



**NEW YORK
FOREST OWNERS
ASSOCIATION**

PO Box 210
Watkins Glen, NY 14891
www.nyfoa.org



**Cornell University
Cooperative Extension**

Ithaca, NY 14853
www.ForestConnect.info

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CONTACT:
MJ Packer, New York Forest Owners Association
607 535 9790 (office), 802 236 0881 (cell)

Peter Smallidge, Cornell University
607-592-3640

Why Did That Tree Die? (An Introduction to forest pathology)

Most forest landowners care a great deal about the health of their trees. For many, the woodlot is an extension of their personal landscape. When a tree dies in their forest they want to know why it died and what will be the consequences to the rest of the forest.

In some cases the cause of a particular tree's demise is fairly easy to determine. There may be a conspicuous scar from a lightning strike or a pileated woodpecker may have literally chopped the tree into fragments. Often times the tree may be seriously deformed from insect or disease attacks.

To find out exactly what happened, several important questions need to be answered. The first question is "what tree species is this?" Most tree diseases and many insect pests are quite specific in their choice of victims. For example, most diseases that affect white pine trees rarely bother oaks or maples. Sometimes diseases are even more specific. For example, there are diseases that attack pines which have two needles per bundle such as red, Scots or Austrian Pine that do not bother the 5-needled white pine. Once you know the affected species you can begin the detective work in earnest! There are some excellent reference books that discuss specific diseases and insect pests according to the species affected. "Diseases of Trees and

Shrubs” by Sinclair and Lyons and “Insects that Feed on Trees and Shrubs” by Johnson and Lyon are two that I use often.

A related and very important question is “Are other species of trees in this general area affected by this same disorder?” If several different species are involved the problem may have more to do with environmental conditions than any specific disease. Earth moving equipment can change the topographic grade that leads to a change in soil drainage. Similarly, a general site disturbance such as construction may adversely affect all the trees present on a given site. If the pines, maples, oaks and hemlock are all dieing on a site the problem is not likely caused by a specific disease or insect.

Finally, it is important to realize that the fate of a single tree is not necessarily an indicator of the overall health of the forest. As a field reverts to forest there may be as many as 7,000 to 10,000 tree stems present per acre initially. In 80 to 100 years that same acre of what is now a forest will have perhaps 200 to 400 stems left due to natural mortality. All those other trees have to die for some reason or another because any given acre of land only has so much nutrient and growing capacity! In order for the average tree diameter to increase just one inch within a forest, approximately 1 in 5 of the existing trees must die.

So, the bottom line is that any isolated case of a tree dieing in a forest is not necessarily a cause for concern. With a little training and knowledge of common tree disorders the exact cause of death may be determined or maybe not! It is more important to focus on the entire forest and not just specific trees.

Your local office of Cornell Cooperative Extension can help you submit samples of unhealthy trees to Cornell University’s Plant Disease Diagnostic Laboratory. For additional information on forestland activities that will benefit your objectives, visit Cornell’s forestry website at www.ForestConnect.info, contact your local office of Cornell University Cooperative Extension, or join the New York Forest Owners Association through their website at www.nyfoa.org.

This article was written by Bob Beyfuss of the Cornell Cooperative Extension of Greene County.

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Editors note: This article is the tenth in a 15 part series that is provided through a joint initiative of Cornell University Cooperative Extension and the New York Forest Owners Association as an educational service that helps the citizen of New York enjoy, use, and sustain private rural lands. For more information on these and other topics, please contact your local office of Cornell Cooperative Extension or visit www.ForestConnect.info or www.NYFOA.org.