

## Helping Your Trees Survive Storm Damage

A storm can damage trees.

However, damage to a tree does not mean that the tree is lost. With proper pruning, you can restore the shape and health of a damaged tree. A tree that appears damaged can still be structurally sound, and capable of providing benefits to you and your community.

If a winter storm damages a tree, you can prune it during the winter if you can reach the broken limbs safely. But it will not harm the tree to leave repairs until just before the spring thaw. Unless hanging or drooping branches are a safety hazard, it is best to wait until the early spring—particularly if they are covered by ice. Removing ice-laden branches may damage the tree—and you.

If work is out of easy reach, hire a certified professional (see tips for hiring a contractor) and supervise any work that is done, particularly ensuring that cleanup cuts are made properly. Do not attempt to remove branches that are near or touch electricity wires. Report the problem to your electrical utility and wait for the utility's trained staff to remove the branches.

### Clean up broken branches

Cutting a straight, clean edge close to the mother branch or trunk is critical. Broken branches and loose or torn bark can harbor insects and disease organisms. Pruning cuts should be made close to but beyond the branch bark ridges<sup>1</sup> and the collar at the branch attachment (Figure 1).

Avoid cutting too close or flush to the trunk. A wound too close to the trunk will close slowly, and open the trunk to infection and to decay-causing organisms.

Do not cut into the branch bark ridges or branch collar, since this zone is an effective barrier to decay between the branch and trunk or mother branch. Flush cuts also make the wound size bigger than it needs to be, exposing trunk tissue to organisms that cause decay. It is better to cut the branch back to the collar than to leave a branch stub.

For smaller trees, curved shears make closer cuts than straight ones and cause less damage to stem tissue. Place the blade so that it cuts upwards or diagonally, instead of down.

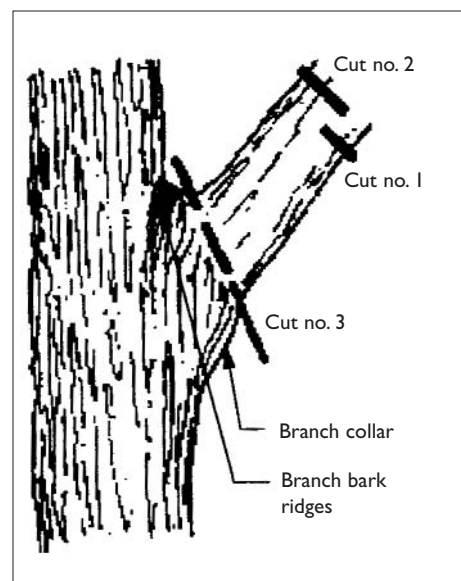


Figure 1: Branch bark ridges, branch collars and the three-cut system

Branches more than 25 mm (1 in.) in diameter should be cut with a saw.

Remove larger branches using the three-cut system to avoid splitting and bark tearing. (Figure 1)

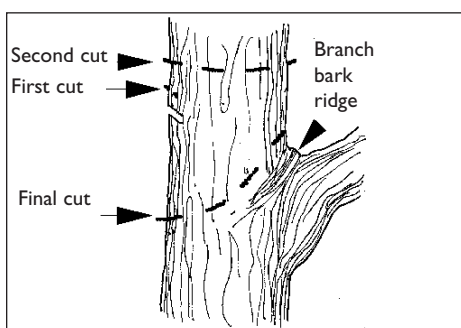
<sup>1</sup> Branch bark ridges are rings or lines of bulging bark that may be rougher and darker in color than surrounding bark.

1. Cut on the bottom side of the branch 30 to 60 cm (1-2 ft.) from the branch attachment, one-quarter of the way through.
2. On the top side of the branch 2.5 cm (1 in.) out from the first cut (away from the branch attachment), saw until the limb falls off.
3. Saw just beyond the outer portion of the branch collar. This can be done in two phases, initially from the bottom halfway through and then from the top.

Be very careful with chain saws. They can harm you and they can damage living bark on the trees.

When removing a terminal branch be careful not to cut the branch bark ridge of the lateral branch. For mature trees, use the three-cut system and make the final cut at an angle parallel to the branch bark ridge of the highest major lateral branch, leaving no stub. (Figure 2)

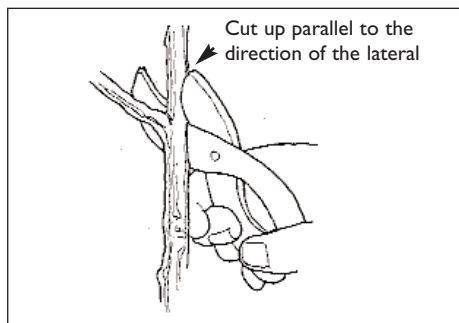
*Figure 2: Removal of terminal branch on*



*mature tree (based on Pirone et al, 1988)*

When cutting a terminal branch back to a lateral branch on a young tree, cut up parallel to the direction of the lateral branch. Leave a short stub, one-quarter of an inch above the topmost bud. If you cut down,

you will usually cut into the branch bark ridge and often split the lateral branch. (Figure 3)



*Figure 3: Removal of terminal branch on young tree (based on Harris, 1983)*

Pruning should be done before the spring growth spurt. Early pruning will minimize the size of the wounds and hasten their closure. When temperatures plummet below -20°C, the hardness of tissue near pruning cuts may be reduced. It is best to wait until just before growth begins in the spring.

### Remove torn bark

Torn and damaged bark should be removed to avoid surface areas that can harbor insects and disease organisms. When cleaning a wound, use a sharp wood chisel, gouge or pruning knife to cut the loose bark at right angles to the wound surface. Cut it back to firm bark. Smooth the bark so it will not trap water and debris.

Ensure that the bottom is tapered rather than squared-off to avoid collecting water at the base of the wound. Leave as much firmly-attached live bark as possible, even if the live bark forms islands or peninsulas in the wound area.

### Maintain tree vigour

Wounds caused by breakage and tearing of limbs and bark begin a process that can lead to decay caused by fungi and bacteria.

In a healthy tree, wounds and decay are compartmentalized by protective zones that prevent the movement of microorganisms in and out of wounded wood, confining and deterring the progression of decay.

Callusing around the wound or cut will form, which will be doughnut-shaped if a proper cut was made, and eventually close over. However, the rate of callusing or closing depends in the tree's vigour. Practices that encourage growth not only speed wound closure but reduce the possibility of decay. Vigour can be maintained by wise irrigation, pest management and fertilization.

Painting and dressing wounds is of little or no value in hastening wound closure. These serve a primarily aesthetic function. Sealing compounds have also been found to be of little use. Trees will seal, form a callus and close wounds themselves.

The best action is to minimize exposed surface areas by pruning back to the branch collar, remove torn and dead bark, maintain healthy conditions and allow the tree to close or form a callous on its own.

### Replant

If, after receiving advice from a certified tree care professional, you must remove a tree, consider planting new trees in the spring or fall. Try to plant locally hardy native

species. Contact your local nursery for more information on tree species. These websites have practical information about tree planting:

**[www.lrconline.com](http://www.lrconline.com)**

**<http://www.treecanada.ca/publications/guide.htm>**

When selecting the tree species, consider the tree's ultimate size, shape and preferred growing conditions. For example, if planting underneath electrical wires, ensure that the tree's mature height is lower than the electrical wires.

### **Split crotches can be bolted**

If the split is clean and most of the wood is still intact, push the branch back to its normal position as soon as possible, and support it by tying or propping. Clean up the rough edges, and drill through the wood, from one side then from the other, through the center of the split. Place a threaded rod through the hole and use washers, being careful to trace around the washer and cut bark behind it.

Insert two more rods above it, separated by a distance equal to twice the diameter of the limbs. Avoid too much pressure. If the split is not clean or most of the wood has separated, it is best to remove these branches to begin the process of forming a callus and closing.

### **Leave bending trees alone**

Unless breakage occurs, most tree branches can bend until the tips touch the ground and eventually retain their original position after the spring growth spurt. If breakage does occur, remove the branch. This process of bending back into place can be hastened by pulling branches up and tying them together, providing cross support to hold them in position. However, this should only be done in spring. Do not try to pull branches up if their tops are stuck in the ice, particularly with evergreens. You will damage the branch tips.

### **Conifers**

The above tips apply to conifers as well as deciduous trees. When the top breaks off most conifers, branches in the topmost whorl will bend upward and one usually dominates to become the leader or a latent bud may grow into a new leader. If no leader develops naturally, tie one of the topmost branches upright to induce its transition to the new leader.

### **Hiring a contractor**

If broken branches are out of easy reach, contract the work to a reputable tree maintenance company. Make the decision to keep or remove trees on a case-by-case basis with the help of a tree expert, such as a tree care company with a certified arborist. When hiring a contractor for either tree removal or clean up cuts:

- Check for liability insurance, workers' compensation and chain saw certification

- Ensure the company is listed in the phone book, and preferably employs a certified arborist or tree care professional
- Get at least two estimates
- Set the terms of the contract clearly in writing
- Ask for references
- Do not give a down payment

### **The benefits of trees**

Trees provide many tangible benefits to homeowners, including:

- Increasing property values
- Providing privacy shade and micro-climates
- Beautifying any location
- Creating human scale and a green natural appearance
- Cooling your home in the summer and blocking winds in the winter.

Benefits to society include:

- Reducing the urban heat island effect and creating micro-climates
- Reducing particulates in the air
- Absorbing storm water
- Reducing erosion and sedimentation
- Providing recreational opportunities
- Creating shelter for wildlife
- Irreplaceable aesthetic benefits to any community

If you're thinking of removing a damaged tree, reconsider these benefits and get advice from a certified tree care professional.

Good luck with your tree care.

### Sources

Harris, Richard W., 1983, *Arboriculture: Care of Trees, Shrubs and Vines in the Landscape*. Prentice-Hall Inc.; Englewood Cliffs, New Jersey.

Lawrence, Ed., 1998. *CBC Radio 1, 91.5 FM: Ontario Today*, January 12, 1998.

Pirone, P.P., Hartman, J.R., Sall, M.A. and Prione, T.P., 1998. *Tree Maintenance*, Sixth Edition. Oxford University Press; New York.

Shigo, Alex L., 1993. *A New Tree Biology: Facts, Photos and Philosophies on Trees and their Problems and Proper Care*. Sherwood Dodge Printers; Littleton, New Hampshire.

### Further information is available from:

*Pruning Young Trees and Pruning Mature Trees*. International Society of Arboriculture, [www.treesaregood.com](http://www.treesaregood.com)

*Caring for Ice Damaged Trees and Maintaining Health Urban Trees*. Land Owner Resource Centre, [www.lronline.com/Extension\\_Notes/pdf](http://www.lronline.com/Extension_Notes/pdf)

Tree Care Industry Association, [www.natlarb.com/](http://www.natlarb.com/)

*Pruning Ornamentals*, doc no. 483: Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) 1 888 466-2372

*How to Prune Trees*. United States Department of Agriculture, Forestry Department website at [ncrs.fs.fed.us/pubs/924](http://ncrs.fs.fed.us/pubs/924)

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Printed in Canada  
Produced by CMHC  
Revised 1999, 2001, 2005, 2007

18-06-07

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