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# Key to reviving Georgia's chestnut trees may lie in the past

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By MARK DAVIS

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Nathan Klaus is tracking giants. They once hid in the forests of Fulton and Cobb counties. In Gwinnett, they found homes along ridges that hadn't been broken by plow and mule. The same was true in DeKalb, home to nearly 300 of the huge creatures.

But they're gone now, so Klaus relies on aged maps to trace those giants: American chestnut trees. It's a step in restoring the towering hardwoods to the landscape they once dominated.

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Courtesy of Georgia Department of Natural Resources  
DNR biologist Nathan Klaus is compiling a map showing where chestnuts once grew in Georgia.

"Chestnuts are one of those species that elicit ... a lot of emotion," said Klaus, a senior biologist with the state Department of Natural Resources. "As a scientist, I'm not supposed to have a lot of emotion [about chestnuts], but I do."

Klaus is so enthralled with them that he is creating a computer-enhanced map that shows where the big trees flourished across the state — and, he hopes, where *Castanea dentata* might thrive again.

The project, part of a \$12,000 grant, combines old maps with new technology. In 1805, the state began a series of lotteries to give settlers land that had been taken from Creek and Cherokee Indians. Surveyors' maps took note of rivers, lakes and other significant features to distinguish tracts. One of the most noteworthy sights in the forests: chestnut trees.

When Klaus saw the maps, he was curious. "The thing that kept popping up on the maps was chestnuts," said Klaus. "I said, 'I'd love to see where all those chestnuts were.'"

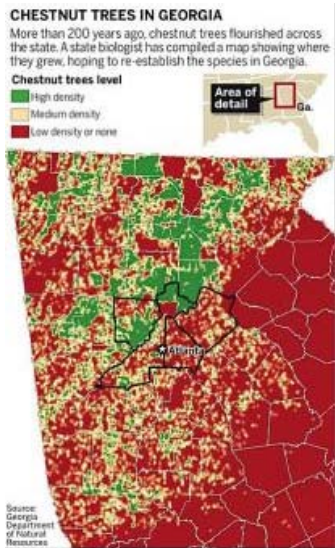
The trees ranged from the mountains in a north-south diagonal, ending in Early County, according to lottery records. In the metro area, chestnuts were especially numerous in Fulton and Cobb counties.

Klaus and others have taken those maps and integrated them into a GIS, or Geographic Information System. A computer program, GIS can combine the historic distribution of the trees with maps of topography, climate, soil and other factors at a site. The result is a sophisticated analysis of a region. Through the GIS, Klaus compares these modern maps with the faded notations from surveyors who, two centuries ago, trod forests different than those we know today. The project should be finished this summer.

"Before planting, we'll need to know where to plant them," said Klaus.

For 'future generations'

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The map highlights a tree that once loomed large on the American landscape.

Chestnut trees were hard to miss. A mature tree exceeded 100 feet in height and might be 8 feet in

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diameter. Their limbs were like those of a true giant — long, knotted and strong. A chestnut even figures in the opening line of "The Village Blacksmith" by Henry Wadsworth Longfellow.

They were part of the life cycle two centuries ago. Wild animals and settlers' hogs ate the nuts. Settlers prized the strong, smooth-grained wood for furniture.

They were lovely, too. In spring, chestnuts shimmered with white flowers; came the fall, their serrated leaves shown gold.

That changed when a blight came to America from European trees shipped here early in the last century. The disease acted quickly, toppling chestnuts from Maine to Georgia. At one time, say arborists, as many as 3 billion chestnuts lived in forests across the East Coast. In a half-century, they were gone.

But they could return. American chestnuts still sprout from the earth, usually around the stumps of giants that succumbed to the disease. They rarely live long; the blight still exists, and is fatal to most seedlings.

Yet some show signs of disease resistance, and that gives Michael Hinson hope.

Hinson is president of the Georgia chapter of the American Chestnut Foundation, a nonprofit organization dedicated to restoring the big tree to its native range. A Rome resident, he became interested in them when a co-worker invited him to tramp the mountains, looking for chestnut trees. He's never seen one of the giants, "but I'd sure like to."

Hinson and others chapter members have participated in cross-breeding hardy American chestnut specimens with blight-resistant Chinese chestnut trees, creating 50-50 hybrids. Those that resist the blight are "backcross-bred" with another American chestnut, creating specimen that are 75 percent American chestnut. If that tree thrives, the process is repeated, with successive generations featuring more genetic material from the American species. The final specimens are 15/16 American chestnut.

The national chestnut organization has hundreds of backcross-bred trees at a research facility in Virginia. It hopes to plant some in national forests if they prove blight-resistant. Trees also are planted at Berry College and at a UGA facility in Blairsville, where scientists are watching them for signs of beating the disease.

In time, said Hinson, some of the trees may grow in national forests here. "It'd be neat," said Hinson, who operates a saw mill that specializes in cutting southern yellow pine for construction. "I'm not sure I'll be around to see it."

A few mature trees exist in Georgia. In 2006, Klaus discovered a stand of chestnuts near a hiking trail not far from President Franklin D. Roosevelt's Little White House at Warm Springs. The largest tree hardly rivaled those of the past — it was about 40 feet tall — but it was big enough to touch off huge excitement among chestnut fanciers.

Martin Cipollini, a biology professor at Berry College, shared that excitement. Cipollini, who has helped oversee the planting project at Berry, wants to see the trees replanted in the forests they once dominated. "It's a long-term project," he said. "We all recognize that this is for the benefit of future generations."

A future that relies on past discoveries, when giants still ruled the forests.

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