TREES & THE LAW

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Liability Issues: Cabling, Bracing, Propping

All trees have a finite life span and, eventually, they all break up and fall down. Yet, there are often opportunities to prolong the lifespan of a tree by undertaking some remedial work that will help to stabilise its component parts. A thorough risk assessment can help to identify areas of potential weakness, as well as areas where parts have already failed or are starting to fail. Once these levels of risk are determined, the risk manager can then decide how best to migitate the risk issues.

The easiest option is to cut out the high-risk component, or even the whole tree. But in many instances this approach is simplistic, and can occur because not enough thought has been given to the other options available. Cabling, bracing, and propping of trees as a means of prolonging its life, or as a means of reducing risk levels, has been an accepted arboricultural technique for a long time. Typically, cabling and bracing is applied where large codominant stems are at risk of failure, or where large lateral limbs are becoming overextended.

Propping can also be used to support large limbs and, in some cases, the whole tree. Although not that common in North America, banding trunks and limbs to prevent them from breaking apart is another useful technique and widely seen in China and parts of Europe. As with all mitigation techniques—in any industry—there are right and wrong ways to proceed. If done wrongly, then of course the outcome may be a false sense of security and subsequent liability issues that could have been avoided.

However, the arboriculture industry has well-established standards for cabling and bracing, based on many decades of experience in a wide array of circumstances. The ANSI A300 Part 3 Support Systems (Cabling, Bracing, and Guying Established Trees) and the International Society of Arboriculture's Best Management Practices manual provide excellent guidance about techniques, materials and approaches, and should be seen as the starting point for all cabling and bracing work.

Typically, there are two main approaches used. One is to install a system of cables or bolts that hold two or more parts of the tree together in a rigid or static pattern. Here the intent is to eliminate any future movement of the parts with respect to each other. This approach is often used where component parts are close to failure, or have recently started to fail. By cabling and bracing the parts rigidly, the strength of the weak area is increased, and the failure potential is greatly reduced, possibly giving the tree many more decades of serviceable life with low levels of risk.

A second approach is to install a more flexible system that does not impose rigidity, but simply restricts the amount of movement possible. These are called dynamic systems. The tree can still adapt to some motion and environmental conditions, but excessive motion leading to complete failure would be restricted. The static systems tend to be more commonly associated with steel cables and steel through-bolts, while the dynamic systems tend to use specialised nylon webbing and are typically less-invasive (though steel cables could be used in this manner).

The system used will need periodic inspection, though that is seldom an annual requirement. In theory, a well-installed steel cable and/or brace should be good for many years, possibly several decades, and should not need annual inspections at all. In cases where huge storms come through the area, it may be prudent to reinspect afterwards, but in general these systems are very strong and do not fail under normal operating conditions if the correct materials are used. The dynamic systems have a more finite lifespan, partly because some products lose strength due to ultra violet degradation of the materials.

Careful research about the materials used is essential. Some products, like the Cobra Bracing system approach, are meant to be rated such that the materials have the same strength ability at the end of a ten year lifespan as they did when new. If used correctly, this means that there should not be any need to worry about them failing during that time period, although they may require adjustment over time.

Done correctly, the approach can, and usually does, provide an industry-accepted way of prolonging tree life in a reasonably safe manner without any associated increase in liability.

Although not that common in North America, banding trunks and limbs to prevent them from breaking apart is another useful technique and widely seen in China and parts of Europe. Julian Dunster took this picture of a banded Sophora tree in Xian, China.

One concern occasionally expressed by legal «experts» is that the simple act of installing a cable and/or brace or prop is an admission that the tree is weak. The thinking seems to be that it is an unacceptable approach to implement risk mitigation actions simply because that might create liability issues later on. Countering that line of thought is the fact that we have industry-accepted standards based on sound engineering principles. A metaphor might be to deny humans hip replacements because if they subsequently fail, the surgeon could be liable for possible future injuries.

The decision to install cables, braces, or props will always be a matter of trade offs. If we do nothing, then the probability of failure of parts of the tree, perhaps the whole tree, gets higher and higher. If we mitigate the probability of failure then we may introduce some wounds, and certainly we may be placing reliance on introduced structural elements. Certainly the techniques are not applicable in all situations. The tree has to be valuable enough to the owner to justify the expense. The mitigation work envisaged has to be feasible, and must be implemented correctly. The tree needs to be healthy enough and have enough sound wood available to provide the structural anchor points needed.

Not all structural issues can be corrected with cables, braces, or props. And most importantly, the owner must recognise that, even with the best of intentions and practices, cabling, bracing, or propping is not a guarantee that the tree will survive forever in all weather conditions. But done correctly, the approach can, and usually does, provide an industry-accepted way of prolonging tree life in a reasonably safe manner without any associated increase in liability.

Rather than be frightened of the liability associated with mitigation (remote as it is), it can be far better to implement accepted mitigation techniques and help to retain more old and valuable trees in the landscape, rather than cutting them down much sooner than is really necessary.