

## *Root Collar Disorders*

A tree's root collar is the area where the roots join the main stem or trunk. This area is typified by a flare leading to the major roots. The root collar is part of the tree's trunk. Unlike roots, the trunk is not specialized to resist constant soil moisture. The movement of oxygen and carbon dioxide in and out of the phloem (inner bark) is inhibited by this water. Over a period of years the lack of gas exchange can kill phloem cells and interfere with the downward movement of food (photosynthate) to the roots. This can stunt root growth and lead to decline of the plant.

Soil against the lower stem and flare tissues can lead to infection and disease caused by certain pathogenic fungi. Tree species such as red maple, elm and sycamore that are tolerant to buried root flares have a greater incidence of girdling roots when there is soil or mulch against the lower stem tissues.

Often root collars are buried during landscaping projects when grades are changed. When trees are transplanted, they may settle in the planting hole or be set too deeply. Some trees arrive from the nursery with excess soil against the root collar.

Excessive mulch may also lead to death of the root collar. Mulch layers should not exceed four inches in thickness and should never be placed against the root collar.



**Figure 1: Exposed root collar on properly planted tree**

Air-Tools that utilized a high volume of air from industrial compressor are very rapid and effective in removing soil and mulch from the root flare. Excavated trees should be monitored to ensure they respond to treatment. Cultural practices such as fertilization, irrigation during dry periods and treatments to prevent pest damage can aid recovery from root collar disorders.

### **TREATMENT**

If a tree is severely declining from a root collar disorder, removal is recommended before it becomes hazardous. If decline symptoms are detected early, remedial actions can be taken which may save the tree. Soil or mulch in contact with the root collar must be removed. Root collar excavations can be done by carefully using small digging tools and a brush.



**Figure 2: Excavation of soil from root flare using an Air-Spade.**