MIDDLETOWN

– Arborist Jane Harris calls herself a "tree fanatic." Gazing out over an orchard of young chestnut trees in the rolling hills outside Middletown, Harris says, "Most of these trees are doomed." She has to accept a 90 percent failure rate at this four-acre experimental plot of American chestnut. But Harris is dedicated.

The Middletown chestnut orchard near Higby Reservoir is a cooperative effort among the Middletown Garden Club, the city's Urban Forestry Commission and the American Chestnut Foundation, a national group attempting to restore this once-dominant forest tree. The goal is to develop a blight-resistant species that can be reintroduced into the forest.

"You have to be an optimist to do this kind of work," Harris says of the project that began in 2009. "It's a lot of work for a limited return."

Old photographs of New England forests show loggers dwarfed by 10-foot diameter American chestnut trees towering 100 feet in the air. "The King of the Forest," was the name given to this much-used valuable hardwood that went into so many New England houses and barns. Chestnut was also used for fence posts, railroad ties and telephone poles. The nuts were a universal food source.

Chestnut beams are still around but chestnut trees are gone. They were all destroyed by a fungus from Asia that swept through our eastern forests beginning in 1904. At the time, half the standing timber in Connecticut was American chestnut, by some estimates.

The blight fungus, Cryphonectria parasitica, attacks the growing cambium layer and the young tree withers and dies, usually before producing its first nut crop. However, because the roots are not affected, saplings continue to sprout from old stumpage, leaving a ghost understory where once were giants. The fact that chestnut is still around gives scientists hope.

In Connecticut, chestnut research began in the 1930s with the plant scientist Arthur H. Graves, who began cross-breeding blight-resistant Asian chestnuts with American trees at an orchard in Hamden. Today, the plot is
managed by Agricultural Experiment Station.

The American Chestnut Foundation also cultivates hybrids by cross-breeding blight-resistant Chinese chestnut trees with the American species at their research center in Meadowview, Va. This "backcrossing" is done over generations until the tree is 95 percent American chestnut.

Middletown's chestnut orchard was serendipitous. It came about when Environmental Resource Specialist James Sipperly moved his office to the Water and Sewer Department across town. Here he learned of the watershed land above Higby Reservoir, where corn and alfalfa was once cultivated.

"My first idea was to use the land for a nursery for city trees rather than buying them," Sipperly says. "There was also a lot of interest in restoring the American chestnut so we decided on a chestnut orchard instead."

In the spring of 2009, the first 200 trees were planted from backcrossed hybrid nuts supplied by the American Chestnut Foundation. For the planting, the garden club received help from The Connection, a residential drug treatment program. "It's a lot of work planting direct from seed and they did a tremendous job," Harris says.

Harris says that while nursery stock is often used in forest regeneration, seed planting is preferred for chestnut orchards. "We tried seedlings but every single one died," Harris says. "The trees just seem to do better when they are planted from seed."

Sadly, 100 trees would be lost to pesky rodent voles, which feast on plant roots, while deer browsing claimed other seedlings, until a fence was erected around the orchard. Sipperly says the voles are deterred by treating the plant roots with a substance similar to hot pepper flakes.

The present orchard, including the replanted trees, now numbers about 350 trees, from spindly 2-foot tall seedlings to bushy 10-foot tall you trees with pretty saw-tooth leaves. The trees are all recorded in a database, which identifies the original hybrid seed, their location, and other information.

"The trees seem to be doing really well," Sipperly says.

Chestnut restoration takes patience. It could be another five years before Harris knows the success rate in Middletown. In about three years, the blight fungus will be injected into the eight or nine-year-old trees and researchers will observe what happens. Most trees will succumb to the disease, Harris says.

Bending down to inspect a seedling in a neat row of young trees, Harris says "If we only get a few trees out of a 100 that survive that would be a success."

Copyright © 2014, The Hartford Courant