OAK WILT

in State College, Pennsylvania

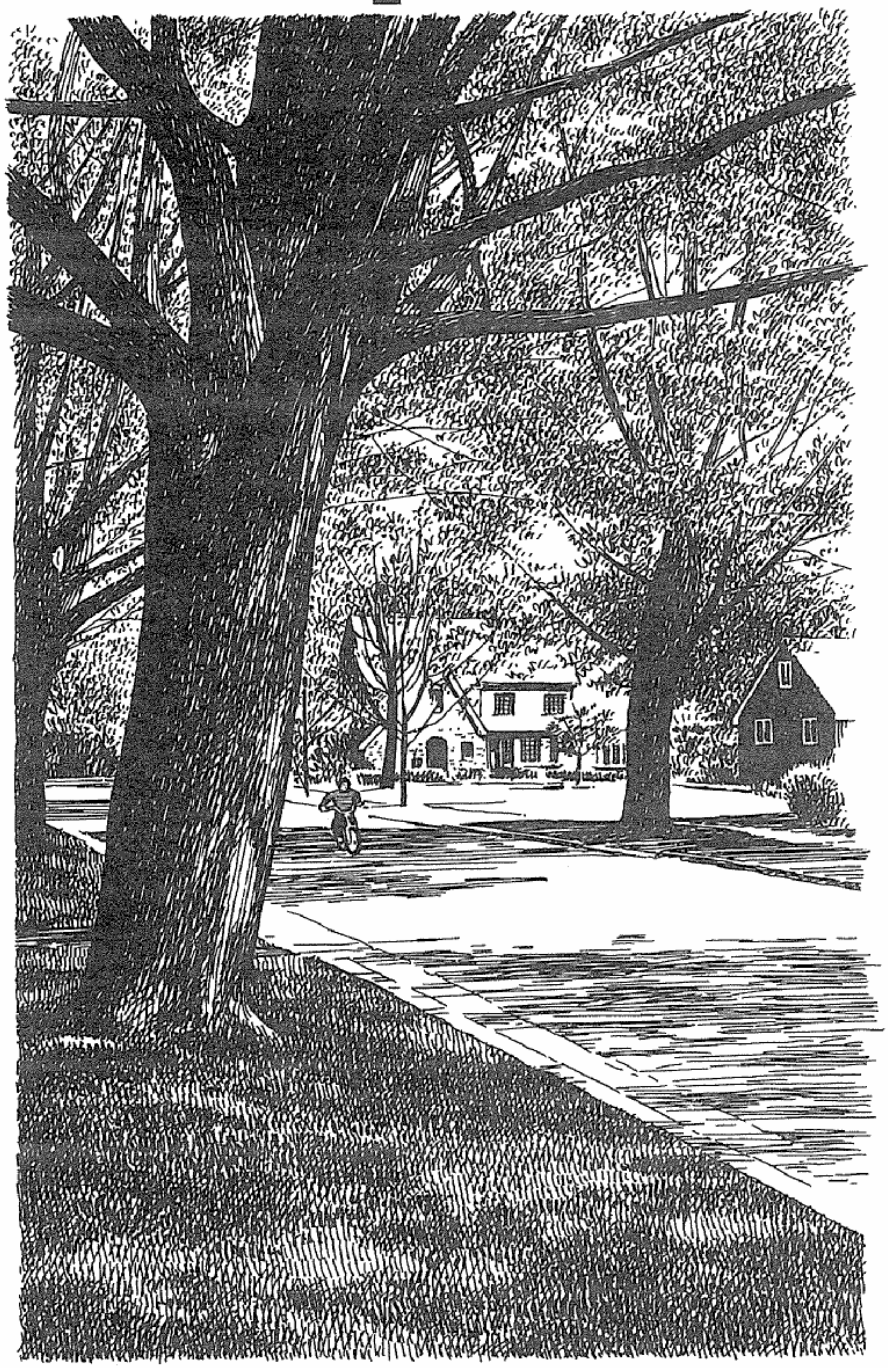
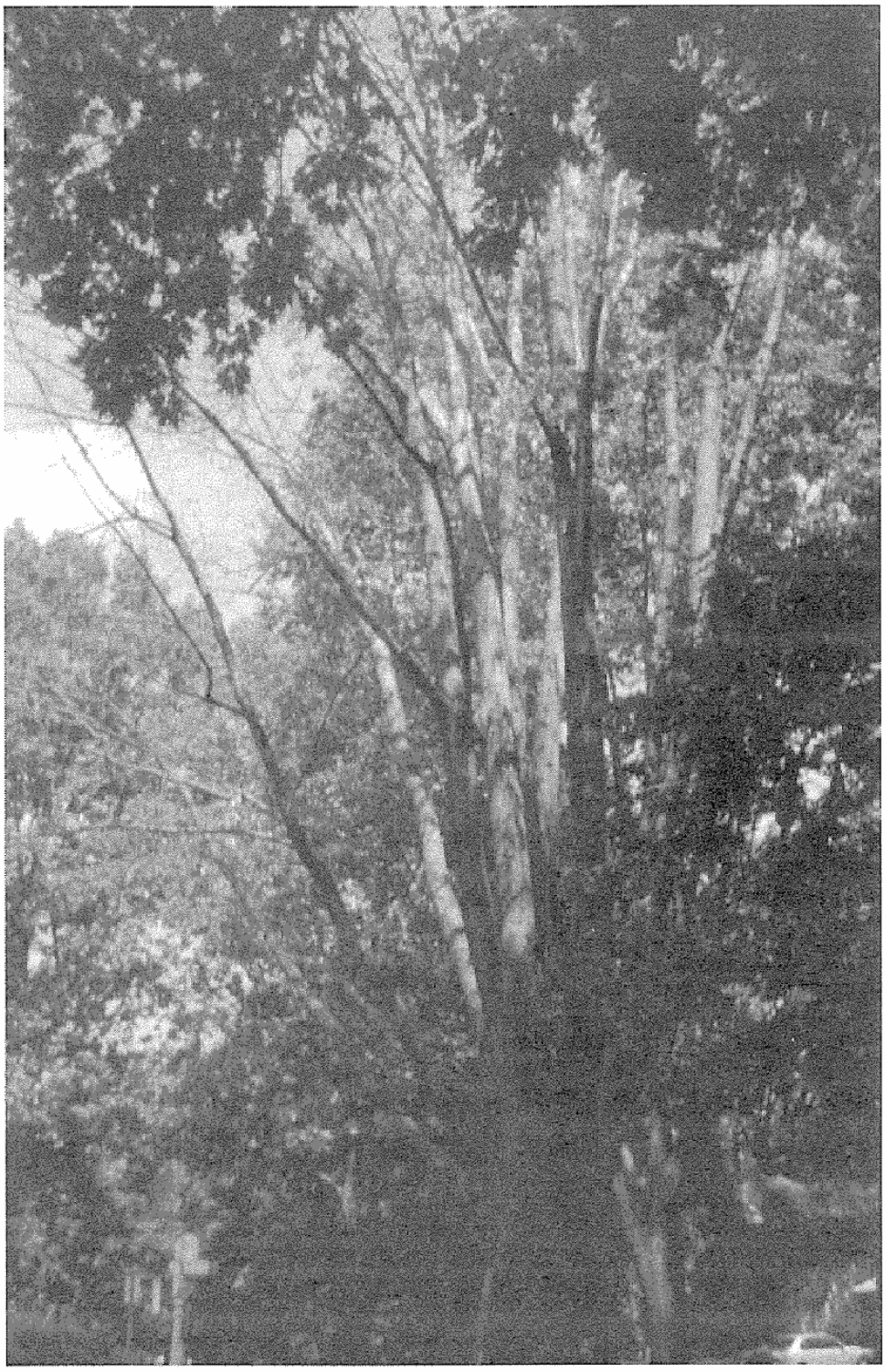


Illustration by John LaForce ©

Gary W. Moorman, Bill Elmendorf, and the
State College Tree Commission



Red oaks infectd with oak wilt shed tremendous numbers of dull leaves very quickly.

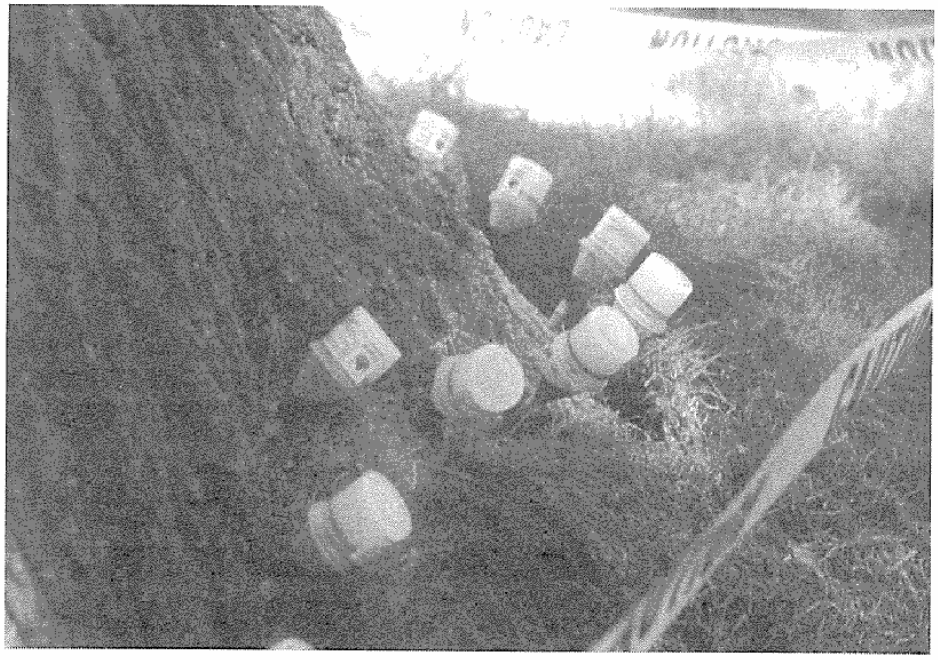
Oak wilt occurs primarily west of the Susquehanna River in Pennsylvania. It is caused by a living organism, a fungus called *Ceratocystis fagacearum.* This fungus attacks most oaks but especially those in the red oak group (red oak, *Quercus rubra,* northern pin, *Q. ellipsoidalis;* shumard, *Q. shumardii).* American, Chinese, and European chestnuts, tanbark oak, and bush chinquapin are also susceptible. White (*Q. alba*) and bur oaks (*Q. macrocarpa*) are less susceptible than red oaks. Susceptible trees die within a few weeks of contracting the fungus, while those with some resistance may decline slowly for 2 to 3 years or may recover.

SYMPTOMS OF OAK WILT

Leaves at the top of the tree turn brown along the tips and margins, wilt, and soon begin to fall while there is still some green color left in them. This progresses down the tree. Twigs and branches die and often have brown streaks in the outer sapwood. When the ends of twigs are cut, the outermost annual ring may be completely brown. A fungal mat develops under the bark and erupts through the bark in the spring.

OAK WILT DISEASE CYCLE

Sap-feeding insects, especially beetles, feed on the fungal mat that erupts through the bark in the spring, and pick up sticky spores. They spread the spores as they move short distances to adjacent oaks to feed on fresh, bleeding wounds. A fresh wound is required by the fungus in order to invade. It is thought that sap-feeding beetles are not responsible for spreading the fungus over long distances. The fungus remains viable under firmly attached bark. Transport of infected logs is one way the fungus is moved long distances. It is thought that this is the way the disease was brought to the Borough recently. The most important means of spread in a local area is through roots of other oaks that are grafted to the infected tree.



Injections of fungicide can help protect red oak trees that are close to infected trees.

MANAGEMENT OF OAK WILK

Once a positive diagnosis is made indicating that oak wilt is the cause of the wilting and defoliation, immediate action should be taken. BEFORE removing an infected tree, the root grafts should be cut or killed. This can be done by trenching midway between oaks that are within 50 feet of the infected oak, to a depth of 3 feet. Or, 1 part Vapam to 4 parts water can be poured into 2 inch-diameter holes drilled 6 to 8 inches apart in a line midway between oaks that are within 50 feet of the infected oak, to a depth of 2 feet. The holes, should be plugged with sod to seal in the fumigant. This is best done when the soil temperature is at least 50 degrees Fahrenheit.

After root grafts are disrupted, remove infected trees. Bury, burn, or debark the logs AND stump.

Do not stack or transport any wood from the tree if it has bark firmly attached, because insects in it may leave and carry the fungus to other oaks.

Oaks should not be pruned in the late spring or summer because this creates fresh wounds that are attractive to insects that may be carrying the fungus. For this reason, oaks should be pruned any time from November through mid-April.

In trees with less than 30% of the crown affected, the disease can be put into temporary remission by injecting a specific fungicide. This fungicide does not kill the fungus that is already in the tree's roots. Therefore, root grafts between this tree and neighboring oaks must be disrupted even if the tree is injected with fungicide. It is reported that oaks in high risk areas that are not yet infected can be protected by injecting this fungicide once every 2 years. Injection must be done by an arborist licensed by the Commonwealth to apply pesticides.

FOR FURTHER INFORMATION

Moorman, G. 1997. Scouting and Controlling Woody Ornamental Diseases in Landscapes and Nurseries.
Moorman, G. Woody Ornamental Insect, Mite, and Disease Management. Penn State College of Agricultural Sciences Cooperative Extension, 112 Agricultural Administration Building, University Park, PA 16802-2602. (814) 865-6713.