Caring for Storm-Damaged Trees

In the Storm's Wake

Figure 1: *Fallen tree due to wind. Credit: CSFS*

After a major storm, a community can be dramatically changed. Buildings may be damaged or destroyed, power lines downed, and trees broken and torn. Such storms have occurred across Rhode Island over the years. And, in the wake of such loss neighborhoods, and entire cities, may experience a sense of devastation.

But the situation may not be as bad as it first appears. Trees are amazingly resilient and many recover with proper care and time. Despite the urge to do something immediately, people should try to be patient. As long as there isn't an immediate physical risk from a damaged tree, the tree may be kept to see how it responds to the damage. Of course, any damaged tree that is kept should be monitored. And however tempting it may be to *help* your tree, do not assume that fertilizer will improve the tree's situation. The best advice is to be patient and see how the tree responds.

Obviously, safety should be the first major concern. Downed power lines, broken tree limbs that may be ready to fall (hangers), and newly leaning trees that show mounded or disturbed soil at the base opposite the lean, are three situations to be aware of. Downed utility lines should be reported to utility companies or 911 operators. Never use pruning equipment near utility lines; leave that to the professionals.

Be patient and allow local officials time to organize and respond properly to the situation. After a major storm, local officials, utility workers and private tree care firms must first focus on dealing with hazards to life and property. After that comes the major task of removing debris from the storm, including damaged branches and sometimes entire trees.

Responsibility for street trees varies from place to place and the most complete information about street trees in your community, such as publicly owned trees and who bears responsibilities, can be obtained from your town or city tree warden, urban forester, or other appropriate departments.

Responding to storms requires several steps:

1) **Look and Assess** the situation.
2) **Prioritize** the work.
3) **Hire** a professional who is a certified arborist with the International Society of Arboriculture.
4) **Prepare** for the future with proper pruning and tree management.

Information provided by the National Arbor Day Foundation and the International Society of Arboriculture and adapted from the Colorado State Forest Service.

Finding qualified arborists or companies:

ASCA AMERICAN SOCIETY of CONSULTING ARBORISTS

www.asca-consultants.org

ASCA allows you to find a consulting arborist on their website

TREES ARE GOOD® www.treesaregood.org

Brought to you by ISA

The International Society of Arboriculture uses the url www.treesaregood.org/ where you can find an arborist or confirm certification

www.isa-arbor.org

TCIA Tree Care Industry Association Advancing tree care businesses since 1938 VOICE OF TREE CARE

www.treecareindustry.org

TCIA maintains two lists of businesses: one of members and one for its accreditation program, and has 2 searches available:

Under Membership you can find qualified tree care

Under Business you can find an accredited company

Use a Certified/Qualified Arborist or Tree Care Company

If a tree is large and the work is off the ground, or under tension, or if a chainsaw is needed, it's best to contact a certified arborist. Certified professionals have the equipment and training to safely remove broken or downed limbs and to help save and restore trees. If you need professional help, locate a qualified tree care specialist and be sure to check their references.

Figure 2: *Arborist cleaning storm damage*

Three national tree industry groups promote professionalism through membership or certification and can be consulted to find or confirm certification of a tree care provider in your area. Rhode Island also requires all arborists to be licensed, in order to work in the state. Confirm licensure and choose a company committed to working to the professional industry standards. You can find find and confirm RI Arborist Licenses here: *www.dem.ri.gov/programs/forestry/urban-forestry/arborist-lists.php*

While it might be tempting to get the work done and get a deal at the same time, do not be pressured by people with chainsaws knocking on your door and offering to remove or "fix" your trees. Storms seem to produce such door-to-door callers, most of whom have no training and little interest in your trees beyond making a quick profit. They may also be insufficiently insured, if at all, should damage or injury occur at the time of the work or after they have left the neighborhood.

Some important tips to consider when hiring a tree care professional:

- Make sure they are part of an established business in the community. Most reputable companies have a presence online.
- Ask if the person is a certified arborist or the company is accredited.
- Ask to see current certificates of insurance showing that they are fully insured for property damage, personal liability and worker's compensation.
- If possible, get more than one estimate to ensure that the price is competitive with that offered by others for the same services.
- Have a clear understanding about who removes the limbs and debris from the property, in the case of tree removals. Ask whether the price includes stump removal and cleanup.

Can These Trees Be Saved?

A storm can leave trees looking like there's no tomorrow. Major limbs may be broken or damaged, foliage can be shredded or stripped, or the bark may be torn or gouged. But what may look like mortal wounds are not necessarily fatal to a tree. Trees have an amazing ability to recover from storm damage. Before writing off a damaged tree, homeowners should evaluate their trees by asking the following questions:

Figure 3: *Damage after a hurricane.*

Assess the Damage

- **Are major limbs broken?** If larger limbs are broken, it will be harder for the tree to recover from the damage. When large limbs are broken or hanging, or when high climbing or overhead chainsaw work is needed, it's best to hire or consult with a professional arborist. Arborists have the necessary equipment and knowledge.
  - **Take safety precautions.** Look up and look down. Be on the alert for downed power lines and leaning trees or hanging branches that look like they're ready to fall. Stay away from downed utility lines, low-voltage telephone or cable lines. Don't stand under broken limbs that are hanging or caught in other branches overhead.

Figure 4: *This tree will never recover its form or function.*

- **Other than the storm damage, is the tree basically healthy and vigorous?** If the tree is basically healthy, is not creating a hazard, and did not suffer major structural damage, it generally will recover if first aid measures are applied soon after the storm.
  - **Monitor the tree before using fertilizer.** Do not assume that damaged trees will benefit from fertilizer or other nutrient applications. Allow the tree to recover on its own or make a determination with a consultation from a professional arborist.

- **Has the leader (the main upward-trending branch on most trees) been lost?** In species where a leader is important for upward growth or desirable appearance, deciding whether to restore the tree may be a judgment call, based on how much of the leader and crown has been. The goal is to have a tree that eventually resembles its normal form.
  - **Don't top your trees!** When trees are topped, all of their branches are cut back to stubs on the mistaken idea that reducing the length of branches will help avoid breakage in future storms. While storm damage may not always allow for ideal pruning cuts, topping the remaining limbs will only make a bad situation worse for the tree. Topping reduces the amount of foliage that the tree needs for its food and nourishment (see Figure 5). After a storm, when

Figure 5: *Avoid topping your trees. Credit www.forestryimages.org*

If a tree has been weakened by disease, there may be little that can be done to prevent major breakage or loss when the stresses of a storm occur. However, there are preventive measures you can take to help strengthen your trees so they are more resistant to storm damage.

Figure 7: *Decay inside this tree made it hazardous before the storm even occurred.*

the tree needs all of its resources to recover from the storm damage, topping simply increases the stress and damage. And topped trees subsequently develop weakly attached branches that are even more likely to break in a future storm.

Figure 6: *A careful assessment of trees is important before and after a storm. Credit: www.forestryimages.org*

- **Is more than half of the tree's crown (branches and leaves) still intact?** This can be a good rule of thumb when assessing tree survivability. A tree with less than half of its branches remaining may not be able to produce enough foliage to nourish the tree through another growing season. Discuss with your arborist.
    - **Resist the urge to over prune.** Don't worry if the tree's appearance isn't perfect. Missing branches may cause your trees to look unbalanced or naked. But you'll be surprised at how fast the tree will respond with new foliage and wound closure.
- **How big are the wounds where branches have been broken or bark has been damaged?** The larger the wound is in relation to the size of the limb, the less likely it is for wound wood to grow and cover the wound, leaving the tree vulnerable to disease and pests. A 2- to 3-inch wound on a 12-inch diameter limb will close over with new bark within a couple of years.
    - **Remove any broken branches still attached to the tree.** Removing the jagged remains of smaller-sized broken limbs is one repair that property owners can make after a storm (see Figure 13). Done properly, the pruned surface will allow wound wood to grow and cover the damage more quickly and minimize the risk of decay agents entering the wound. Placing the cuts correctly is essential to support the tree's response and help it recover (see Figure 16). Larger-sized broken limbs can be assessed by an arborist to see if cuts can be made that do not remove the entire limb and will allow crown restoration work to be carried out.
- **Will remaining branches be able to form a new branch structure?** The remaining limbs will grow more vigorously as the tree tries to replace missing foliage. Look to see if remaining branches can eventually fill out the tree to resemble its original appearance.
- **Is the tree species desirable for its location?** If the tree is in the wrong location (such as a potentially tall tree beneath a power line), or an undesirable species for the property (messy fruit, etc.), it may be best to remove it if it has serious damage.

Make the Decision

The above questions and suggestions will help you, as you work with your certified professional, make informed decisions about your trees. In general, the answer regarding what to do about a particular tree will fall into one of three categories:

1. It's a Keeper

If damage is relatively minor, properly prune any broken branches, and let the tree begin the process of wound repair.

- **An Easy Call:** A mature shade tree usually can survive the loss of one major limb. The broken branch should be pruned back to the trunk. In the following months, large wounds should be closely monitored for signs of decay.
- **Minor Damage:** Although the tree has been damaged, enough strong limbs may remain on a basically healthy tree to make saving it possible.
- **Too Young to Die:** Young trees can sustain significant damage and still recover quickly. If the leader is intact and the structure for future branching remains, remove the broken branches and let the tree close over the wounds and recover by itself.

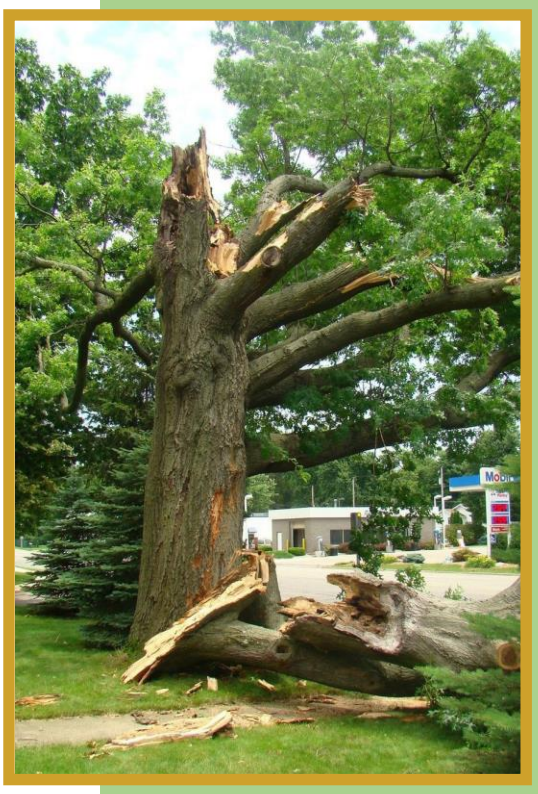


Figure 8: *A tree that has lost the leading stem (the main upward-trending branch). Credit: www.forestryimages.org*

2. Wait and See

If a valuable tree appears to be a borderline case, resist the temptation to simply cut down the tree and be done with it. In such cases, it may be best to carefully prune broken branches and give the tree some time to recover. A final decision can be made later.

- **Easy Does It:** Resist the temptation to prune too heavily. Remember, the tree will need all the foliage it can produce in order to survive through the next growing season. Remove only the damaged limbs, then wait and see what happens.
- **Hold Off:** A healthy mature tree can recover even when several major limbs are damaged. With large trees, it is best to consult with a professional arborist to assess damage and safely prune and remove branches.

Figure 9: *A young tree too damaged to recover its form and function.*

3. Say Goodbye

Some trees simply can't be saved or are not worth saving. If the tree has already been weakened by disease, the trunk is split or more than half of the crown is gone, the tree has lost its survival edge.

- **Tree Tragedy:** When a healthy tree, even a young one, has lost too many branches and limbs, it may not be able to grow enough new branches and leaves to provide the necessary nourishment and will never be able to regain its former beautiful shape. This typically depends on the extent and impact of the damage, and the species affected.

Figure 10: *A hopeless case.*

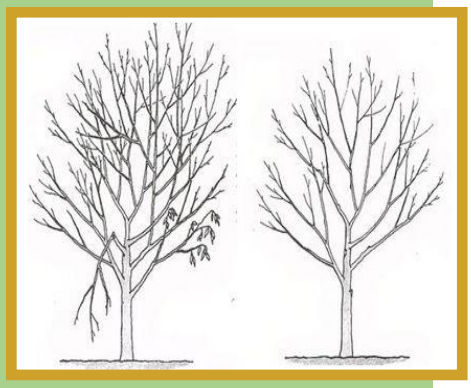


Figure 11: *Prune for health and structure by removing weak branches and attachments. Credit: University of Florida*

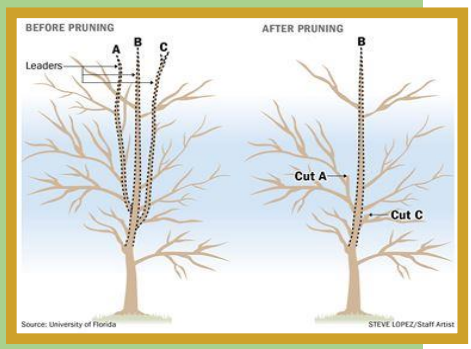


Figure 12: *Pruning when the tree is young helps develop a structurally sound tree when mature. Credit: University of Florida*

- **Hopeless Case:** About all that's left of this tree in Figure 10 is its trunk. The few remaining branches can't provide enough foliage for the tree to make it through another growing season.
- **Fond Farewell to a Friend:** As can be seen in Figure 8, internal decay or structural weakness in branching patterns can cause severe failure. The wounds are too large to recover from.

Reducing Tree Damage in Future Storms

When a major storm strikes, some trees seem to sustain only minor damage, while others suffer the loss of large limbs or sizable parts of their branching structure. In the worst cases, trees may be completely split in two or may have nothing left but a trunk, or even be left in toothpicks by hurricane or tornado-force winds. This may be partly related to the tree species, but in many cases is mainly related to the branching structure and integrity of the branches.

There is no way to guarantee that a tree can withstand whatever nature throws at it. Even the healthiest, strongest tree can be impacted when the conditions are right (or wrong). But in general, healthy trees with strong branching and an undamaged root system are better able to withstand severe weather and better able to recover. In order for that to be possible, proper care and pruning are required.

Regular pruning (not topping) done by a professional over the course of the tree's life can create a sturdy, well-spaced framework of healthy branches with an open canopy that allows wind to flow freely through. The removal of weak attachments or damaged limbs benefits tree health and removes branches that could break or tear and damage the tree, thus reducing storm damage and the severity of that damage.

Trees that should be addressed in consultation with a certified arborist:

- Dead or dying, cavities or decay – these trees are already weakened and may have an increased risk of failure under normal conditions.
- Codominant trunks and narrow forks – the sooner and earlier in a tree's life to remove or prune these, the less expensive and more beneficial to tree form and structure.

Remember that the easiest and least expensive way to prepare for future storms is training prune for young trees. This can be easily done from the ground until the tree reaches about 20 feet, and will go a long way to establish a sound branching structure that will be more resistant to storm damage as the tree matures.

Important Tips for Pruning Correctly

When cleaning up after a storm, correctly placed pruning cuts give trees a better chance of recovery. Proper pruning cuts are also important to direct strong structure in the canopy and can help to make the tree more resistant to damage from future storms. Improper pruning cuts, including topping, will add more damage to an already damaged tree.

Correctly placed pruning cuts are ideal in most situations, but when pruning to remove damage and manage future restoration, your arborist may choose to make interim cuts. These cuts allow the tree to retain leaf area, avoiding further major limb loss due to pruning. The partnership between owner and arborist will be ongoing.

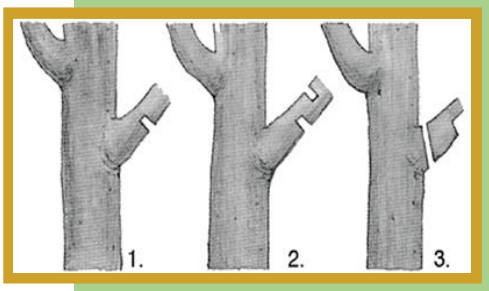
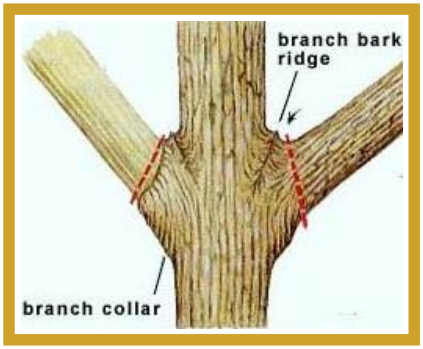


Figure 13. *To remove large branches or broken limbs, the 3-step cut is recommended. Credit: TXDOT*

3 Steps to Correctly Placing a Pruning Cut

Proper pruning cuts on larger branches should be made in 3 steps. These steps will avoid damaging the tree further by removing the limb before its weight can fall and tear.

1. Begin with an undercut several inches away from the trunk.
2. Make a top cut an inch or so further out on the limb. The majority of the limb is safely removed in this step without causing further damage to the tree.
3. Complete the task by removing the remaining stub, do *not* cut flush against the trunk.



Correctly placed pruning cuts avoid cutting into the branch collar and the branch bark ridge. Avoid flush cuts and short stubs as they interfere with the tree's growth response and open the tree to decay.

Figure 14: *Correctly placed cuts allows a tree to respond effectively in closing over the cut with wound wood. Credit: USFS*

Figure 15: *Correctly placed pruning cuts can help avoid further damage like this.*

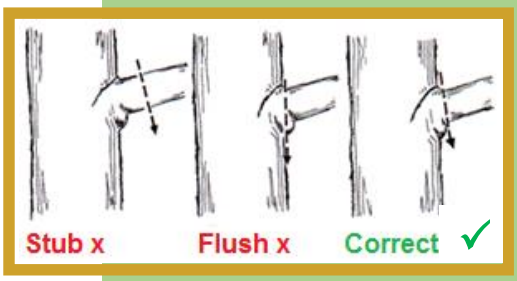


Figure 16: *Correctly placed cuts allows a tree to respond effectively and reducing the potential for decay. Credit: www.gardeningbasicseattle.com*

When You Still Need a Professional to Prune

Addressing hangers and broken limbs higher in a tree requires the skills of a professional arborist. A professional will not use climbing spurs to ascend into a tree unless they are removing the tree – cranes or climbing saddles are required.

And in cases where tree damage is substantial but the tree is valued by the owner and there are sufficient branches remaining – cuts that are not placed as described above may be necessary. But, depending on the severity of damage, this restoration process can require multiple visits over several years from your arborist to restore and prune your tree. But even one visit can make a world of difference.

Managing Your Trees for the Future

Undamaged trees do not necessarily require removal after a storm. Some damaged trees can be restored to form and function when pruned properly by a professional arborist.

But managing your trees after a storm is both a short-term and long-term commitment:

- In the short-term, clean-up of debris, and removing trees that cannot recover or be restored.
- In the long-term, continuing with maintenance that will help trees recover and reduce the potential for damage in future storms; and planting new trees for those removed.

A professional arborist is essential at both stages:

- To assess trees and make recommendations about removal and pruning needs, immediately after a storm.
- To carry out maintenance on your trees improving form and structure for health and storm resilience.

Establishing a long-term commitment to maintain your trees through the services of a certified arborist will likely result in less storm damage to your trees and less cleanup needed after future storms.

Visit the following websites for instructions and tips on how to proactively prune your trees and prepare for storms:

Urban Forest Hurricane Recovery Program
https://edis.ifas.ufl.edu/collections/series_urban_forest_hurricane_recovery_program

Trees and Ice Storms Purdue Extension
https://dem.ri.gov/sites/g/files/xkgbur861/files/programs/bnatres/forest/pdf/urban/storm-tree-ice.pdf

Tree Pruning Essentials
https://extension.purdue.edu/extmedia/FNR/FNR-506-W.pdf

Restoring Trees One Branch at a Time
https://www.historictreecare.com/wp-content/uploads/2012/05/restore_2010_06.pdf

Figure 17: Careful pruning can make the difference in successful tree restoration. Credit: Historic Tree Care, www.Historictreecare.com

For more information on urban and community forestry, please visit the RIDEM Division of Forest Environment website at:

www.dem.ri.gov/urbanforestry

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