

Risk Evaluation for Tree Trunks

The last few issues have discussed the performance of a Visual Tree Assessment (VTA). It is known that trees add value to properties, however can also be liabilities if they are weak and fail, causing harm.

The VTA includes looking at the root flare as well as the ground around it. The next step is to examine the trunk of the tree. To truly examine a tree it is necessary to understand that a tree can be in full leaf and still present a hazard due to various weaknesses. Before examining the trunk of the tree it



is important to understand tree trunk composition and for what functions the trunk is responsible.

The trunk is made up of heartwood, xylem and phloem, cambium and bark. The function of the trunk is to add support to the tree and to act as a shock absorber during high winds and storms. Basically, the heartwood provides much of the support for the tree, while the xylem and phloem allow for nutrient and water transportation between leaves and roots. The cambium aids in wound callusing and helps in the growth process; the bark protects the whole trunk from bacteria and pest attacks.

Large Rotted Trunk

Now, how can this delicate system malfunction? Trees are much like human teeth; as teeth rely on enamel, trees rely on bark for protection. Often trees are damaged during construction and development, which leads to trees becoming weak as the tree decays and tries to compartmentalize the decay. The process which trees go through in reaction to a wound is called Compartmentalization of Decay in Trees (CODIT). Basically this refers to the process through which trees wall off cells to prevent bacteria and decay from spreading throughout the system. Some trees compartmentalize damaged cells better than others. The best way to protect a tree from damage is to refrain from damaging it in the first place.

Construction and development are not the only damaging agents for trees; lightning, high winds, other trees falling, insects, animals and birds all damage trees. As the VTA of the trunk is being performed it is important to look for any signs of these damaging agents.

Cavities are the first thing that to look for. Often a tree will decay around an old wound, forming a cavity. Remember that the presence of a cavity does not warrant immediate removal for the tree. It is necessary to determine how strong the tree is and how extensive the cavity is. If every tree with a

cavity were removed there would be remarkably fewer trees in landscapes. Sometimes the tree may have an extensive cavity and still may be strong enough to remain. When extensive hollows are present an arborist should be consulted to determine the thickness of sound wood in the remaining cylinder of the trunk.

Another thing to look for on the trunk are areas of **loose bark**. These could be areas that were damaged at some time during the tree's life or they can be resultant of a crack in the trees trunk; loose bark sometimes signifies a tree's need for immediate removal. Try to look behind the loose bark if a crack in the wood behind the loose bark is visible, it is not a good sign, especially if the crack is horizontal. It is natural for wood to crack vertically, with the grain, but a horizontal crack is across the grain and may be a sign of eminent failure.

If there is evident, **extensive decay** behind the loose bark the tree needs a closer look. Is the area of decay an isolated area emanating from an old wound, or has it incorporated 30% or more of the trunk of the tree. With larger areas of decay it may be necessary for an Arborist evaluate the extent of the decay.

The next thing to look for is the presence of **woodpecker holes** on the trunk. Woodpeckers do not indiscriminately attack a tree. They are generally looking for a meal of ants or other insects. The presence of woodpecker holes may be a telltale sign of other problems. This may result in the need for an in-tree examination by an Arborist, or at least a visual inspection with a good set of binoculars.



Woodpecker holes and an odd bulge!

Also look for **odd bulges** in an otherwise straight trunk. Bulges may signify the development of reaction wood around a cavity inside the trunk. The aspen at the right has both an odd bulge and woodpecker damage, both of which warn of potential failure, depending on the tree's location.

Next look for **odd bends** in the tree and try to determine if they have always been there. These bends could present a weak spot in the stem of the tree. It is possible that the tree was recently exposed to changes in its environment that cause more pressure to be put on a bend. It is important to make a qualified estimation of whether or not the tree can sustain ice or snow without failure.

Look for long **vertical cracks** in the tree, especially examining for cracks on both sides of the trunk, as if the tree split into two separate pieces. Trees often split when put under high wind loads or from heavy snow and ice loads. These cracks are very significant signs of tree weakness.

One final thing to look for is **fungal growths**, which can signify decay in the trunk. Realize that a fungal growth requires moisture and air to grow and many fungal growths actually lead to deterioration of the wood of a tree. Certain fungal growths are worse than others and there are varying degrees of decay. What is important to realize is that fungal growths are a warning sign of problems that should be investigated!

Watch this column next issue for a discussion of what to look at when assessing the limb junctions of a tree.

Note on the Author

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