Post Storm Assessment Guide to Evaluating Trees

Post-Storm Assessment:

To assess trees in the aftermath of a storm it is important to understand the types of damage that are likely to occur. Trees are made up of four primary components; roots, trunk, limbs, and crown. Each of these components are subject to damage that have varying impacts on tree's health, structural integrity, and the eventual decision to keep or remove the tree. This document will review common post storm damage and help guide the decision of whether to remove or repair the damaged tree. The information is presented in four steps to help explain the assessment process. While recommendations are provided in the document, it must be noted that every tree and situation is different and will require the expertise of a professional arborist to review the situation.

Step 1: PRE-ASSESSMENT

Be Aware of Targets:

What is the level of use in the area around the tree, or trees? Trees in forest settings have a low risk factor as there are no structures and, typically, few people. Trees in yards or in playgrounds are likely to have more people at one time and for longer periods. Homes and other urban structures, power lines, roadways and permanent targets, even when people are not present. The type of target and the frequency of use must both be considered in the vicinity of a storm damaged tree. Rarely visited portions of a yard or park present less of a risk than trees compared to frequently used patios or playgrounds. Assessing trees must take into account the likelihood of damage to people or structures.

Identify Tree Species:

Trees are often described as being strong-wooded or weak-wooded. This is a shorthand way of describing tree characteristics. Fast-growing trees like lots of light and grow tall quickly, which means that their wood is not as strong, branches may break more easily under certain conditions, they do not live as long and they generally decay more quickly when damaged. Knowing the difference in response of a cherry or birch (fast trees) compared to oak or beech (slow trees) can help when making long-term management decisions, especially when large wounds or broken limbs occur.

Consider Tree Age:

The younger the tree the easier it will be to repair damage and expect full recovery. Healthy, young trees are more resilient and are easier to correctively prune. The broken limbs or pruning cuts are smaller so that the tree is able to grow over them more quickly. Comparatively, older mature trees that have lost large limbs will take much longer to cover a pruning cut with wound wood.

Step 2: ASSESS ROOT DAMAGE

Strong winds not only can bend the trunk or whip the branches about, but pressure is also placed on the roots. Some of the most damaging injuries can occur below ground in the root system. These problems are not immediately visible and careful examination is needed to identify problems. Knowing the signs to look for when assessing tree root damage is important.

When a tree has been leaning for some time, it has had the chance to develop equilibrium with its situation. Often this means that it has a curve (sweep) in the trunk where it began growing up, or has increased the weight of the branches on the upper side of the tree. A self-correcting lean indicates that the tree has been leaning for some time and has had time to redirect its growth to continue "up". It is likely that the roots have also adapted to provide leverage. The other indicator of a long-term lean is when the tree develops increased branches and foliage on the trunk opposite to the lean. While post-storm inspections may be appropriate and reassuring, neither types of lean are a result of the storm, as long as the angle of the lean has not increased following the storm.

A tree with a self-correcting lean and a tree with crown development which acts as a cantilever to balance against the lean. These trees should be monitored and any changes to the angle of lean assessed, but they are not a result of storm damage.

Photo credit: www.mapio.net

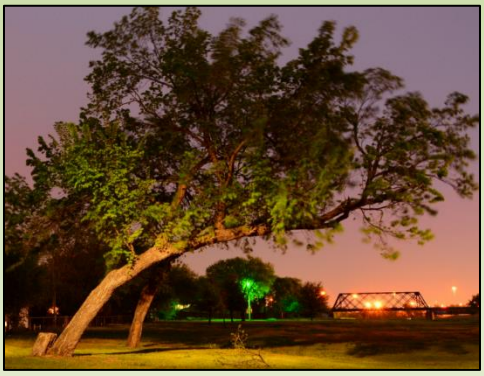


Photo credit: www.aapt.org

When a tree is leaning but the trunk appears straight, with no correction, the lean is more likely to be a recent occurrence. Often there will be a mounding of soil or cracking in the soil at the base of the tree opposite the lean. Cracks in the soil on the opposite side of the lean, especially when combined with mounding, present a high risk of failure. These are indicators of root failure, even when no storm has occurred, and contacting a professional arborist is advised as the trees usually require removal.

Sometimes the soil mounding with the lean is obvious.

And sometimes it is not.

If the lean is a result of storm damage, do not try to keep the tree in place with guy wires or stakes. Large trees will never develop sufficient large roots to reliably support itself structurally over its remaining life. Smaller, younger trees may re-establish support roots as they continue to grow and mature, and may be a better candidate, as long as stakes and supports are monitored.

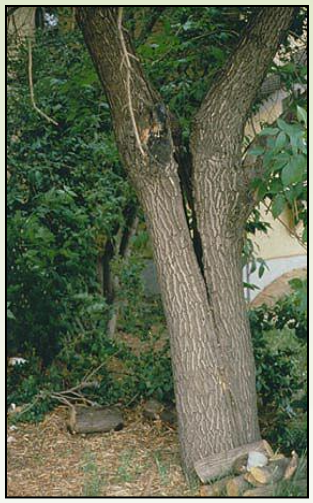
The lean on this young tree may be corrected with propoer handling. Simply staking the tree will not be sufficient. Photo Credit: University of Florida

Step 3: ASSESS THE TRUNK

The trunk of the tree is the primary stem between the roots and the limbs and foliage above. The trunk serves as the conductor of water and nutrients and supports the total above ground weight of the tree, making it an important component in any tree. Damage occurring on the main stem or trunk is often structural in nature and can be exceedingly damaging. High winds will often push, bend, and twist stems causing whole trunk failures, cracks, splits, or ripped bark.

Cracked Trunk or Branches:

During storm events trees can be twisted and bent and may develop visible cracks. These cracks may appear between co-dominant stems or in extreme cases in the middle of the trunk. Cracks can be a major problem and will require immediate attention. Trees with cracks can fail at any time and will develop decay compounding the problem. Cracks in or between trunks can develop even without a storm. Cracks always warrant the expertise of a certified professional.



Whether a vertical or a horizontal crack or whether observed pre- or post-storm – action is required.

Damaged Codominant Stems:

Depending on a number of factors, like type of storm, storm direction, physical protection and tree species and condition, a tree can be damaged in other ways, such as twisted wood spiraling around the trunk, torn bark, or broken codominant stems. Even on young trees, which can look like they can recover, will typically have a weakened internal structure that could affect it in future storms.

A codominant stem has the potential for separation, even when there is no storm damage as shown in the previous example. Losing a codominant stem typically means a loss of up to 50% of the tree canopy and results in the tree itself being unbalanced. Even if there is no decay already present, the size of the wound can allow decay to enter the. Avoiding codominant stems by pruning trees when young is the best option.

Loss of codominant stems can result in the loss of the entire tree.

Step 4: ASSESS THE CROWN

Following a severe storm event, it is not unusual to see broken branches and trees stripped of their leaves. The loss of leaves is usually not a problem as most trees will sprout new leaves in the weeks following the storm. This short-term stress can be managed by watering the tree regularly to help it regenerate healthy foliage.

Broken limbs, however, are more serious because they require pruning to reduce the development of decay and to help repair the crown structure. Trees with several damaged or lost limbs may be relatively simple to address. But trees that have lost large structural limbs or a significant amount of their crown will need to be assessed:

- After pruning, will there be sufficient crown remaining for the tree to start to recover?
- Is the trunk support for the remaining crown intact, or has it been damaged or does it have other structural issues like decay or cavities?
- Will the weight of the crown be balanced in its distribution, or will it be heavily weighted on several limbs or on one side of the tree?

Loss of the upper crown must also be assessed as the distribution of the remaining branches may never recover in a way to restore the tree to an acceptable form and may even develop other concerns.

For this tree, whether the top of the tree is completely gone, or the structure and form is severely damaged, removal is the only option.

This tree will need further inspection to determine the best course of action.