

## WRESTLING WITH DIAGNOSIS OF TREE PROBLEMS

by Sandy Perry

**Question:** What's wrong with my plant? **Answer:** Well ..... We all feel inadequate when that question is asked. Even people who diagnose problems for a living will admit that the best diagnosis available is often an educated guess. Too many life-threatening things go on underground such as poor drainage leading to root rot, trees planted too deeply, wrong soil type, girdling wires or ropes, to name a few. These are problems on which we can speculate but can seldom prove beyond a reasonable doubt.

Increasing the difficulty of diagnosis is the fact that most urban planting sites have been disturbed even though it may not look that way at first glance. Before a building or complex is built, the land is usually changed—sometimes minimally, often dramatically. The land may be scraped, contoured, top soil moved or removed. Road and building construction changes natural drainage patterns. The buildings themselves affect the wind movement and air flow. Soil compaction from trucks and heavy machinery have long-term effects on tree health. But once the turf is in place the changes are hidden and forgotten. Trees and shrubs are planted and all is well for months or years. When decline symptoms appear the questions begin. It is comparatively easy to rule out the common insect and disease pests on the above ground parts but very difficult to know anything about the root system without actually digging up the tree.

A systematic approach to looking at the tree with a few simple tools such as a pocket knife and soil core sampler may not give the final answer but they can narrow down the speculation. Good powers of observation are the key to a good diagnosis. It is also helpful to have a history of past weather.

1. Walk completely around the tree stopping on 4 sides to note any obvious damage symptoms on crown or trunk. Is a pattern evident on the shady or sunny side?

2. Use a soil core sampler on 4 sides of the tree taking core samples on each side in a zig-zag pattern from the trunk to beyond the dripline. This gives information on the soil type, degree of compaction, as well as how wet or dry the soil is.

3. Carefully inspect the trunk on all sides beginning at or below the soil line. If there is no natural root flare it

is worth digging around the base of the tree to find the depth of the buttress roots and see if wires or ropes are present. Trees planted too deeply can rot below the soil line.

4. If the trunk has thin bark use the point of a knife to probe in a spiral pattern from the ground to as high as you can reach. Tiny nicks should reveal bright green, moist tissue just beneath the bark. Mechanical injury is easy to see, trunk cankers are not.

5. Observe the twig growth extension on 4 sides of the tree. Comparison of several years growth will indicate how long the tree has been declining.

6. Look for bright green, moist tissue just under the bark at several points along the major limbs. Moist wood and good green color at the twig end, but dry wood and tannish-green color nearer the trunk may indicate the tree is declining from the roots up. The reverse situation would indicate decline from the twigs inward.

7. Observe leaf size and color for clues about nutrition and water availability.

8. Observe the tree as you walk completely around it in the opposite direction. Observe the condition of nearby plants.

9. Note how the information you have discovered might be affecting the tree. Always look at the whole tree. Don't key on only the damaged part.

Diagnosing tree problems is never easy. It may still not be possible to pinpoint the cause, but you now have information about the type of soil and its moisture content, degree of vigor of plant tissues and growth pattern for the past few years. Keep in mind the 2 major interfering factors when making a diagnosis:

- (1) There is a lag time between cause and effect with most woody plant problems.

- (2) Is the obvious problem the primary problem (are the scale insects causing the decline or is the decline attracting the scale insects)?

Diagnosing tree problems is as much art as science. You must know how a tree is put together and how it works, but the hardest part of the whole process is trying to think like a tree.

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