

November 30, 2004 Tuesday

SECTION: NEWS; Pg. 1B

LENGTH: 890 words

HEADLINE: Recovery in sight for elms

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BODY:

Breed that resists beetle-borne fungus planted in Putnam

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The Journal News

There are no elms on Elm Road in Briarcliff Manor.

"There used to be elms on Elm Road," Brooke Beebe, director of the Native Plant Center in Valhalla, said of the street where she lives. "But they're gone. There's not one elm tree left on Elm Road, and that's a shame. Elms are native trees, and they were once all over the place."

Beebe's street isn't unique. American elms, which once dominated suburban neighborhoods across the nation and New England forests, have all but disappeared from the landscape.

"The elm tree was the tree of choice to be planted by small towns all across the country," said Lydia Dallis, an Ardsley gardener and president of the board of the Cornell Cooperative Extension Service for Westchester County. "They have a beautiful shape and will hang over and provide a wonderful canopy for residential streets."

But then came Dutch elm disease, a parasitic fungus carried by the European elm bark beetle.

During the past 50 years, the disease and failed government prevention measures contributed to the eradication of most of the nation's stately elm trees. But after years of research and false starts, the elm is making a comeback. Thousands of clones of a disease-resistant strain of American elm are being grown in special nurseries and replanted across the country by homeowners and local governments. Putnam County is spreading around the new trees, including two 30-foot American liberty elms planted this month in front of the county's historic courthouse to replace two weeping elms killed by the fungus.

"There were elm trees in front of the Putnam County Court House in the 1920s, but Dutch elm disease ravaged those trees and practically every other elm in America," said George Whipple, a Kent resident who donated the trees to the county. "These

new trees will be the biggest elms in Putnam County because all the rest are dead."

Neither Westchester nor Rockland county has added the elm to its tree-planting program. But Ardsley has planted a row of the cloned elms in Ashford Park, and White Plains is annually planting about 25 of the elms.

"We're putting them all over," said Joseph "Bud" Nicoletti, White Plains' public works commissioner. "Whenever a tree has to be removed, we make a note of where it was and bring in an elm."

Planting disease-resistant trees is the latest and most promising effort to prevent the American elm from disappearing. But it took years of research into tree physiology and genetics before researchers hit on a scheme that worked.

"The problem was we were trying to beat Mother Nature and couldn't," said John Hansel, director of the Elm Research Institute in Keene, N.H. At first, Hansel said, it wasn't clear how the trees were being killed and it was believed that the beetle itself was the culprit.

"The little beetle has no knowledge of what he is doing," Hansel said. "He just happens to be a carrier with the fungus spore on his whiskers. Nothing affects the beetle and when he takes a bite out of the little growing wood and wipes his whiskers, the process begins."

In 1955, the Department of Agriculture adopted a policy of tree isolation in which elms found within about a mile of an infected tree would be cut down and burned. "The government thought the trees were spreading the infection and said, 'Let's burn them down faster than they can get infected,' " Hansel said.

Under the isolation program, more than 100 million elms were cut down across the country - yet the disease continued to spread. It was then realized that the disease was spread by the beetles and efforts were taken to control the disease. Researchers tried unsuccessfully to develop a kind of "Franken-wasp" that could bore through elm bark and kill beetles and beetle larvae. But the creationist effort failed.

The government then tried controlling the beetle population with traps, and millions were captured and destroyed. "But Mother Nature just made more," Hansel said. "We finally realized we would have to defeat that parasite when he walks in the door and forget the idea of going to his house and trying to cut down the baby beetles."

Researchers at Cornell and Syracuse universities began studying what was actually killing some elms and why others survived - lone elm trees that seemed to thrive in the midst of the dying trees. It was then that they discovered the fungus.

"It is a cancer of the tree world that was choking off the water supply by clogging the trees' vessels," Hansel said. "The tree then died of thirst."

The surviving trees managed to fight back by having extremely slow metabolisms. Their slow-moving sap prevented the fungus from spreading far, and gave the trees time to counterattack by walling off the infected site with a layer of bark. The fungus, starved of sap, dried up and died.

Researchers found that clones of these naturally resistant elms had a better than 90

percent chance of surviving new infestations of the disease. So for the past decade, the Elm Research Institute and private nurseries have grown clones of those elms and restocked the nation's streets and parks.

In time, more elms may again be found on the nation's Elm Streets.

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LOAD-DATE: December 2, 2004