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# SCIENCE & SPACE

## Devastated American chestnut may return

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**(AP) -- A century after blight began to bring down the majestic American chestnut tree, once known as the "redwood of the East," scientists are tantalizingly close to reviving it.**

Within a few years, using both traditional plant breeding and genetic engineering, researchers hope to have a variety of blight-resistant chestnuts to repopulate the tree's native range.

If they succeed, the towering species that once accounted for one out of every four trees from Maine to Mississippi will be back, benefiting wildlife and humans alike.

Beyond those celebrated savory nuts, the modern market for new American chestnut trees could potentially be huge, said Dr. William A. Powell, a molecular biologist at the State University of New York in Syracuse.

He said the tree's wood -- amber-colored and extremely rot-resistant -- is perfect for utility poles, fence posts, shingles and other exposed woodwork.

"If the chestnut was still around, everyone's deck would be built out of its wood. We might not even need treated wood," Powell said.

The tree's sudden vanishing act was the most spectacular in a series of fungal blights that have ravaged North America's trees -- a list that includes the American elm, butternut and white pine.

Researchers are trying revive those other trees, too, but the chestnut's restoration would be the most ecologically significant, Powell said.

A century ago this summer, the fungus *Cryphonetria parasitica* was first detected in American chestnuts in New York City's Bronx Zoo, an alien invader that likely arrived on imported Asian chestnuts.



American chestnut, wiped out by disease, may be staging a comeback.

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Spread rapidly by wind, rain and birds, its spores infected the tree's bark. By 1950,

some 3.5 billion trees -- about 90 percent of the species -- were dead with a few mostly shrub-like survivors hanging on.

After holding a keystone place in Eastern forests for millions of years, the picturesque trees that towered up to 120 feet with globular crowns were nearly extinct. Black bears, wild turkeys and other animals that relied on chestnuts to fatten up for winter starved.

Poor rural families who collected the nuts for food and income also suffered, and the autumn aroma of roasted chestnuts hawked by vendors in big cities vanished.

Despite the American chestnut's collapse, scientists and tree breeders refuse to write it off. They've been working for decades on blight-resistant varieties through several strategies.

By 2006, the American Chestnut Foundation hopes to have a hardy American-Chinese hybrid that has the height and shape of the native tree with the blight-resistance of the Chinese variety.

In another breeding campaign, researchers are interbreeding American chestnuts that have survived blight, trying to create tougher trees.

"It's a slow process because it's a tree, not a corn plant," said Gary Griffin, a plant pathologist at Virginia Tech in Blacksburg, Va.

To speed things up, plant geneticists are working to create a blight-free tree by inserting fungal resistance genes from other plants directly into the chestnut trees.

Charles Maynard, a forest geneticist at the State University of New York, said he and Powell recently learned how to routinely insert such genes into embryonic chestnut tissue. But they have not yet succeeded in growing those transgenic embryos into trees.

While those approaches seek to make a better tree, some hope to conquer the blight itself with a virus that's helping European chestnut trees rebound.

However, that virus, which limits canker growth in European trees, has so far met with scant success in American cousins due to genetic differences, said Mark Double, a plant pathologist at West Virginia University in Morgantown, W.Va.

He said most scientists believe the tree's best hope lies not in a single breakthrough but a combination of approaches.

"Everyone realizes it's going to take a mixture of all these avenues to bring the chestnut back," he said. "I don't think any one of these approaches alone will be what saves the American chestnut."

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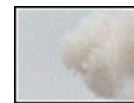
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