Disaster Information Resources

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Dealing with Storm-damaged Trees In the Landscape

The harshest growing conditions for trees lie in urban and community landscapes, including private yards. Unfortunately, these trees are also the ones with the highest value and the ones that pose the greatest loss to people when storms strike. Storms can bring high winds, heavy rains and lightning strikes that cause trees to lose branches, split, break and uproot.

After the Storm

Following the storm, homeowners can follow these steps to save what is salvageable and minimize the damage:

1. Assess the damage. The morning after a storm survey each tree and answer these questions:
   - Is the tree in the right place? If the tree is not the right tree for its location (e.g., a very large species in a small spot), consider removal.
   - Is the tree basically healthy? If the tree is otherwise healthy and in the right place and the structural damage seems minor, the tree should survive and recover.
   - Are major limbs or the tree's leader (the central, main branch growing upward) damaged or lost? Losing large branches and the main leader makes it very difficult for the tree to recover. Although it may survive, it may become stunted and/or succumb to insect pests and diseases.
   - Did the tree lose more than half of its branches? A tree that loses more than 50% of its branches may not re-grow enough leaves to nourish the tree, and may it may survive for only one or two more seasons.
   - How large are the wounds caused by branch loss? Large wounds heal very slowly. Ragged wounds, for example, where the bark is stripped away from the main branch or trunk, may never heal. Both kinds of wounds can make the tree vulnerable to insect pests and diseases.
   - Can remaining branches form a new structure for the tree? The limbs that remain after the storm and clean up will grow vigorously. Will they be able to fill out the gaps in the tree?
2. Decide whether the tree is a keeper, a borderline case or one that needs removal.
   - Keepers. These are the trees that have only slight damage. Prune broken branches, repair torn bark and rough edges around wounds, and let the tree heal itself. Trees that retain most of their strong limbs, trees that lose only one major branch (and are otherwise undamaged) and trees that are just too young to die can be keepers.
   - Borderliners. These are trees that are valuable, seem otherwise healthy, and you just don't want to lose. It's worth the time and expense to have these trees assessed and treated (if needed) by a professional arborist whom you trust. Be careful not to go overboard with pruning. Trees need all their leaves to feed themselves – the more healthy tissue you remove, the harder it is for the tree to recover. Remove only what is necessary to make the tree stable and safe.
   - Leave takers. Say *adieu* to trees that lose most of their leafy crowns. Such a tree will not be able to replace enough leaves to survive and will not regain its beautiful shape. You also must bid farewell to a tree that has a rotten inner core or other fault that caused its trunk to split. Although such a tree may be able to survive for years, it will never be healthy and will be so weakened structurally that it is a hazard.
3. Provide first aid and TLC to keepers and borderliners. Don't be too hasty in deciding to remove trees. Sometimes a little TLC can make the difference between a tree keeping its place in your landscape and having to be removed.
   - Safety first! Look up, down and sideways. Do not walk or stand under branches that are hanging or hung up in other branches – a branch as small as a baseball bat can kill you! Stay clear of leaning trees.

     Watch out for downed power lines and stay well clear of them. Even low-voltage lines such as telephone, cable and security fences can pack a lethal wallop. Branches coming into direct contact with power lines and those near energized lines can become electrically charged and pose a serious threat to anyone who touches them. Do not attempt any clean up until you are 100% certain the lines are dead.
   - Get advice from a pro. If the cleanup requires you to climb, use a ladder, use a chainsaw either one-handed or overhead, or if the branches to be removed are larger than 4 inches in diameter, call a professional, state-licensed arborist. Arborists have the know-how, the skills and the equipment needed to do the job well and safely.
   - Provide TLC where you can. Torn or stripped bark occurs when branches break away from the main stem or trunk. You can use a chisel of sharp (clean) knife to trim the ragged edges on tears. Try not to cut more of the bark away than is necessary to

smooth the edge of the tear – a smaller, narrower wound heals faster.

- Trees and large shrubs that need to be reset or straightened should be staked until they become reestablished. Use metal or hardwood stakes that will last for months, but be sure not to drive stakes through any major roots. Place stakes at an angle away from the trunk to provide the greatest support. Use a wide strap or cloth that will reduce abrasion of the bark, and if you use wire or cable, be sure to run it through short lengths of old garden hose to cushion the bark. Be sure to leave a small amount of slack in the strap, wire or cable. Secure the plant from three sides to prevent excessive movement during high winds and rains. Remove the staking as soon as possible; remove all staking by 12 months to avoid the plant outgrowing the staking system, which can kill the plant. Treat reset and straightened trees like they were newly planted; irrigate more frequently than established plants and hold back the fertilizer for at least a year.
- Remove broken branches that are still attached to the tree, and trim any tears in the bark. Homeowners can prune out small broken branches (that they can reach safely) – cut where the branch joins the trunk or larger branch, just outside of the swelling near that juncture (called the branch collar). Homeowners should call in a professional to remove larger broken branches; remember tree branches are large, heavy and difficult to manage. This means they can be very dangerous for a novice to remove. Don't take any chances – hire a professional.
- Don't top your trees (cutting main branches back to stubs). Topping may seem like the best way to prevent large branches from falling the next time, but in reality this practice removes most of the leaves, and keeps the tree from producing enough food to recover from the storm. Topping also creates a large number of large wounds on the tree inviting pests and diseases and further draining the tree's energy reserves, again making recovery difficult, if not impossible.
- Prune to correct future problems: (1) on smaller trees, prune out multiple leaders to one main leader. Multiple leaders (more than one "main" stem growing upward) are very vulnerable to splitting in high winds, creating hazards and significant structural damage to trees. (2) encourage good branch angles. Branch angles at 10 o'clock and 2 o'clock angles relative to the trunk tend to be the strongest. (3) Don't cut branches in a way that leaves stubs. Branches that grow from stubs often have weak attachment to the main branch and will likely fail as they get larger.

Before the Next Storm

On first glance after a storm, it appears that damage is random or haphazard. On closer inspection, though, there are clues as to why some trees stand and some trees fail during storms. How can homeowners help minimize loss of valuable, much loved trees? Knowing what to do ahead of storm season is key.

Put the right tree in the right place. Careful selection of the plants you put into the landscape can help avoid problems down the line. Pick small species (hollies, redbuds, dogwoods, hawthorns and crape myrtles) for restricted spaces near structures, pathways (such as drives, roads and sidewalks) and power lines. Leave the large open areas for planting oaks, sycamores, hackberries, sweetgums, elms, beeches, hickories, pecans, poplars and other large species.

Prune young trees to develop the strongest structure. Getting the structure of the tree correct early in a trees life helps you avoid the need to prune out large branches later, potentially harming the tree.

Take care of the root zone. Root problems commonly put trees at risk during storms. Damaged roots and tree root zones constricted to small spaces are common in planted trees and lead to many of the problems seen during storms, such as wind throw. Mulch your trees to help protect roots and trunks. A 2- to 4 inch layer of mulch correctly applied improves the soil for root growth, helps conserve soil moisture and moderates temperature extremes (cold and hot). Proper mulching reduces competition from grass and reduces mechanical damage from mowers and string trimmers. Make sure that the tree has adequate rooting space for its size. The critical root zone for a tree can be considered the area under its canopy, though in reality, the root system extends far beyond this.

In addition to matching a tree to its site in terms of mature size and cultural needs (water/drainage, nutrient, temperature and light requirements), relative wind resistance of a species is something to consider.

- High wind resistance: southern magnolia, live oak, cypress, dogwood, hollies, palms.
- Medium-high wind resistance: Japanese and Florida sugar maple, river birch, hickories, red bud, sweetgum, white oak, swamp chestnut oak, Schumard oak, winged elm.
- Medium-low wind resistance: boxelder, red & silver maple, sugarberry, camphor, green ash, wax myrtle, sycamore, American elm, slash, loblolly and longleaf pine.
- Lowest wind resistance: southern red, laurel & water oak, pecan, tulip poplar, Bradford pear, tallow, Chinese elm, southern red cedar, Leyland cypress, spruce pine.

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