

An Elm Tree with a Problem

By Susan Camp

Last Tuesday, fellow Tree Steward Rose Sullivan and I made a home visit to Master Gardener Twila Driver's property to examine an elm tree that had recently dropped a large limb. In case you aren't familiar with the term, a Tree Steward is a Master Gardener who has completed an advanced course through Virginia Cooperative Extension to identify trees and tree problems and educate property owners about the best course to take to preserve the health and beauty of their trees. Sometimes we can do that successfully. At other times, we have to suggest calling a certified arborist to examine the tree and recommend a solution, which was the case in this situation. While Rose, Twila, her husband, Dean, and I were not positive that the tree is an American elm (*Ulmus americana*), we were concerned about the possibility of serious disease.

During the late 19th and early 20th century, American elms were planted in towns and cities, lending their shade and gracious appearance to American streets and avenues. Unfortunately, a fatal disease, caused by two related strains of a fungus and spread by several species of airborne elm bark beetles, began to decimate American elm trees in the 1930's. The disease had been identified in the Netherlands in 1919 after European elms in that country were affected. All native American and European elm species are susceptible to Dutch elm disease (DED), so named for the country where it was first described.

Dutch elm disease often begins with a small area of yellow or brown wilting leaves, called "flagging," near the edge of the crown. Wilting rapidly increases toward the trunk, and the branch dies. Brown streaking of sapwood is found when the bark is removed.

DED can kill an elm tree in less than a year. There is no definitive cure. Extensive pruning or removal is required with strict sanitary practices to prevent the spread of disease. Sanitation techniques include burning or burying the wood and sterilizing pruning tools and materials.

Several American elm cultivars with varying levels of resistance to DED have been developed. Resistant cultivars include 'Princeton,' 'American Liberty,' and 'Lewis and Clark' Prairie Expedition™. 'Valley Forge' has shown the greatest resistance to DED.

DED is not the only serious disease to attack elm trees. Elm yellows, formerly called phloem necrosis, spreads quickly via root grafts and leafhoppers. The aggressive disease is caused by a type of bacteria called phytoplasma. Phytoplasmas infect and rapidly kill the tree's phloem, the vascular tissue that conducts sugars and other nutrients made in the leaves during photosynthesis downward to the other plant structures. The infected phloem changes color and emits a wintergreen-like smell, and inner bark structures turn a streaky, light brown color. The phloem infection results in loosening of the bark, leaf wilt and premature drop, branch death, and rapid demise of the tree.

As with DED, there is no cure. Tree and total root removal and application of pesticides to combat phloem-eating insects like leafhoppers and spittlebugs are current management methods. Anti-fungal sprays should be applied to tree removal sites.

The tree that Rose and I examined demonstrated no wilting or yellowing of leaves. The branch that had fallen was large with an area of desiccated bark that had split along several feet. We noticed a second branch high in the tree with an apparent split. The bark damage to both branches concerned us.

The tree is a magnificent elm specimen, and the owners want to discover the cause of the branch drop and bark-splitting. The loss of this beautiful tree would be tragic, so Rose and I recommended contacting a certified arborist for assessment and diagnosis of the problem.

If you have a tree question, you can contact a Tree Steward to schedule a home visit through the Gloucester Extension Office at (804) 693-2602.

Read about elm species and problems in NCSU Extension Gardener Plant Toolbox entry “*Ulmus americana*.” See VCE publication 444-216 (ENTO-353NP) for information on bark beetles.