

# Chestnut trees may get a dose of good health

By [Lee Bergquist](#) of the Journal Sentinel

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For decades, a stand of trees in western Wisconsin was untouched by a lethal fungus that wiped out the American chestnut over much of the eastern United States.

Isolated from its natural range, the 90-acre forest near West Salem in La Crosse County - purely by a freak of geography - became the largest stand of the trees in the United States to escape chestnut blight.

Then, bad news.

In 1987, the blight was identified in the private woods on Highway C north of town. Big chestnuts, nearly 100 feet tall, began dying.

They were succumbing to the invasive fungus *Cryphonectria parasitica*, which was from Asia and was first discovered at the Bronx Zoo in 1904.

The pathogen originated from imported Asian chestnuts and caused chestnut blight that the domestic variety couldn't defend against. The blight eventually killed billions of trees from Maine to Alabama.

With help from the [American Chestnut Foundation](#), scientists have engineered trees designed to be genetically resistant to the blight. Time will tell whether the new varieties can withstand the fungus like their Asian cousins.

But because West Salem was so isolated, scientists decided to experiment with a virus that attacks the fungus. Known as a hypovirus, it saps the strength of the invader.

Early results were not promising, and there were false starts and hiccups along the way.

But the latest research shows that the chestnuts are beginning to respond. In some cases, trees that were given up for dead are growing like gangbusters.

"The results are mixed, but we are encouraged by it," said William MacDonald, [a leading expert on chestnut blight](#) at West Virginia University.

"If you had asked me 10 years ago, I would have said things aren't going as we thought they would. But now we see positive aspects to this stand."

His colleague, Mark Double, agreed.

"We were disappointed for a number of years, but some large trees are now just screaming through that stand."

Also, the West Salem chestnuts are responding more favorably to virus treatments than anywhere in the U.S., Double said, and it's probably because the Wisconsin trees are larger than their struggling brethren in the tree's traditional range.

The chestnut's root systems are not killed by the blight, so infected trees often try to regrow but invariably are overtaken by the fungus.

The big West Salem chestnuts are outliers, living hundreds of miles from their natural range. Once word came out that chestnuts were living in Wisconsin, devotees began making pilgrimages.

"People from all over the country want to save this tree - they just love this tree," said Anita Baines, a biologist from the University of Wisconsin-La Crosse, who began working with West Salem chestnuts while a graduate student at Michigan State.

"They're like pandas. They're charismatic megafauna and they've become symbols of conservation of the forest."

Indeed, chestnut conventions were held on the property. Charles Kuralt of CBS interviewed Ron Bockenhauer, one of the owners of the properties, his son said recently.

"My dad lived for the chestnut trees," Scott Bockenhauer said. "He was the chestnut king."

Ron Bockenhauer died about a year ago.

Archival photographs show images of men in Appalachia dwarfed by the massive trees. Their trunks were wider than men's outstretched arms.

The trees were valued for their fine, straight timber and the nuts prized as a food source. Settlers carried the nuts with them to places like Wisconsin, where islands of the trees flourished.

Martin Hicks planted nine chestnuts in fence rows on his West Salem farm in about 1885. They presumably came from central Pennsylvania, according to researchers. By 2000, there were an estimated 6,000 trees that were 1 inch in diameter or larger.

After the blight was discovered, the state Department of Natural Resources went on the offensive.

"With all of the regret and ruthlessness that characterize a surgical team excising a cancer," wrote the Milwaukee Sentinel's Quincy Dadisman in 1988, the DNR stepped in to fight the disease with fire retardant foam to keep the spores of the fungus from blowing to other trees. A trench was bulldozed and loggers chain-sawed trees, dropping them in the hole. The initiative lasted until 1989.

From 1990 and 1991, crews tried spraying bleach on the fungus of some trees.

Neither experiment worked.

Beginning in 1992, scientists turned to the use of two different viruses. The second, isolated from a canker found near Florence, Italy, worked better.

Researchers and graduate students, DNR personnel and others would arrive each spring at the woods of adjoining properties owned by Bockenhauer and Delores Ryhme and go to work treating individual trees.

## **Tree treatment**

Using a sauce-like medium, they'd swab the viruses on openings of infected trees, hoping the virus latched on to the fungus as it sent out spores.

From 1992 to 1997, Double said field teams treated every canker on a tree that they could reach - about 135 trees.

But they realized there were simply too many infected trees, so they stopped using the virus from 1998 to 2003.

They knew the virus would spread naturally. But so did the fungus, and many of the trees died.

"Hindsight is always 20-20," MacDonald said. "We probably should have kept treating the trees."

The virus was reintroduced in the spring of 2004, and the work has continued every year since then. In all, about 310 trees have been treated; other trees are recipients of the virus by the natural spread of the fungus.

In 2008, people began noticing changes. Some of the largest trees that were initially treated and thought to be dead began putting out new shoots and branches 30 or 40 feet off the ground. Some were rebuilding their crowns.

"We thought this was going to take place immediately," Double said.

As it turns out, the effect of the virus on the blight takes longer than the researchers thought.

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