make big growth because it was too dry."[110] Unfortunately, no diaries exist after 1946. It seems quite likely that the dry weather in 1946 also impacted the nut production, and perhaps the health, of the Chinese chestnut trees in nearby Virginia Kendall Park.

On November 18, 1949, the State of Ohio dedicated Eugene Cranz's tree farm as Tree Farm No. 81. His reforestation efforts were described on the State Inspection Record for the tree farm, Appendix A .[111] Approximately ten acres of his farm were planted with a number of different species of pines, Norway spruce, catalpa, black locust, Chinese chestnuts, cypress, and black walnuts. In 1985, Eugene Cranz was posthumously inducted into Ohio's Conservation Hall of Fame for his efforts in reforestation and in replacing the dying American chestnut.[112-115]** The nominating letters for Cranz's Conservation Hall of Fame award are contained in Appendix B.[116]

***In 1985, three local articles[113-115] quoted the citation for Eugene Cranz's Hall of Fame award as: "He was instrumental in replacing the dying American Chestnut tree with Chinese **evergreens**…" It is clear that Eugene Cranz planted Chinese chestnuts and numerous evergreens[111] but not the misnomer, "Chinese evergreens." This erroneous "Chinese evergreens" term was repeated later in NPS documents[117,118] that referenced the 1985 local publications and has also been perpetuated on-line.[119,120]*

Cranz's Chinese Chestnuts are Still Standing

Some of the Chinese chestnut trees that Eugene Cranz planted are still alive and growing on his former property. These trees remain as a legacy to his work and to the early movement for finding suitable replacements for *C. dentata*. In 2020, seven Chinese chestnuts were found in a plot of land east of and adjacent to the Ira Cemetery. Three of these trees were planted in a row, Figure 17, next to a row of black walnut trees. An example of their glossy green leaves is shown in Figure 18. Per Cranz's journal entries, these Chinese chestnuts were planted in March 1946.[110] The trees clearly exhibit the typical, lateral growth habit of Chinese chestnuts that somewhat resembles the growth habit of apple trees. The trees are doing well; they currently do not have to compete with taller trees for sunlight in their open location. In May 2023, the largest Chinese chestnut tree in the plot had a dbh of 23 inches and a height of 41 feet. These trees have shown evidence of fruiting as plump chestnuts have been observed at the site each year since 2020.



Figure 17: Three Chinese chestnut trees on Cranz's former property, March 21, 2023. Photo credit: Becky MacKay



Figure 18: Leaves from Chinese chestnut tree closest to cemetery, October 15, 2022. Photo credit: Becky MacKay

Additionally, a row of three grafted[121] Chinese chestnut trees was planted on the opposite side of the row of walnut trees in the same plot. These may very well have been the same three grafted trees that Cranz ordered in April 19, 1944.[105] As seen in Figure 19, the center stem appears to have died on all three grafted trees, but numerous, sizeable sprouts have grown around the center stem. The largest sprout had a dbh of 11 inches, and the tallest multi-stemmed tree had reached a height of 30 feet in May 2023. Another Chinese chestnut tree was likely planted by Cranz much earlier than those next to the cemetery; this large tree is located about 0.3 miles south on Ira Road and near the entrance to Old Trail School. It is possible that additional Chinese chestnut trees may be found elsewhere on Cranz's former farmland.



Figure 19: Grafted Chinese chestnut trees on Cranz's former property, March 21, 2023. Photo Credit: Becky MacKay

USDA Program Cancelled around 1960

Despite the extensive efforts to hybridize chestnuts, the USDA breeding program was considered to be unsuccessful, because it failed to produce blight-resistant trees that looked and grew like an American chestnut. The crosses between *C. mollissima* and *C. dentata* did produce first generation (F_1) hybrids with an upright growth form. However, their blight resistance was only intermediate between those of the parent trees, which was insufficient for long-term survival in forest plantings. During the final ten years of the USDA program, some F_1 hybrids [*C. mollissima* x *C. dentata*] were "backcrossed" to the Chinese parent [F_1 x *C. mollissima*] to further increase the blight resistance, but none appeared to yield the desired results.[42,49] The USDA had begun to intercross the F_1 hybrids with each other when their breeding program was terminated around 1960.[49,122]

One of most promising hybrids developed by the USDA was actually one of the very few that had been backcrossed to an *American* chestnut tree [F_1 x *C. dentata*].[40,44,47,49,122,123] The tree was first crossed in 1935, backcrossed in 1946, and then planted in a USDA test plot in Illinois in 1949.[40,123] This backcrossed hybrid tree was called, "Clapper," in honor of R. B. Clapper, who co-directed the USDA breeding program for nearly 25 years. The tree was believed at the time to possess the long sought-after combination of excellent form, vigorous growth, and apparent high blight resistance.[47,124] It survived until 1978 when it succumbed to the blight after carrying the infection for several years.[40,122]

New Approach for Chestnut Hybridization Emerges in the 1980's

In the 1980s, more modern methods of chestnut hybridization were developed using backcross breeding in combination with careful selection to weed out progeny with inferior blight resistance and an Asian form and growth rate. Instead of crossing hybrids back to the blight-resistant Chinese parent, plant geneticist Charles Burnham proposed applying the backcross breeding method that was used

successfully in breeding disease-resistant crops.[16,125] This method was based on the idea that a species that is susceptible to a disease, but is otherwise satisfactory, is crossed with the species that is resistant to the disease; then, the F_1 hybrid is crossed back to the disease-susceptible species, rather than to the disease-resistant species that has other undesirable traits.[16]

Using this method, Burnham proposed that Chinese-American F_1 hybrids be crossed back to wild American chestnut trees (termed 'the recurrent parent') in a series of three successive generations.[16,40,125] In between each breeding step, the trees were intentionally inoculated with *C. parasitica*[125] to accelerate testing for blight resistance. Only those progeny showing strong blight resistance and the desired American characteristics were carried forward for breeding in the next step. The third-backcrossed (BC_3) hybrids were then intercrossed with each other to produce the final two generations, designated as BC_3F_2 and BC_3F_3. Theoretically, the BC_3 hybrids and their descendents would have on average 15/16, or 94%, of the DNA derived from American chestnut and only 1/16, or 6%, of the DNA on average from Asian chestnut.

Since each tree needs 5 to 8 years to flower, 25 to 40 years was required to produce a total of five generations, if beginning with flowering F_1 hybrids.[16,31] In 1983, TACF was founded as a non-profit organization to conduct the backcross breeding program, which began in 1989.[125,126] Two BC_1 hybrids, the 'Clapper' and 'Graves' trees, produced in prior breeding programs by other organizations were used to jump-start the TACF breeding program. Since 1989, more than 125,000 hybrid trees have been planted and tested for blight resistance on the TACF research farm in Meadowview, Virginia.[127] Beginning in 2009, BC_3F_3 seedlings were also planted in forests for testing their blight resistance and adaptation to their environment.[128]

This backcross model was developed on the belief that only two pairs of genes were responsible for blight resistance.[16] However, recent genetic testing has shown that 12 chromosomes in chestnuts are associated with blight resistance.[129] As a result, there are so many genes for blight resistance in Chinese chestnut that it is not feasible to combine all of those with the American chestnut and produce a tree that is mostly of American ancestry.[39] Around 2015, TACF concluded that their goals could not be met by cross-breeding alone.[10] In 2020, the Science Director of TACF stated, "No matter how much recurrent selection we do in the future, we are not going to get trees that have 100% of the resistance of Chinese chestnut and have most of the American traits. We're falling within this range of intermediate resistance (similar to or less than that of F_1 hybrids) and intermediate traits." [129] As a result, the backcross breeding approach appears to have been deemphasized by TACF in favor of genetically modified, or transgenic, trees.

Genetically Modified, or Transgenic, American Chestnut Trees

A parallel path that TACF has taken for producing a blight resistant tree is through genetic engineering. Genetic engineering introduces one gene (plus a marker gene) into *C. dentata*'s genome of over 30,000 gene pairs[130] to produce a tree with genetics that are over 99.999% identical[131] to wild-type American chestnuts. This is accomplished without altering or removing existing genes in *C. dentata*, and

eliminates the need to breed out unwanted genes, as is the case with backcross breeding. Genetically engineered trees are also called transgenic, which is defined as an organism with a gene from a different species.[10]

The genetic engineering technique involves taking a gene from another plant and inserting it into a chestnut embryo, which is the next development stage after pollination. Beginning in 1990, researchers at the State University of New York's College of Environment Science and Forestry (SUNY-ESF) focused on finding a single, dominant gene that would impact the mechanism of fungal infection.[132] After testing more than 30 genes from different plant species, a wheat gene was selected to enhance blight resistance in the American chestnut.[131]

When *C. parasitica* infects a tree, the blight fungus produces oxalic acid, which kills plant cells that the fungus feeds on[39]; a canker then forms that girdles and kills the tree. The wheat gene selected, nicknamed OxO, makes an enzyme called oxalate oxidase that breaks down and detoxifies the oxalic acid produced by the blight fungus.[130,131] This enzyme is very common in both wild and cultivated plants, such as mosses, fungi, peanut, oat, strawberry, banana, rice, spinach, corn, and of course, wheat.[130,132] As a result, oxalate oxidase is consumed daily by billions of people, livestock, and wildlife.[132] Although OxO is obtained from wheat, the gene is not related to gluten and does not match any known allergens.[130,131,133] The transgenic American chestnut tree with the introduced wheat gene was developed over the course of about 26 years and named "Darling 58."[131] Darling 58 trees can still become infected with the blight fungus, and may be damaged by it, but typically the trees are tolerant of the fungus and co-exist with it.[133]

In order to be planted in the wild or distributed for public plantings, the transgenic trees must be deregulated by the USDA and EPA. TACF also elected to undergo an optional review at the FDA.[134] More than 2,000 Darling 58 trees have been planted in highly regulated fields, which are prohibited from spreading pollen into the wild.[39] When transgenic Darling trees are crossed with wild-type chestnut trees, about 40% of the progeny inherit the OxO gene,[130] the existence of which can be detected inexpensively with an enzymatic assay.[126,132] Recently, it has been reported that a range of blight resistance has been observed in Darling trees that have carried the blight infection for a number of years, and not every tree with the transgenic gene was blight resistant.[135] Despite this, the blight resistance of Darling 58 trees is still greater on average than that in siblings that did not inherit the OxO gene.[135] Experiments are on-going to cross Darling trees with surviving wild-type American chestnut and with back-crossed chestnut trees, in order to increase genetic diversity and improve adaptability for growing in different environments across the country.[135]

Another genetically engineered chestnut, called the DarWin tree, has more recently been developed by SUNY-ESF.[136] Whereas Darling 58 trees have the OxO gene enhanced all the time, the DarWin trees have a version of OxO that only becomes activated when the tree is wounded, which conserves the tree's energy. This new line is being propagated in tissue culture, planted in controlled field sites under USDA permits, and crossed with wild-type *C. dentata* mother trees. TACF anticipates that the DarWin trees will serve as an additional source of blight tolerance, along with Darling 58 trees.

If federal regulatory approval is granted for Darling 58, TACF plans to cross them with wild-type trees over five generations to increase the effective population size to greater than 500.[126] A decision on regulatory approval for Darling 58 was expected in August 2023,[134] but as of the time of this writing, regulatory approval has not yet been granted. If approval is granted for the Darling trees, regulatory approvals will be sought for the DarWIn trees.[136]

Current Status of Wild American Chestnuts in CVNP

To date, a systematic, park-wide survey for American chestnut has not been conducted at CVNP. However, American chestnut trees have been encountered in the park during general botanical surveys and area searches, which indicated that 25 American chestnuts have been found in CVNP since 2012.[137,138] The survey results have been compiled and summarized by the primary author. Of the reported American chestnuts, 14 are trees with dbhs ranging from 2 to 14 inches, and the remainder are sprouts growing from old chestnut stumps. Although most of these stems have either been found or inspected within the last three years, six have not been examined in over seven years and may no longer still be alive. At least two trees in CVNP were recently observed to have chestnut blight or to be in poor health.

Chestnut stems found during the surveys are widely scattered throughout CVNP. The majority are isolated from each other, although a group of three stems was reported to be spaced as little as 150 feet apart from each other over hilly terrain. At least one tree in another location has produced burrs in prior year(s). Since a systematic survey was not performed, it seems possible that additional American chestnut trees and sprouts may be present in other locations within CVNP boundaries. Small chestnut sprouts are especially difficult to locate, since they do not stand out in the landscape and tend to blend in with the understory.

Future Prospects for Chestnut Trees in CVNP

The NPS has the responsibility to preserve, protect, and restore the species and local genotypes native to the National Parks for the enjoyment of future generations. The natural range of the American chestnut extends into CVNP, and as has been described throughout this paper, the existence of these trees in the park is well documented. As of September 2023, the park is in the initial stages of planning for blight-resistant American chestnut plantings and has secured funding to implement these efforts in the near term. This effort is being lead by CVNP Plant Ecologist Chris Davis; the details of this work are outside the scope of this report.

When blight-resistant American chestnuts become available for large-scale plantings, we recommend that they be planted in CVNP near known sites of naturally-occurring American chestnut trees. This may enable cross-pollination to occur naturally between the blight-resistant chestnuts and the pre-existing, wild-type chestnut trees. Additional sites having appropriate ecological conditions should also be considered, where park visitors can experience these trees first-hand.

The authors propose that *small-scale demonstration plantings* of blight-resistant American chestnuts be considered. These demonstration plantings would provide the public with an educational opportunity

to learn about the plight of chestnuts and current restoration efforts. We suggest that these plantings be placed in accessible and historically relevant locations for the educational benefit of the public. Small-scale plantings may also assist the park in developing restoration techniques and evaluation methods for chestnuts.

The authors further advocate for a demonstration planting to be placed either in the large, open playfields near the Ledges Shelter or the Octagon, or on the lawn of Happy Days Lodge, if soil and light conditions are suitable, and if such small modifications are permitted to be made to the cultural landscape. These proposed locations in Virginia Kendall Park will serve as ideal settings for contrasting the past to the potential of the future. The Ledges Shelter, the Octagon, and Happy Days Lodge were all constructed using dead chestnut taken from the surrounding forest. Placing blight-tolerant American chestnut trees in the vicinity of one of these historic buildings would provide an excellent opportunity for the public to contrast the past uses of the blighted chestnut with the future prospects of a blight-tolerant variety of this once-mighty giant.

According to the Director of Restoration for TACF, it is going to take "between 150 to 200 years to make an ecological impact with millions of (chestnut) seedlings on the landscape."[39] Despite this lengthy time frame, many university scientists, volunteers, and non-profit organizations are highly motivated to restore this once prominent species. Certainly, the American chestnut's prior ecological and cultural significance is one factor for the unrelenting efforts and sense of stewardship. Another driver may be the never-ending number of exotic pests and diseases that continue to seriously plague our forests. The Hemlock Wooly Adelgid, Emerald Ash Borer, Beech Leaf Disease, Dutch Elm Disease, and Oak Wilt are taking, or have already taken, their toll on various tree species. It is hoped that the recent advances in genetic engineering of the American chestnut can initiate a turning point in the health of our forests.

As the Chinese proverb wisely states, "The best time to plant a tree was 20 years ago, the second best time is now."[139]

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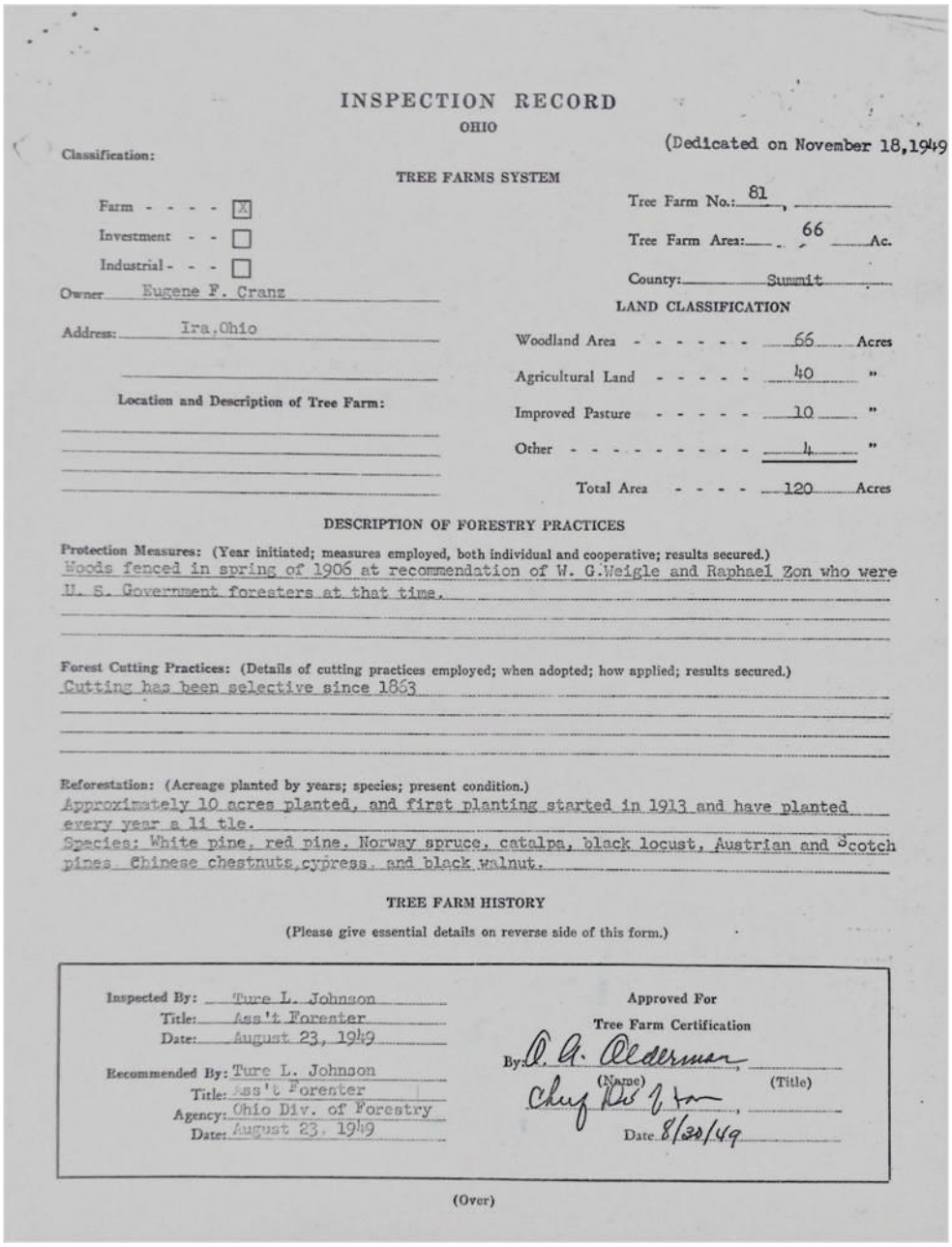
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Appendix A

Inspection Record for Cranz Tree Farm Dedicated by State of Ohio (Ref. 111)



INSPECTION RECORD

OHIO

(Dedicated on November 18,1949

Classification:

TREE FARMS SYSTEM

Farm - - - - [X]

Investment - - [ ]

Industrial - - - [ ]

Tree Farm No.: 81

Tree Farm Area: 66 Ac.

County: Summit

Owner Eugene F. Cranz

Address: Ira, Ohio

LAND CLASSIFICATION

Woodland Area	66 Acres
Agricultural Land	40 "
Improved Pasture	10 "
Other	4 "
Total Area	120 Acres

Location and Description of Tree Farm:

DESCRIPTION OF FORESTRY PRACTICES

Protection Measures: (Year initiated; measures employed, both individual and cooperative; results secured.)
Woods fenced in spring of 1906 at recommendation of W. G.Weigle and Raphael Zon who were U. S. Government foresters at that time.

Forest Cutting Practices: (Details of cutting practices employed; when adopted; how applied; results secured.)
Cutting has been selective since 1863

Reforestation: (Acreage planted by years; species; present condition.)
Approximately 10 acres planted, and first planting started in 1913 and have planted every year a li tle.
Species: White pine, red pine, Norway spruce, catalpa, black locust, Austrian and Scotch pines Chinese chestnuts,cypress, and black walnut.

TREE FARM HISTORY

(Please give essential details on reverse side of this form.)

Inspected By: Ture L. Johnson
Title: Ass't Forester
Date: August 23, 1949

Recommended By: Ture L. Johnson
Title: Ass't Forester
Agency: Ohio Div. of Forestry
Date: August 23, 1949

Approved For
Tree Farm Certification
By: R. A. Alderman (Name) Chief Dist Forester (Title)
Date 8/30/49

(Over)

https://irma.nps.gov/DataStore/Reference/Profile/2300914

Appendix B

Nominating Letters for Eugene Cranz's Conservation Award (Ref. 116)

P.O. Box 373, Burton, Ohio 44021

April 28, 1983

Mr. Rob Orlos
Conservation Awards Coordinator
Ohio Department of Natural Resources
Office of Public Information and Education
Fountain Square
Building D
Columbus, Ohio 43225

Dear Mr. Orlos:

I would like to nominate Eugene Cranz for the Ohio Conservation Hall of Fame.

As a Farm Forester with the Ohio Agriculture Experiment Station, I worked with Mr. Cranz, beginning in 1945 and until the time of his demise. He was highly interested in the field of conservation in respect to his woods, his farm, and his every day functions. His landmark in that part of Summit County will go on for many generations yet unborn.

It might be of interest to note that the white pine trees he planted on one hillside, a thinning of which was done back in 1949 under my supervision, was used to panel many rooms in his son's new home

I highly recommend Mr. Eugene Cranz to be considered as an enrollee in the Ohio Conservation Hall of Fame.

Respectfully,

Ture L. Johnson
Urban Forester

TLJ/es

https://irma.nps.gov/DataStore/Reference/Profile/2300914

Appendix B con'd

Nominating Letters for Eugene Cranz's Conservation Award (Ref. 116)

Phone 216 - 264-0944

OLIVER D. DILLER
1368 East Wayne Avenue
WOOSTER, OHIO 44691

April 15, 1983

Mr. Rob Orlos
Conservation Awards Coordinator
Ohio Department of Natural Resources
Office of Public Information and Education
Fountain Square - Bldg. D
Columbus, Ohio 43225

Dear Mr. Orlos:

I am submitting hehewith the nomination of the late Eugene Cranz for The Ohio Conservation Hall of Fame.

Mr. Cranz was a pioneer in Ohio forestry in the early 1900's. You will note in the Ohio Tree Farm inspection record dated August, 1949 that he fenced livestock out of his woods in 1906 following a visit to his farm by two foresters.

At the lower part of this letter is a copy of a card Mr. Cranz sent to his friends on his 80th birthday. This card reflected his genuine conservation attitude. I feel that we need to remember such people who went before us and set such a fine example for those who came after them.

I sincerely believe that Mr. Cranz deserves to be enrolled in The Ohio Conservation Hall of Fame and hope he will be given favorable consideration.

Sincerely, Oliver D. Diller

Oliver D. Diller
Professor Emeritus - Forestry
OSU - OARDC

Ira, Ohio, August 1st, 1943

TO ALL OF MY FRIENDS, GREETINGS:

Eighty years, and all of them on the same farm. Living on the land for so many years has brought some contentment, and contentment is the measure of happiness.

The dream of youth, of little or nothing to do during the years of old age, has never quite come true. There is always something to do, and there is some reward for doing it.

At 80 one must look toward the setting sun, but since our coming and our going is not in our hands, we live each day as it comes along.

In the years gone past, in going over the fields and woods we used to wonder what made one flower red, one blue, and yet another one yellow.

"In God's magnificent works His will shall scan —
And love and peace shall make their paradise with man."

EUGENE F. CRANZ.

https://irma.nps.gov/DataStore/Reference/Profile/2300914