

Reviving the sleeping giants



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Written by Kristin Sancken, Correspondent | 11 January 2012

The American chestnut was once one of the most important trees in Virginia, both in terms of economics and pure ground cover. The U.S. Department of Forestry estimates that over 25 percent of the Appalachian Forests were once American chestnut; livestock were fattened on the nutritious nuts, railroad cars full of chestnuts were shipped to big cities for the holidays, and the straight, rot-resistant wood was perfect for building barns and homes.

"It was an amazing tree. It grew on poor sites, the wood was excellent wood, very rot resistant, good food and cover for wildlife," said Chuck Wright, Fluvanna County Forester with the Virginia Department of Forestry.

All of that changed in 1904, when the American chestnuts at the New York Zoological Gardens began dying of a rare fungus, colloquially called "the blight." By 1950, the American chestnut blight had taken over the entire east coast, wiping out a sizeable chunk of Virginia's forests. In fact, there are only a few surviving adult American chestnut trees in Central Virginia, but that may soon change.

Beginning as early as 1925, arbor enthusiasts launched a variety of efforts to save the tree. They tried breeding what they thought were survivors of the blight, but the survivors were found to be not truly resistant. Dr. Ralph Singleton at the University of Virginia tried radiating American chestnut seeds in the hopes that it would produce a genetic mutation resistant to the blight, but that was also unsuccessful. The American Chestnut Cooperators Foundation made an effort to introduce the fungus itself to a virus that would kill it, a procedure called hypovirulence, which had mixed results. The only solution for saving the tree that has worked thus far is hybridization, which combines genes of the American chestnut with those of the Chinese chestnut through cross-pollination.

Research in the field of genetics has given arborists the tools that they need to re-breed the American chestnut, with blight-resistant genes from the Chinese chestnut.

"The Chinese chestnut is resistant to that blight but the Chinese chestnut is missing some of the characteristics that made the American so great," said Wright. Namely, the Asiatic chestnuts are poor timber trees.

Since 1969, Virginia Department of Forestry researchers have been using American chestnut pollen to pollinate Chinese chestnut trees in the Lesesne State Forest in Nelson County. Other chestnut nurseries, guided by the American Chestnut Foundation, also started up in Augusta and Grayson counties.

"Right now there are nine orchards in the state," said Katy McCune, Mid-Atlantic Regional Science Coordinator for the American Chestnut Foundation.

The goal is to keep the blight resistance of the Chinese tree, while keeping the form of the American chestnut tree. In order for this to happen, the tree needs to be 15/16th American chestnut, and 1/16th Chinese chestnut, a complicated process that has taken until now to accomplish.

"They've been backcrossed three times, and have a moderate resistance to the blight. We still have two more generations of breeding to do," said McCune.

According to the American Chestnut Foundation, in the fall of 2007 their researchers began harvesting nuts that they expect will be



suitable for a “real-world” setting. In spring of 2008, 500 of these seeds were planted in three National Forests in the southeast and appear to be thriving. But they won’t be available to the general public for another 8 to 10 years, at minimum.

“We need to test it and make sure it’s what we say it is,” said McCune. “Only once those trees pass our test are we willing to give them to the public.”

Thus, this is an exciting time for tree-fans everywhere. In the life cycle of a tree, eight to ten years is no time at all to wait. For the first time in over 100 years, an old tree may be soon reintroduced to its former glory.

“My gut feeling is that we’ll be able to get this back in our lifetime in a meaningful way,” said Wright. “When it disappeared it was a pretty tough thing to replace it. You can still find a lot of [the dead ones] out in the woods, they’re that rot resistant. It was a very spectacular tree and it would be great if we could get it back.”

Do you have an American chestnut on your property?

Most of the adult chestnuts trees that you see in Virginia today are Chinese chestnuts. But, it’s a common misconception that the American chestnut is extinct. In actuality, it’s not even technically endangered, although, the blight has made it near impossible for new American chestnuts to grow to full adult height without dying.

“I haven’t been in a county of Virginia where I haven’t been able to find them,” said Wright. “[Because they stump sprout], you can go into most areas of Virginia and you will find young American Chestnuts, but they never live long enough to reach the size of the tree.”

The older trees that survived the blight are suspected to be in isolated areas, away from other chestnuts that would have spread the fungus. It’s very possible that one survives on your property.

“Central Virginia is really an area we just started to focus on in the last two years. We’re looking to expand in this area and capture the genes,” said McCune. “We’re definitely looking for people to let us know if they have a tree and we’ll verify that.”

If you find one, you just might be the first person in Fluvanna to have a documented American chestnut.

“We don’t have one recorded for the county, that’s not to say that there isn’t. The native range, did include Fluvanna County,” said John Scrivani, Virginia Chapter President of the American Chestnut Foundation. “There’s isolated trees found around Richmond and even some in the coastal plains.”

Characteristics

There are 15 different traits that differentiate the American chestnut from the Chinese chestnut. But how can a layperson, and not an arborist or forester, tell the difference?

“There’s a number of different features they can look at. You can tell by the size of the dentations on the side of the leaf, the shape of it, or the look of the leaf,” said McCune. “A lot of times when people think they have an American we suggest they send it into the chapter. Sometimes we even go to the microscope if it’s that hard to tell, if you get a hybrid or a difficult cross.”

(A resource for differentiating between American and Chinese chestnut trees is the [Virginia Tech Department of Forest Resources and Environmental Conservation](#).)

What you should do if you think you have one:

Collect a leaf and twig sample from the tree you found and send it in with pertinent information about the tree to: Katy McCune, Virginia Department of Forestry Central Office, 900 Natural Resources Drive, Charlottesville, Virginia, 22903. Check out the American Chestnut Foundation’s website for more information on how to collect and submit a proper leaf and twig sample, http://www.acf.org/find_a_tree.php.

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