

# Dutch Elm Disease Update

**T**he fungus that causes Dutch elm disease (DED) accidentally rode into the United States on elm logs shipped from France to Cleveland, Ohio, in 1931. By the 1980s, the destructive fungus—*Ophiostoma ulmi*—had wiped out around 77 million American elms.

To combat this exotic and deadly disease, researchers screened thousands of American elm trees for DED resistance. Thanks to diligent care, enough old specimens were located and kept alive to provide the germplasm necessary to develop DED-tolerant trees. Much of this work was done by Agricultural Research Service (ARS) scientists with the U.S. National Arboretum in Washington, D.C.

The arboretum's tree-breeding project was led, until his 2005 retirement, by geneticist Denny Townsend, who worked with horticulturalist Susan Bentz, in the ARS Floral and Nursery Plants Research Unit (FNPRU) at Glenn Dale, Maryland.

In 2005, the newest American elm—named “Jefferson”—was released jointly by ARS and the National Park Service (NPS), after collaborative screening tests by Townsend and NPS plant pathologist James L. Sernald showed it to have an outstanding level of DED tolerance. It was cloned in 1993 from the original tree, a survivor of about 600 elms planted on the National Mall in Southwest Washington in the 1930s. Jefferson was thought to be a hybrid elm until DNA tests performed at the arboretum proved it to be a true American elm—*Ulmus americana*—a relief to purists.

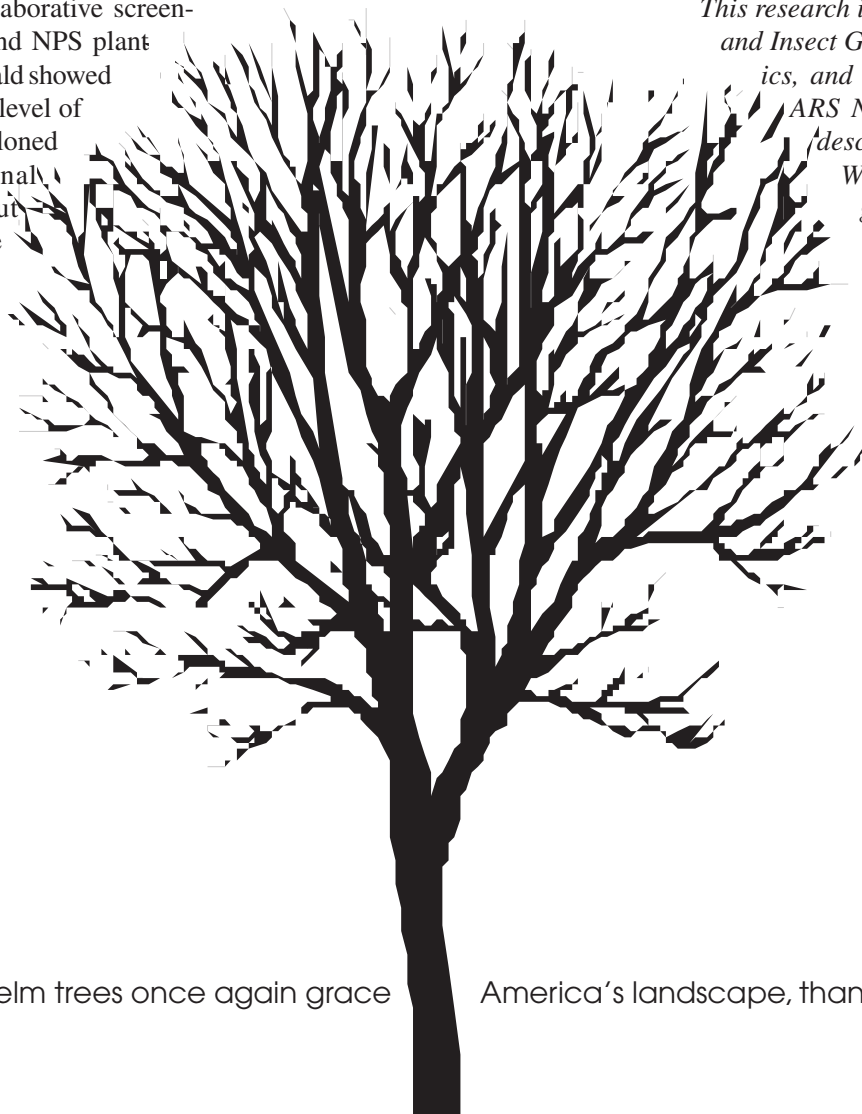
This sturdy elm grows in the typical vase shape up to 68 feet tall. Its leaves turn dark green earlier in spring and stay dark later in fall than most other elms. Jefferson has broad U-shaped branch unions—rather than narrow V-shaped ones—has attractive bark, and can be propagated by softwood cuttings. FNPRU research leader John Hammond regards Jefferson as a good street tree because it can withstand pollution from city traffic and has wide adaptability, growing in USDA plant hardiness zones 5 through 7.

While this durable, DED-tolerant elm may once again fill our parks and grace street sides with true American elms, Jefferson won't be available to consumers for about 4 years. But specimens can be seen on the National Mall, next to the old Smithsonian Building, and soon at the arboretum, and efforts are under way to propagate quantities for nursery cooperators. Two other DED-tolerant elms developed through ARS tree breeding, Valley Forge and New Harmony, are already in wide use.—By **Alfredo Flores**, ARS.

**Flores, ARS.**

*This research is part of Plant, Microbial, and Insect Genetic Resources, Genomics, and Genetic Improvement, an ARS National Program (#301) described on the World Wide Web at [www.nps.ars.usda.gov](http://www.nps.ars.usda.gov).*

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Beautiful elm trees once again grace

America's landscape, thanks to ARS.