

10/31/2007

As the Crow Flies: Hope for the American chestnut

By: Doug Pifer

I found some chestnut burs on the mountain road near Bear's Den Overlook. The burs had been lying on the ground in the misty rain that had fallen all day. Gently I picked one up, mindful of the branched, inch-long spines. With a twig I picked bits of leaf litter out of the bur. It had split into four sections and opened up. Its smooth, tan lining had scars where two chestnuts had grown all summer, packed close together inside the bur.

But today there were no nuts. A gray squirrel I saw rummaging among the fallen leaves nearby might have known where they went.

In pre-Colonial Virginia, one in every three trees in the forest at this spot along the Blue Ridge was an American chestnut. The June air carried the musky perfume of their spiked, frothy blossoms in the upper forest canopy. In October, the burs fell to the ground and accumulated more than a foot deep in the hollows. Wild turkey, ruffed grouse, deer, bear, elk and other forest wildlife gorged on chestnuts.

Native Americans crushed chestnuts in wooden bowls and boiled them in water. They skimmed off the oil that rose to the surface to be used as a seasoning and pounded the dried pulp into chestnut meal for baking. Chestnut leaves, rich in tannin, were brewed into a medicinal tea the Iroquois used to combat whooping cough they caught from European settlers. Colonists ate chestnuts raw or roasted, or converted them into flour for brewing beer.

Chestnuts eaten fresh today are usually European or "Spanish" chestnuts imported from Italy. The ancient tradition of street vendors selling hot roasted chestnuts in the fall persists in many cities. My wife makes chestnut stuffing every Thanksgiving, based on a recipe passed down from her family.

Chestnut trees grow strong, rot-resistant, grainy wood similar to oak but browner in color. Chestnut lumber once comprised a quarter of all lumber cut in the Appalachians and was used for almost everything: Floors in stables and barns, fence posts, mine timbers, tables and chairs, cradles and coffins. There was chestnut wood siding and paneling. Its durability led to later use for railroad ties and telegraph poles.

The house my wife and I live in dates back to 1822. It has sound, straight-grained brown wood siding and rock-hard logs in the oldest part that, we surmise, are American chestnut.

In the mid 1890s, presumably in a shipment of Chinese chestnuts to be planted for the

New York Botanical Garden, came a parasitic fungus. Chinese chestnuts were resistant to the fungus, but American chestnuts in the Bronx started dying in 1904. By the 1920s the blight had spread from New York and New Jersey to Pennsylvania and Maryland. During the 30s it spread west and south to Ohio and North Carolina and by 1940 hardly a living chestnut tree survived.

Spores from the *Endothia parasitica* fungus entered the chestnut tree through a wound in its bark. The fungus immediately attacked the green, growing layer of bark next to the wood. Soon the fungus girdled the tree, cutting off the flow of nutrients so the chestnut tree starved to death.

From the bark of infected trees oozed yellowish, sore-looking pustules that grew into orange horns and dispersed thousands of spores into the air to infect more chestnut trees.

Chestnut roots remain intact and the tree sends up shoots for many years. These suckers generally succumb to the fungus by the time they grow old enough to start to produce nuts. A full-grown American chestnut tree is very rare.

I'm old enough to remember the big chestnut skeletons from the 1950s. One stood alone in the corner of a hayfield near my parents' house in Pennsylvania. I remember looking up at deep, parallel grooves in its massive trunk, and the wide sweep of silver-gray limbs. I once saw a big possum asleep up there, nearly hidden in a tangle of wild grapevines.

After the fungus spread to Europe during the Second World War, the European chestnuts recovered from their bouts with it and developed a field resistance. Bark samples examined from these survivors revealed the chestnut blight fungus had been attacked by a virus, survived and reproduced in a weakened state.

The resulting so-called "white" form of the chestnut fungus attacks but doesn't kill the tree, and the tree stays immune to future fungus attacks. Such "cured" American chestnuts have been grown under controlled laboratory conditions, and a few blight-resistant stands of American chestnut now stand in Michigan, West Virginia and Tennessee.

Such trees lack the magnificence of the old American giants. They're scarred by struggle with near-terminal disease. But they may be the key to the American chestnut's future. Horticulturists have also developed a fungus resistant hybrid between the Chinese and American chestnut.

So, as the burs I found last week reminded me, there's still hope for the chestnut.

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