Tornado Damaged Forests

August 2005

A guide on how to care for them

Do you need professional expertise?

Before you begin to assess the tornado damage in your forest, consider your knowledge of forest management principles and practices. Do you have the general and technical knowledge you need to assess the damage or to carry out the work yourself? Depending on your training, experience and circumstances, you may need professional advice or assistance. For a list of forestry professionals please consult the Guelph Ministry of Natural Resources office at 519-826-4955.

Safety First

Consider your safety before taking any action, even an assessment. **Windblown and twisted trees are often under extreme and unexpected tension, and tangled up with other trees. Working with them without experience and proper safety equipment can kill or injure you in an instant**. Branches that appear to be well wedged in the crown of a tree can fall without warning at any time and cause severe injuries.

When working in your forest remember:

- When operating a chainsaw, wear proper protective clothing including steel-toed boots, chaps, gloves, hardhat with eye and ear protection.
- Don't go near any trees that are close to power lines.
- Don't cut any large branches or prune unless you have been trained to do so

Due to the haphazard pattern of blown down trees, cutting trees is both slow and dangerous. The sudden release of pinned down or blown over trees can result in very dangerous conditions for a chainsaw operator. Even heavy equipment has a difficult time getting to the individual stems due to the jumbled mess of root systems and trees lying or leaning at various angles to the ground. In recognizing the dangers of these activities, anyone who operates a chain saw for commercial purposes in Ontario must be trained and certified.

Below: Aerial photo of damaged forest after tornado swept through Centre Wellington on August 19, 2005.

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Consider your goals

Whether or not you have a management plan for your forest, it's important to consider your long-term goals before you begin your assessment. For example, if you want to provide habitat for wildlife or places for recreation, you may only want to clear access points and walking trails, even in severely damaged stands. However, if you're managing a stand for timber products you may want to salvage or harvest trees before they lose their commercial value; you may also want to prune and take other steps to avoid future losses. The options available to you will depend on the site conditions, age of trees, species of trees and the extent of tornado damage in your forest. Combined, these and other considerations will determine whether you change your long-term goals, whether you have costs or revenue from the cleanup and ultimately, what your plan of action should be to meet your goals.

Working in wet forests (swamps)

Wet forests require special care. In order to limit disturbance, bulldozers and other heavy machinery should not be operated after a heavy rainfall or during the wet season. To further reduce site damage, tree cutting operations are recommended in the winter season when the ground is frozen.

Gauge the damage

You should assess your forest for tornado damage within the next few months; this may be best left to the professional. Be sure to consider the following in your assessment:

1. Main tree species dominating the canopy and the regeneration, site conditions for operating equipment and growing trees (knowledge of these factors will effect further salvage and management)
2. Define the degree of damage and consider: area of damage, amount of trees bent, amount of trees upturned and on the ground and amount of broken trees.

Consideration must be given for insect and disease infestations; they will not be a problem through the winter. In particular, Scots and red pine plantations should be salvaged before next spring and salvageable sawlogs, firewood and pulpwood removed from the site. Although it is not critical and usually too much work or expensive, red and Scots pine branches should be chipped to avoid specific insect problems.

Determine what to do

Straightening bent trees:

When bending is the most significant kind of damage in a stand, estimate the degree of bending in each tree and whether the tree roots are being pulled up out of the ground. Gentle straightening or pulling can be successful with smaller trees. Staking a forest tree to straighten it is not economically viable in most cases. Scattered bent trees in mature forests are not a major concern. If a tree has not straightened on its own by June, it most likely will not do so. Bent trees that have straightened may have internal damage that can affect their future commercial value.

For minor uprooting of smaller trees (<25-ft.), straightening and/or guying is an option if correction takes place immediately after damage has occurred. When staking an uprooted tree, be sure that the roots remain covered and moist. Stakes should be placed evenly around the tree and attached securely without pulling on the tree. Thin rope or wire should not be used against the trunk of the tree. However, for older mature trees, root failure is either immediately fatal or results in tree leaning and should be harvested**.**

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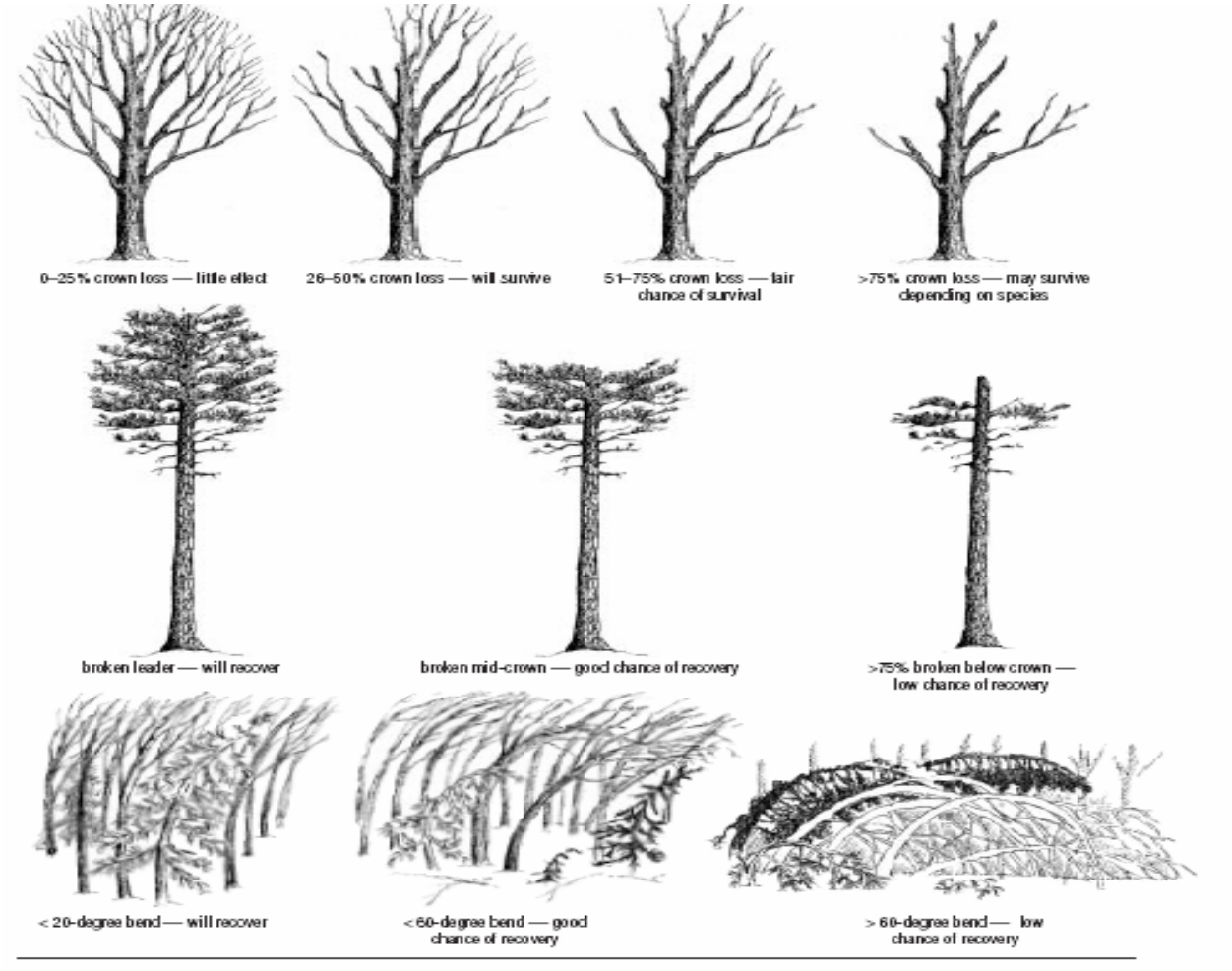
Assess your trees:



Harvesting Trees:

Little action is required when damage to a stand is minimal. In moderate to severely damaged stands, consider harvesting individual trees or groups of trees. This level of damage can eliminate species or age groups from the stand. You may need expert advice to help you assess the implications of severe damage for the long term health and value of your stand. An expert can also help you determine if there are markets for the kinds of wood products you have. Salvaging too much may make the remaining stand unstable. Hardwood with less than 50% crown damage will usually survive. Hardwoods with less than 75 per cent damage to crowns are expected to recover, although it may not be for three to six years. Conifers with less than 50 crown damage should recover. Dead and severely damaged conifers should be harvested to decrease the risk of insect infestation.

Consider the value of Conifers to wildlife:

Living conifers, no matter how severely damaged, provide habitat for wildlife. Despite the cautions noted above, if damaged conifers are not safety hazards, you can also leave some standing for wildlife habitat and cut others to the ground to encourage faster decomposition. To prevent fires, remove large piles of broken trees and branches that are within 150 metres of buildings and 30 metres of public roads.

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Determining what to do continued…

Encourage Sprouting:

Many damaged trees will produce ground-level sprouts that can regenerate the forest. A clean cut at ground level will encourage vigorous straight growth of many new sprouts that will later thin themselves or can be thinned by hand. This is often better in the long run than leaving a severely bent tree growing sideways. Species that sprout readily are soft and hard maples, cherry, basswood, willow, oaks and poplars. To encourage sprouting, cut the tree down close to the ground before the leaves come out in the spring.

Tree Planting:

Most hardwood forests regenerate naturally after a disturbance. Seeds germinate from the seed bank. Sprouts generate from the stumps or roots. In plantations and other situations, tree planting may be the best option to renew the forest. Professional expertise is recommended for evaluation and tree species selection.

The County of Wellington offers tree seedlings free or at reduced rates through the Green Legacy program. Contact the County at the number below.

Above: Image of damaged woodlot located in Belwood, ON.

Contacts:

Ministry of Natural Resources – Guelph District	(519) 826-4955
County of Wellington	(519) 837-2600 Ext 232
Wellington County Stewardship Council	(519) 826-4936
Perth County Stewardship Network	(519) 482-3589
