

The OHIO WOODLAND Journal

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A PUBLICATION OF THE OHIO TREE FARM COMMITTEE



- ◆ American Chestnut: ID, Restoration, Historical Distribution
- ◆ Understanding the Basics of Silviculture
- ◆ Wild Wonders: Buteos

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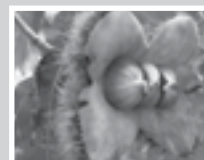


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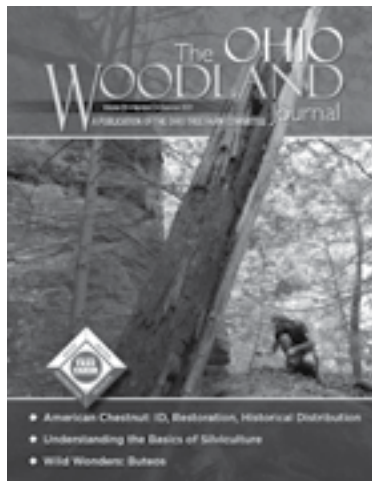
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On the Cover

The decomposing remains of a large American chestnut at Canter's Cave 4-H Camp with Nick Wiesenberg from College of Wooster. Photo courtesy of Dave Apsley

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American Chestnut in Ohio's

Essentially all mature American chestnut trees in Ohio were killed by the chestnut blight in the 1920s and 1930s. However, chestnut sprouts that emerge from the base of the tree (the belowground “root collar”) after the top dies are resistant to the blight while they remain small. Chestnut sprouts, though uncommon, persist in the understory of woodlands in southern and eastern Ohio today.

Before the blight, American chestnut was a common and sometimes abundant tree species in some areas of the eastern United States. In the Appalachian Mountains from the Smokies to southern New England, chestnut reached its greatest abundance. E. Lucy Braun named that area the Oak Chestnut Forest Region, due to dominance of chestnut with several species of oak. She noted that “On the whole, the Oak Chestnut Region is mountainous” and “its occurrence seems intimately related to slopes.”

Historical records also indicate that American chestnut occurred throughout the Allegheny Plateau Region in Ohio. As we approach the more widespread reintroduction of blight-resistant American chestnut, it is important to better understand its historical abundance in Ohio, where it was found on the landscape, and the associated species.

The best source of information on Ohio's historic forests can be found in the original land surveys that divided the land into ranges, townships, and sections (counties came later). In most areas of southern and eastern Ohio, the surveys were conducted around 1800 before European settlement and land clearance began. At section corners, which were one mile apart, a post was set, and the surveyors selected and marked, or “blazed,” the two nearest trees as “witness trees” to help relocate the corner. For each witness tree, the surveyors recorded the species, diameter, and the distance and direction of the tree from the corner post. Those records provide unique information on the species and size of trees in Ohio's historic forest.

The composition of the “pre-European settlement” forest in Ohio has been the focus of several publications using witness trees and other sources of information to describe the vegetation, ranging from the entire state to smaller areas of one to several counties. In 1925, Sears reported that American chestnut was found throughout the Appalachian Plateau of Ohio, from Highland and Adams counties in southwest Ohio, up to Trumbull and Ashtabula counties in far northeast Ohio (Sears). Chestnut comprised five percent of the witness trees in the Allegheny Plateau portions of Ashland, Holmes, and Wayne counties, where it was most common on ridges and slopes, growing with black oak. In Fairfield and Perry counties, oak-chestnut forests were found on ridges and upper slopes in the unglaciated area, particularly where rock outcrops were present. In a review of the “primeval forests” of Vinton and Jackson counties, oak-chestnut forests were found where the topography was most rugged, including the Zaleski State Forest area, and it was noted that “the many undecayed stumps, and young sprouts bear witness to

HISTORICAL



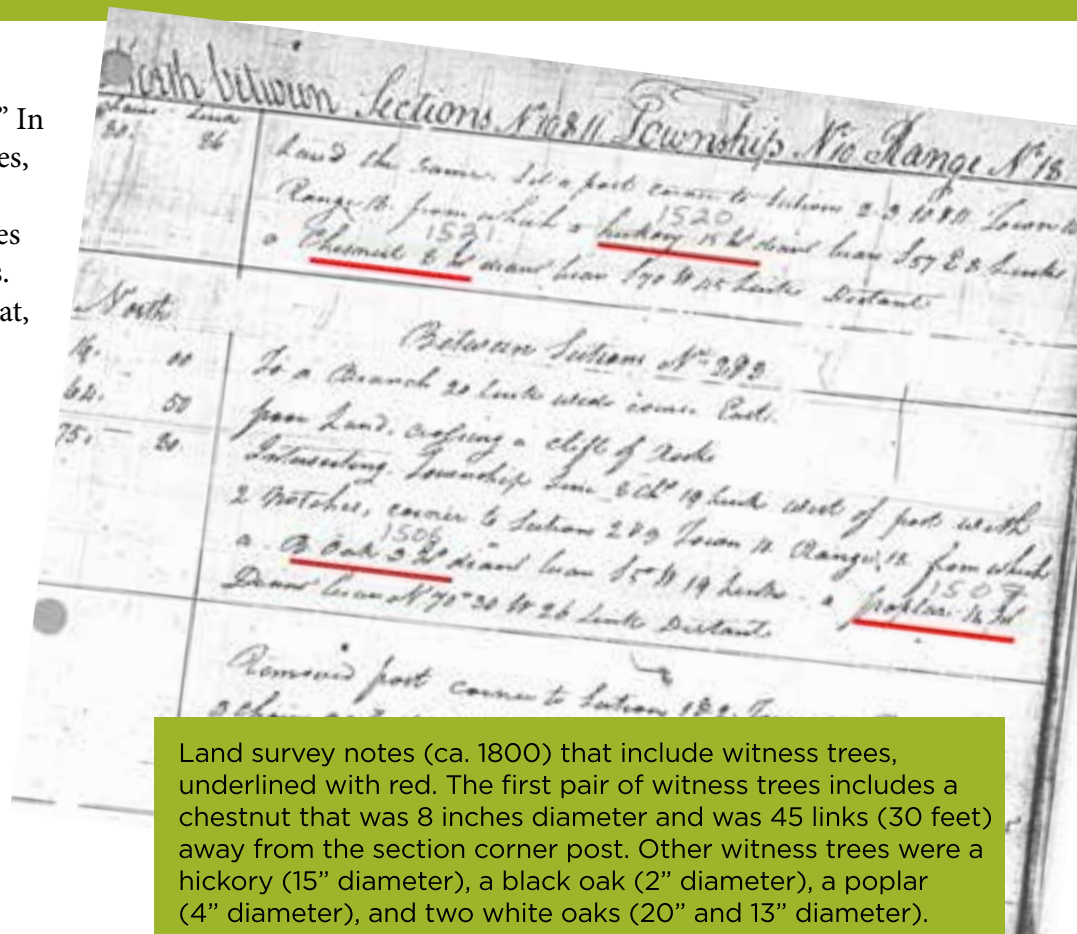
Ascending a hill in rich land of poplar, sugar tree, oak, hickory etc. to my post with 5 notches standing two chains north of the top of a sharp ridge covered with fine oak & hickory timber & some large chestnuts good farming land.

Jonathan Stone, 1795, Cheshire Township, Gallia County

Historic Woodlands

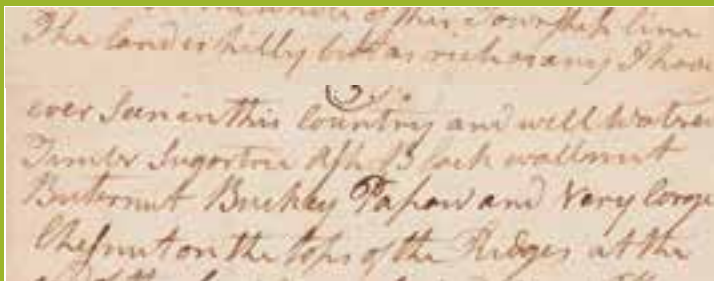
the abundance of chestnut in the past.” In a portion of Adams and Scioto counties, including the current-day Shawnee State Forest, oak-chestnut communities occurred on ridges and adjacent spurs. Overall, these descriptions indicate that, in Ohio, chestnut occurred on some ridges and slopes with well-drained soils, often where sandstone rock outcrops were present – it was almost entirely absent from sites with heavy clay or limestone-derived soils. Its most common tree associates were chestnut oak and black oak, and the midstory and understory of former chestnut sites was described as often having mountain laurel, blueberries, and huckleberries, which also indicates well-drained and acidic soils.

Continued on page 24



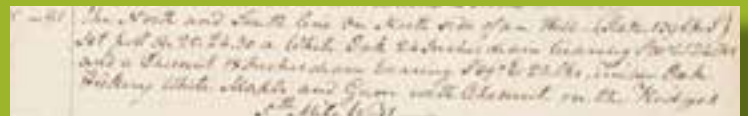
Land survey notes (ca. 1800) that include witness trees, underlined with red. The first pair of witness trees includes a chestnut that was 8 inches diameter and was 45 links (30 feet) away from the section corner post. Other witness trees were a hickory (15" diameter), a black oak (2" diameter), a poplar (4" diameter), and two white oaks (20" and 13" diameter).

SURVEYS



The land is hilly but as rich as any I have seen in this country and well watered. Timber sugartree, ash, black walnut, butternut, buckeye, pawpaw and very large chestnut on the tops of the ridges at the

John Mathews, 1789, Morgan Township, Gallia County



The north and south line on north side of a hill (stake 139 links south). Set post 19.25.24.30 a white oak 24 inches diameter bearing S 30 W 24 links and a chestnut 18 inches diameter bearing S 39 E 23 links. Timber oak, hickory, white maple, and gum with chestnut on the ridges.

Jonathan Stone, 1796, Starr Township, Hocking County

American Chestnut in Ohio's Historic Woodlands continued from page 17

Using witness tree data, we recently completed a study in Hocking, Vinton, Athens, and Perry counties, and the portion of Ross County east of the Scioto River, comparing today's forests with historic forests. Within that area, 5,603 witness trees were recorded at section corners, each of which we entered into a Geographic Information System (GIS) database, to place it precisely on a map. We found that only 106 of the witness trees (about 2 percent) were American chestnut, indicating that it was present but certainly not a dominant species. White oak was by far the most abundant species (34 percent) followed by hickories (14 percent), black oak (13 percent), and beech (10 percent).

We also found that chestnut was most common on upper slopes and ridges, but on slopes it was more frequently recorded on cooler (north-facing) than on warmer (south-facing) aspects. This observation was also noted by Gustav Hall in his 1957 thesis on the flora of the Vinton Furnace Experimental Forest; he described chestnut sprouts as "fairly common on rich slopes." The size of the chestnut witness trees ranged from three inches in diameter to a mammoth that was five feet in diameter. Overall, chestnuts tended to be large; the average diameter for all tree species combined was 15 inches, but chestnuts averaged 21 inches, and about one in six of the largest trees, those three feet or more in diameter, were American chestnut.

Why was chestnut less abundant in Ohio's Allegheny Plateau than in the Appalachian Mountains to the east? It is likely due mostly to bedrock geology and soils, as chestnut thrived in the more extensive acidic and well-drained soils of the mountains, where conditions were relatively moist. Though chestnut was not often a dominant tree in the original forests of Ohio, it is likely that it became more abundant as forests re-grew after the heavy logging that occurred from the mid-1800s through the early 1900s. When American chestnut was cut, it often produced abundant sprouts that grew faster than nearly all other tree species. Also, chestnut probably had an ecological impact that was

greater than its abundance suggests, because it was a prolific and consistent seed producer – a mature tree could produce up to 6,000 nuts per year. Unlike the oaks, hickories, and beech that only produce bumper crops once every three to five or more years, chestnuts were reliable producers every year and the "sweet" nuts, high in carbohydrates, were an exceptional food for wildlife (and humans!). Thus, the successful reintroduction of blight-resistant American chestnuts, even as a relatively modest component of the forest, could have a positive impact on Ohio's game and non-game wildlife species. ♦

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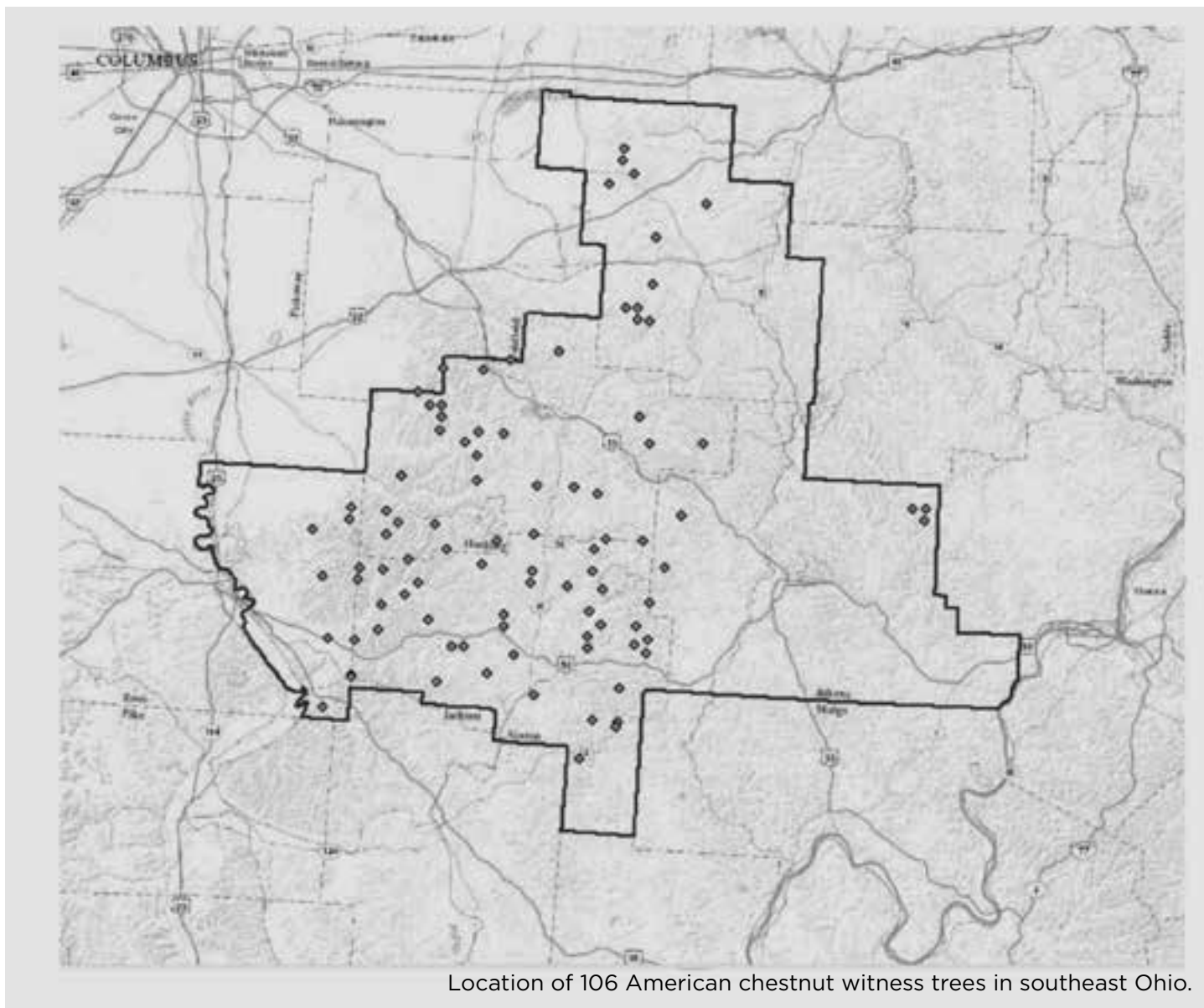
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Location of 106 American chestnut witness trees in southeast Ohio.