

INSECTS AND DISEASES

Insects and diseases can do much damage to ornamental trees. Before you can do anything about them, you must first know what the healthy plant looks like. How can you diagnose a problem if you are not familiar with the tree species' appearance in a healthy state? Only then can you start to analyze what is causing the problem. Some excellent reference material is listed in the bibliography. There are many fine horticultural books on the market today. These books are available at Barnes & Noble or other comprehensive bookstores, or in the Council on the Environment of NYC reference library or New York Botanical Garden Library.

The first thing to find out when analyzing a plant problem is determining whether a disease, an insect or other factor causes it. To do this, you must be observant and take note of any abnormalities. You must have at least some basic knowledge of the normal functions of the plant.

Disease: a particular destructive process in a plant.

If you see mildew or fungus bodies, you have a disease problem. If the plant leaves are wilting or are discolored and you find no traces of insects, then you might have a disease problem. Cankers or knots of disfigured wood are usually a disease. In many cases the problem can be solved with treatments of a fungicide.

Sometimes the disease is incurable and the plant must be destroyed to prevent the spread of the infection.

Insect*: Any of a large class of small, usually winged, invertebrates having three pairs of legs.

Usually when you have an insect problem, you can detect some physical evidence. A borer will usually leave an entrance or exit hole in the branches, trunk, or roots. Leaf or bark feeder damage will be obvious—you may even find the insect if you are thorough.

There are two basic types of feeding habits; chewing and sucking. The chewing insects chew the leaves, stems, bark, wood and roots. Some types of insects may only chew while in the immature stages: i.e., caterpillars. Others may attack a different part of the plant while in different stages of growth: i.e., Japanese Beetle larvae attack the roots, while the adults attack the leaves. The sucking insects suck the juices out of the plant. You can identify a sucking vs. chewing insect by looking at the mouthparts. The sucking insect has a tube, which it inserts into the leaf. The chewing insect has mandibles or jaws, which work very much like teeth.

Some of the more common types of chewing and sucking insects are:

Chewing	Sucking
Bees - some types	Aphids
Beetles - some types	Bugs
Borers	Cicadas
Caterpillars	Hoppers
Grasshoppers	Mealy bugs
Katydid	Scale
Miners	Whitefly

*N.Y.S. Law - you must have a commercial pesticide license from the New York State Environmental Protection Agency to spray in public places.

Gall: a tumor on plant tissue caused by irritation due to fungi, insects, or bacteria.

POSSIBLE CAUSES OF INJURY TO PLANTS*

Biotic Environment		Physical Environment	
Animal	Plants (including microorganisms)	Man-controlled	Natural
Nematodes Insects	Viruses and “voroids” Myoplasma-like organisms “Spiro plasma”	Industrial Wastes Air pollution	Mineral Frost/Freeze
Mites	Bacteria	Phytotoxicity (pesticides)	Sun scorches
Millipedes	Rickettsia-like organisms	Salt (chemical)	Drought (accumulations)
Slugs and Snails	Fungi	Concrete and macadam	Lightning
Birds	Dodder	Soil compaction	Wind
Rabbits, mice Moles and Other rodents	Mistletoe	Changes in soil level	Hail
Dogs	Moss	Mechanical injury By auto, machinery And vandalism	Flood
Man	Weeds Strangling vines/Strangling roots		

*Johnson, Warren T. and Lyon, Howard H., et al., Insects That Feed on Trees and Shrubs, Cornell University Press, Ltd., London: 1976