



Hurricanes & Trees

Six Types of Storm Damage to Trees

There are six main types of storm damage done to trees.

1. BLOW-OVER

The tree is physically pushed over by high winds. Main causes or contributing to this are – past tree abuse, poor maintenance of tree and pest problems.

2. STEM FAILURE

Trees do not heal wounds. Trees can only grow over old wounds and seal them off. These old injury sites and old and new wood are structurally weaker than normal solid wood. Pest damage weak wood around old wounds, new wounds, and failure of the tree to adjust to wind conditions can lead to stem failure. **Trees with heavy crowns can snap stems in heavy winds.

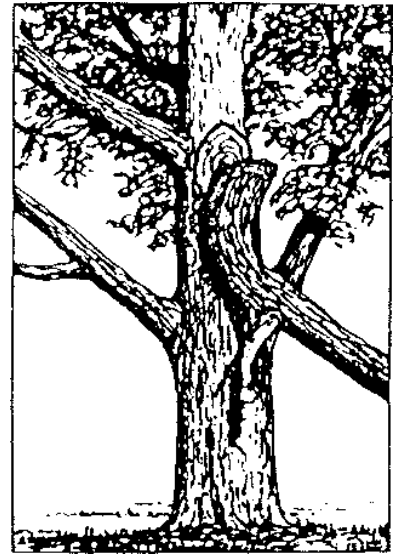
3. CROWN TWIST

Tree crowns are the leaves and supporting twigs and branches. Many trees through past abuse or poor pruning and maintenance have lop-sided crowns. More wind load on one side than the other produces a twist and weakens the crown and stem of the tree.

4. ROOT FAILURE

There are two basic types of tree roots: **fine** (absorbing roots) and **woody** (structural roots). **Absorbing** roots have a massive surface area but are **weak**. **Structural** roots are **woody**, have a relatively small surface area, but are strong.

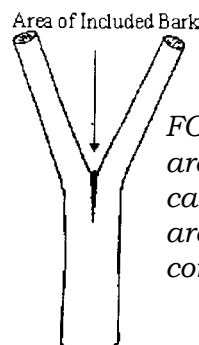
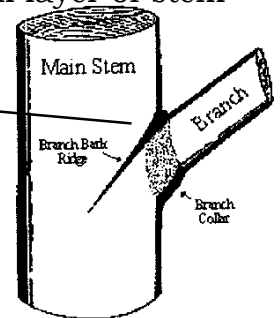
The primary roots growing from the bottom of the stem (root collar) play dominant roles in holding the tree upright while conducting water, essential elements and nutrients. If roots are constrained, diseased or damaged by construction, or as the top of the tree becomes larger, greater stress is put on the roots. Pulled or snapped roots cause trees to fall or lean.



5. BRANCH FAILURE

Branches are poorly attached to the main stem. A branch is stuck on the side of the stem each year by a small layer of stem wood called the branch collar.

Heavy loading and twisting can stress the branch collar area and cause cracking, splitting and breaking.



FORKS (or co-dominant branches) are structurally weak and splitting can occur due to a weak crotch area. These types of stems should be corrected early in the tree's life.



6. LIGHTNING STRIKES

Lightning is a life threatening situation. Lightning either moves in a narrow line down the branches, stem and roots or along a wide pathway encompassing the entire tree cylinder. Lightning directly **destroys** tree tissues by electrical disruption and heat. **Steam** explosions down the stem, in a wide or narrow band, show where electrical current has moved through the tree.

***Massive root** damage can remain *unseen*. Damage caused by lightning leads to extensive water loss which is also life threatening to the tree. Pest quickly attack a lightning weakened or damaged tree.

***Tree death** may occur *quickly* after a lightning strike or it may take *several months* before tree death.

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