

Plant Pathology Fact Sheet

Wounds and Wood Decay of Trees

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Tree wounds are the first step in a process that may lead to discoloration and ultimately to decay of tree trunks, roots and limbs. Broken branches, pruning stubs and mechanical injuries to roots, trunk or branches are the types of wounds most commonly associated with decay problems.

One of the most frequent causes of damage to trees in the landscape comes from lawn equipment. Mowers and string trimmers can damage the bark at the base of the trunk. Initially there may be no visible evidence of injury, although the injured plant will lack vigor. Continued injury will result in visible wounds at the base of the trunk. Besides restricting the movement of food, water and mineral elements, these wounds become excellent points of entry for insects and wood decay fungi.

When an injury or break in the bark exposes the underlying wood, bacteria and fungi in the air and on the bark contaminate the wound surface. At the same time, the tree responds to the wound by producing chemical and physical barriers in an attempt



WOUND AT THE BASE OF A TREE

to block the invasion of microorganisms and to seal off the damaged area. Organisms which are able to overcome these protective barriers can then colonize and invade the wounded tissues. Among these organisms are the wood decay fungi.

Not all wounds result in extensive decay since trees are frequently able to successfully “compartmentalize” or “wall-off” the decayed area. In many cases, the formation of internal barriers to fungal movement and infection can prevent the decay fungi from spreading. The ability of a tree to internally

compartmentalize decay differs from one individual tree to another, although it is also influenced to some extent by tree vigor. Callus tissue provides an external barrier to decay once the wound has completely closed over. The formation of callus tissue may be an indicator of relative tree vigor but it is not necessarily indicative of the tree's resistance to the internal spread of decay. Extensive internal decay may exist behind a well-sealed wound.

The severity of the wound, the tree's vigor and the tree's inherent ability to compartmentalize are important factors in determining the rate the tree is able to seal off the wounded area. Other factors such as: time of the year, type of organisms present, and position of the wound also play a role. A healthy tree will normally respond more quickly than one that is stressed. Small wounds may take a growing season to callus over, while larger wounds may require several growing seasons to close.

The presence of mushrooms at the base of the tree, or conks (bracket, shelf-like fungal structures) on the trunk or branches are the most certain indicators of decay. The



CONKS AT THE BASE OF A TREE INDICATE DECAY

absence of these obvious fungal structures (also referred to as "fruiting bodies"), however, does not mean the tree is free of decay: fruiting bodies of some decay fungi do not appear until decay is well advanced

while others may go unnoticed because they are small, shortlived, hidden or produced infrequently. Other indicators of decay include old wounds, hollowed out areas, and abnormal swellings or bulges. Decayed wood is usually soft, white, spongy, stringy, and friable; or brown and brittle. Since decay structurally weakens the wood, affected trees become susceptible to wind or other storm damage.

Control

There are no controls or cures once wood decay has begun. Decaying trees should be removed when they become potentially hazardous.

Preventative Measures

Protect trees and shrubs from injuries due to landscape activities. Choose a planting site that does not interfere with potential wounders (i.e., away from cars, strollers and passers-by). The tree should also have plenty of space for growth to maturity. The best way to protect the plant from lawn equipment is to control the grass and weed growth at the base of the tree. This can be done most easily by applying a thick layer of mulch around the base of the tree, but not against the trunk. Hand weeding will accomplish the same thing, but with the expenditure of more energy on your part. A plastic tree guard will also protect the trunk, but it should be removed when the trunk diameter approaches that of the tree guard.

Proper Pruning

Remove injured and diseased branches promptly. Using proper techniques, prune as close as



TOPPING IS AN EXAMPLE OF IMPROPER PRUNING.

possible to the connecting branch or trunk without cutting the branch collar. Never leave pruning stubs because these will seldom callus over. DO NOT TOP your tree (refer to the UK publication, ID-55, "WARNING: Topping is Hazardous to Your Tree's Health!").

Sanitation

Remove prunings from the vicinity of the tree and do not leave dead wood nearby. Treat wounds properly and immediately according to the guidelines given below.

Treating Recent Incidental Wounds

If the bark and cambium are still moist, carefully press the bark back onto the trunk, making sure the pieces are fitted into their original positions on the tree. Secure the bark piece(s) in place using soft cloth strips tied around the tree.



TREE WOUND BEFORE (LEFT) AND AFTER (RIGHT) TREATMENT

Carefully break away any dry, loose injured bark. Using a sharp knife, cut back to healthy bark. Make a clean edge between the vigorous bark and exposed wood and shape the wound into a vertical ellipse if possible.

Treating Pruning Wounds

Wound dressings are primarily cosmetic and do not stop decay. Use a thin coat of orange shellac only if it is needed as a sign to indicate the wound has been treated. Otherwise, do not paint over the wound.

Treating Old Wounds

If callus has begun to form, carefully remove the old dead bark until the callus layer is found. Do not cut the callus or shape the wound. If callus is absent, treat the wound as if it were a recent injury.



CALLUS FORMATION

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