

BACK FROM THE BRINK: FOREST SERVICE EFFORTS TO CREATE DUTCH ELM DISEASE TOLERANT TREES FOR USE IN URBAN AND RURAL RESTORATION

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Introduced into North America in the 1920's, the causal agent of Dutch elm disease (*Ophiostoma ulmi*) and the more aggressive variant of the pathogen (*O. novo-ulmi*, collectively referred to herein as DED) swept across North America resulting in a widespread decline of elms across urban and rural landscapes. Restoration of American elm (*Ulmus americana* L.) necessitates the development of new selections that are DED tolerant, in addition to enhancing the genetic variability of tolerant elms across the landscape. Ongoing research and breeding efforts have focused on (1) identifying survivor trees that have likely been exposed to DED yet have thrived, (2) crossing these large survivor elms with DED-tolerant American elms, (3) testing cloned survivor trees and progeny trees with DED inoculations, and (4) identifying genes which confer tolerance. This study examined the 2-year DED-induced canopy decline response of 27 American elm cultivars planted at the U.S. Department of Agriculture Forest Service Laboratory in Delaware, OH. Results suggest differences in DED-induced canopy decline among clones of large survivor trees collected across the Midwestern United States, indicating that unique tolerance mechanisms may be present in the natural elm population.

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