

EXTENSION NOTES



CARING FOR ICE-DAMAGED TREES

Ice storms are fairly common events. Severe ice storms can affect trees, but trees can also be remarkably resilient. Healthy trees that have not suffered major structural damage, such as split trunks and broken crowns, may recover with time. In winter, trees are dormant and further injury by insects and disease is less likely than if the injury occurs during the growing season. Recovery depends on the health of the tree and the extent of the damage; healthy trees with few damaged branches should recover and in time the crown may even appear normal.

This Extension Note outlines how to look after trees damaged by ice.

SAFETY FIRST

Be careful when working near or under any damaged trees. Approach and inspect damaged trees only if it is clearly safe to do so. Branches that appear to be well wedged in the crown can fall without warning at any time, resulting in serious injury and damage to property. Do not go near any tree close to power lines. Pruning of large branches and stems is difficult and hazardous and should only be carried out by persons trained and experienced in such work.

ASSESS YOUR TREES

Most trees can be saved with appropriate treatment. There is no need to rush out and remove trees that do not pose a safety hazard in the short-term. It is wise to wait until the growing season before deciding to take down damaged trees.



photo courtesy of Steve Day

FIGURE 1: ASSESS YOUR TREES



0–25% crown loss — little effect



26–50% crown loss — will survive



51–75% crown loss — fair chance of survival



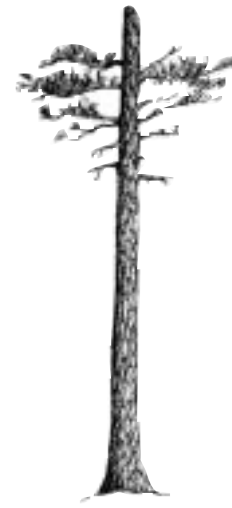
>75% crown loss — may survive depending on species



broken leader — will recover



broken mid-crown — good chance of recovery



>75% broken below crown — low chance of recovery



< 20-degree bend — will recover



< 60-degree bend — good chance of recovery



> 60-degree bend — low chance of recovery

The first thing to do is assess your trees. Ask yourself the following questions:

- Do broken limbs pose any danger?
- What species is the tree?
- How healthy was the tree before the storm?
- How much of the crown has been lost?
- Is the trunk broken?
- Can a branch in the upper canopy become a leader?
- Is the tree of any value to wildlife?

Make your assessment of the tree (see Figure 1) and then decide on the appropriate action .

If you are making decisions for shade trees around your home, you will want to do all you can to save each tree; however, if you are making decisions for your woodlot, a thorough assessment is required.

Realistically, you won't be able to properly prune each injury on each tree. Deciding which tree stays and which tree should be cut can be a difficult decision and depends on your woodlot objectives, the extent of the damage, safety issues and current market values. Landowners should seek professional help for an assessment of the damage to their woodlots and recommendations for remedial action.

CALL IN THE PROS

Depending on your circumstances and expertise, you may have to bring in professional or technical expertise to assist you in making decisions or in carrying out the physical work. There are a number of experts available to help you, including arborists, foresters, forestry technicians, biologists, ecologists, loggers and land clearing contractors. Each has their own unique skills and experience and should be used accordingly.

Arborists care for individual trees and shrubs. Qualified Arborists are certified by the International Society of Arboriculture or through the Ontario Ministry of Education and Training. Qualified arborists have special training in the use of chain saws.

Foresters, forestry technicians, biologists and ecologists all care for different elements of the forest. Depending on your interests, you may consider contacting one of these experts. Foresters are certified through the Ontario Professional Foresters Association. Forestry technicians, biologists and ecologists have accreditation and experience in their respective fields.

All people who operate a chain saw in Ontario for commercial purposes must be qualified. Loggers, land clearing contractors and other workers who cut

and harvest trees for wood production must have successfully completed the "Cutter Skidder Operator Certificate Course" offered by the Ontario Ministry of Education and Training.

Before hiring any consultants, make sure that they have the following credentials:

- proper liability insurance
- Worker's Compensation coverage
- professional/technical affiliation(s) as described
- a written cost quotation and detailed work description
- references

Protect yourself — always get estimates from at least three contractors. Insist on invoices for the work done and keep your receipts.

To contact the experts, check under "Tree Service" or "Forestry Consultants" in the yellow pages. Lists of forest consultants and other information is also available through your local Ontario Ministry of Natural Resources (OMNR) office or through each county's OMNR Stewardship Coordinator. Other groups can give you assistance, see the chart *Where to Call for Help* for details.

WHERE TO CALL FOR HELP

General Information*

Cataraqui Region Conservation Authority	(613) 546-4228
LandOwner Resource Centre	(613) 692-2390
Mississippi Valley Conservation	(613) 259-2421
Ontario Ministry of Natural Resources	(800) 667-1940
Raisin Region Conservation Authority	(613) 528-4823
Rideau Valley Conservation Authority	(613) 692-3571
South Nation Conservation	(613) 984-2948

Individual Trees and Shrubs

International Society of Arboriculture	(888) 463-2316
Landscape Ontario	(905) 875-1805

Forest and Woodlots

Agroforestry Program (OMAFRA)	(613) 258-8302
Eastern Ontario Model Forest	(613) 258-8241
Ontario Forestry Association	(416) 493-4565
Ontario Professional Foresters Association	(905) 764-2921
Ontario Woodlot Association	(613) 692-0017

ICE COATED TREES

Some trees will continue to be ice covered or frozen into the snow crust after the storm. Generally, it is advised not to remove the ice and snow, although each tree is different. It is often best to allow the tree to thaw before attempting to straighten it. For some conifers, such as pine, attempting to release a frozen

top could cause more damage. Do not attempt to remove ice by striking the branches with a blunt object. Trees are fairly brittle in the winter and with the added rigidity of the ice, you will break more branches than you will save. Be patient, over time the tree may straighten.

PROPER PRUNING

Pruning can be done any time with a few exceptions. Elms should never be pruned during the growing season as open wounds attract the elm bark beetle that spreads Dutch Elm Disease. Avoid pruning hardwoods in the spring as sap flows will attract insects. Hardwoods that flower in early spring should be pruned after flowering to ensure that flowers will bloom next spring. Conifers can be pruned at anytime, but pruning during the dormant season will minimize sap and resin flow.

Be sure to use the proper tools for pruning. Use chain saws only to remove the larger portion of storm damaged limbs. Use smaller pruning tools that are more easily controlled e.g., hand saws, pruning poles, etc. If branches are beyond your reach, use a pole saw or ladder. Keep pruning tools clean and sharp. Diseases can be spread by tools after you cut an infected plant. To sterilize pruning tools, clean them in a mixture of one-part household bleach to 10-parts water.

The key to tree recovery is proper branch stub pruning.

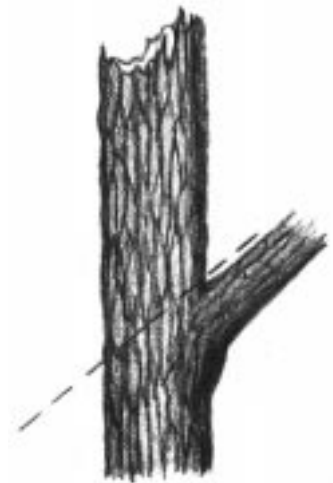
Branches which have been pruned correctly will form a large callus to seal the wound. If removing branches, do not cut into the collar that has formed at the base of the branch (see Figure 2). The collar is the raised ring of protective tissue circling the branch and acts as a barrier to further decay. Trimming above the branch collar will result in a wound that closes quickly and completely. Try

not to leave a long broken stub as this will prevent the wound from healing quickly and will encourage fungus and insects. Do not prune flush to the main stem as this creates a large hole that will be slow to heal.

Cut larger branches using a three-step method (see Figure 2) so the weight of the branch will not cause it to break and tear the bark below the limb. If the job looks too large or dangerous, hire a professional.

If the top of the tree was damaged, make repairs by cutting the stem at about a 45 degree angle below the break and just above the first live branch. This will prevent water from entering or pooling in the affected area.

Many hardwoods are specially equipped to recover from damage to the crown. Species like



A clean, 45 degree cut at the top of the tree will prevent water from pooling and rotting the trunk. Make the cut below the break and above the next live branch that is at least one-third the size of the stem.

FIGURE 2: THREE-STEP METHOD OF PRUNING

CUT A

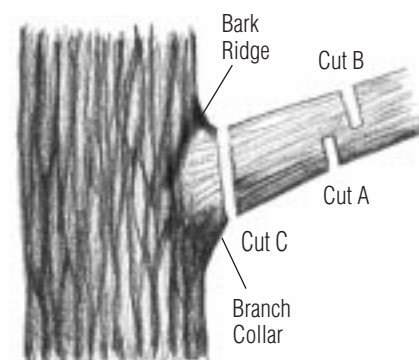
Make your first cut two feet from the trunk. Cut half way through the branch, moving from the bottom up.

CUT B

The second cut is one-third to half the diameter of the limb away from the first cut. Cut half way through the branch. At this point, the limb should fall from its own weight.

CUT C

The final cut is next to the trunk. Cut outside the branch collar with the lower edge being further away from the trunk of the tree.



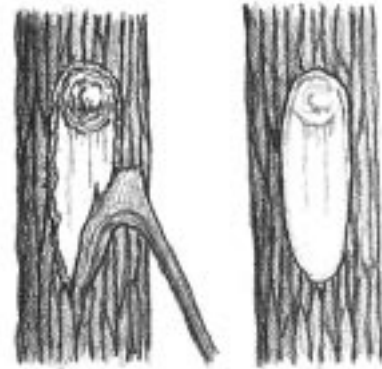
poplar, silver maple and elm often develop epicormic branches in response to lost or damaged branches. Not all species are equally successful at producing these branches.

Do not cover wounds with prepared compounds. Trees have their own protection mechanisms that will efficiently seal the wound.

REPAIRING TORN BARK

During ice storms, broken limbs often tear and strip bark. It is important to repair torn bark to avoid the spread of disease and the invasion of insects; it will also improve the tree's appearance. Use a chisel or sharp knife to smooth ragged edges of the dying bark. Remove all loose bark to the point where it is firmly attached to the tree. Shape the wound into an ellipse. The rounded ends prevent dieback of the cambium

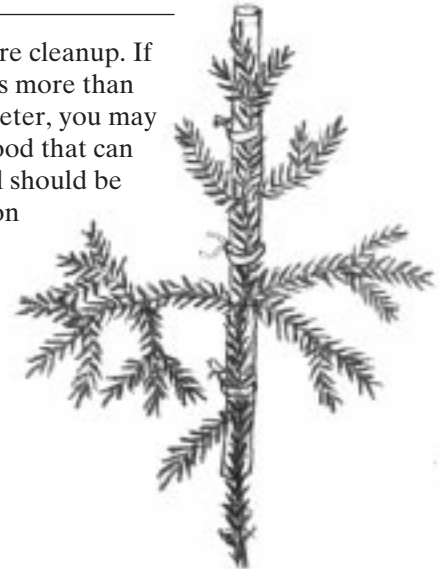
(inner bark). Keep the wound as narrow and small as possible to help the tree heal as quickly as possible.



BROKEN CONIFERS

The tops of young conifers are often bent or broken off during ice storms. Corrective pruning can be used for individual trees and in conifer plantations. Corrective pruning in plantations will reduce the negative impact of the broken tops on future timber value. Cut the broken or bent tops just above the first live whorl. This will encourage a branch in the top whorl to become the new leader. Find the best branch and gently bend it upwards. Using a biodegradable rag (i.e., cotton, linen) attach the branch to a pole that is tied to the tree's trunk. This should straighten the branch and encourage it to become the new leader. In plantations, prune approximately 500 trees per hectare and try to space the pruned trees throughout the plantation. Severely damaged conifer plantations that are over

15 years old may require cleanup. If the plantation has trees more than 15 centimeters in diameter, you may want to salvage any wood that can be sold. A professional should be called for advice as soon as possible to avoid a decrease in the quality of wood.



BROKEN HARDWOODS

Hardwoods with less than 75 per cent damage to crowns are expected to recover, although it may not be for three to six years. For shade trees, prune torn branches and repair torn bark as described in the section on *Proper Pruning*. Trees with lodged, unsafe, broken limbs may have to be cut down for safety reasons.



FUTURE CARE

Help your tree in the upcoming year by making its life as easy as possible. Water shade trees during dry spells. Avoid unnecessary wounding like lawn mower injury, at the tree's base.

In the forest, practice good timber management by cutting out less desirable and poorly formed trees to benefit your more valuable trees. At the same time, give thought to retaining some of the damaged trees as potential cavity trees for wildlife (see Extension Note *Cavity Trees Are Refuges for Wildlife*). A well-thought out management plan can help your trees stay "fit" for many years. A number of publications are available to help develop a management plan for your woodlot including *A Woodlot Management Plan*, *Making Your Woodland Pay*, and *A Business Approach to Owning Rural Property*. Contact the LandOwner Resource Centre for details. Don't be tempted to "clean-up" the forest too



much. Remember, woody debris on the forest floor provides nutrients for the remaining trees as well as key habitat for forest wildlife.

FURTHER READING

The following Extension Notes and pamphlets provide additional information. For copies contact the LandOwner Resource Centre.

- *Managing Young Hardwood Stands for Sawlog Production*
- *Managing Regeneration in Conifer Plantations to Restore a Mixed, Hardwood Forest*
- *Selling Standing Timber*
- *Forest History in Eastern Ontario*
- *Do You Have a Healthy Woodlot*
- *Basswood*
- *Butternut*
- *Eastern Hemlock*
- *Eastern White Cedar*
- *Eastern White Pine*
- *Poplars*
- *Red Oak*
- *Sugar Maple*
- *White Spruce*
- *Cavity Trees are Refuges for Wildlife*
- Bedker, Peter J., O'Brien, Joseph G., Mielke, Manfred E., *How to Prune Trees*. United States Department of Agriculture. 1995.
- Shigo, Alex L., *Modern Arboriculture: A Systems Approach to the Care of Trees and Their Associates*, Shigo and Trees, Associates, Durham, New Hampshire. 1991.

For more information contact:

LandOwner Resource Centre

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