Do you have storm damage in your woodlands?

Things to consider to minimize the impact of damage

by Jane Cummings Carlson

What were occasional occurrences two to three decades ago are now a regular part of annual forest health issues: severe weather and damage caused by high winds and hail.

While the "why" behind these storms is debated at the global level, the business of mitigation often falls directly on a landowner's shoulders. Standing at the edge of your property, viewing a tangled mass of trees can be overwhelming and the urge to take action and take it fast is often the first reaction landowners have.

Yet taking a bit of time to assess your situation may save you time and money and maintain the sustainability of your precious back forty.

If you are planning on salvaging damaged timber, you will want to consider prioritizing which species are salvaged first. Factors such as the value of the material are very important yet some species are more susceptible to infestation and degradation than others.

Red, white and Jack pine all become more vulnerable to infestation by *Ips pini*, the pine bark beetle if their crowns have been reduced (broken branches or tops), bark damaged (hail or felling scars) or if they are uprooted.

This increased vulnerability is an issue from early March through early September—when the bark beetles are active. These insects are native to our state and are always present at low levels. They prey on drought-stressed and damaged trees. Completing a life cycle in 6 weeks, beetle populations can build over the course of a summer, attacking more and more trees.*

So what's the big deal about these little beetles? They also carry a fungus on their bodies that enters the tree. This fungus causes the wood to stain blue, which lowers the value of the wood significantly, making it unmarketable at times.

Increasing bark beetle populations can also threaten your neighbor's trees and other, healthy pines on your property. As the pine continues to deteriorate, larger wood-boring beetles called pine sawyers start feeding on dead and dying trees. These insects bore into the wood, deeper than the bark beetles and cause enough damage to make the outer portion of the logs unusable.

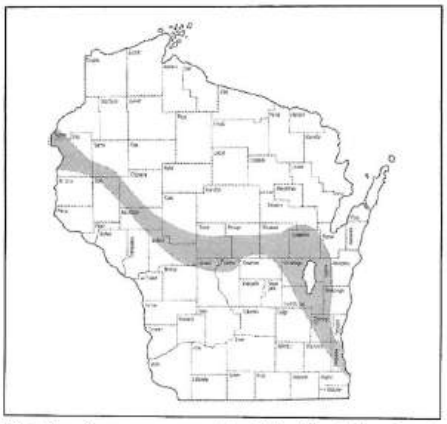
Sometimes it is possible to stand next to a pile of pine logs and hear the faint sound of "chewing"— this is our buddy the pine sawyer at work.

So if you have a choice, consider salvaging damaged pine plantations first—you will be doing yourself, and your neighbor a good deed. If the bark of red, black or northern pin oak is broken or removed, or a branch is broken, especially from April 15 to July 15, sap-feeding beetles carrying the fungus that causes oak wilt could feed at these wound sites and transmit the disease.

If oaks are damaged in spring (March–May), symptoms of oak wilt (rapid wilting and leaf fall) will occur during the summer (June–August). If the oaks are damaged in the summer (June–August), wilting will occur in the fall or following spring. You can watch your trees and determine for yourself, whether or not the storm has introduced oak wilt. Basically, if you do not see symptoms for a year, there is a high probability you've made it without an infection.

Science has shown that wounds are susceptible for only 24 to 48 hours, so if infection occurs, it is within 2 days of injury. Once a tree is infected, we do not know how long it takes for the fungus to move down into the vascular system and into the roots, where it could spread through root grafts. So, unfortunately, there is no "magic amount of time" you have to salvage your oak to remove the fungus from the stand before it is established in the root system.

* It is always best to talk to your DNR or consulting forester or a forest health specialist about bark beetle issues as the timing of storm damage and weather influence these insects significantly. Check with your forester for the most pertinent information after a storm event.



The tension zone was identified by John Curtis and is generally the dividing line between vegetation in northern and southern Wisconsin.

The most important consideration when trying to limit the impact of oak wilt is to limit any further wounding until after the high-risk period (April 1-5–July 15 north of the tension zone and April 15 – July 15 south of the tension zone) for oak wilt infection has passed. Limiting salvage activities to a lower risk period will minimize your chances of introducing oak wilt through your activities. The DNR has new guidelines related to the timing of harvesting oak. For further information, visit: http://dnr.wi.gov/forestry/fh/oakWilt/guidelines.asp.

Not all damages are created equal. Sometimes, more dramatic appearing injuries can actually cause less damage to a tree's health. Trees have the ability to form "wound tissue" that closes wounds and slows the wood-decay process. Trees also can "compartmentalize" or put up barrier walls within their stems. These barriers work toward limiting the movement of stain-causing bacteria and fungi as well as decay fungi.

Wounds that typically cause significant "degrade" (lower the value due to the presence of stain and decay) over time, in maple, birch or basswood include:

- 1 or more wounds more than 50 square inches in size or that cover more than 30% of the tree's circumference.
- More than two large (>5") branches broken close to the stem.
- A co-dominant (half of the top of tree) ripped from stem.

The stain and decay will progress slowly over many years; thus, these types of wounds should be considered as having the potential to degrade value in the long term (15-30 years) and not as critical to the tree's health. These kinds of wounds typically do not compromise the overall health of a tree—just degrade the value of the wood product. (Note: any time the air temperature is above freezing, stain and decay organisms can be active).

Wounds or other injuries that typically initiate a decline in health or put a tree at high risk for breaking or failing due to structural damage include:

- A crack that goes completely through a stem or is open (you can stick a pencil in it) for more than 4 to 6 feet in length.
- Two open cracks occur on the same stem segment (side by side).
- The stem has an open crack in contact with another defect such as decay, a canker, or weak union.
- A crack that is open and occurs between large (more than 8 inches in diameter) stems coming together in a union. (This is at high risk for failure but may not cause mortality if enough healthy crown is left behind after failure).
- A leaning tree with recent root lifting.
- A leaning tree with a horizontal crack, long vertical crack, or buckling wood on the underside of the tree.
- Crown that has lost more than 50% of the branches due to breakage. (Some trees may survive this level of damage; their recovery depends on age, vigor, site quality and moisture availability).

Other considerations

In a perfect world, each woodlot would receive careful consideration and individual attention following storm events but in some cases, widespread damage puts a strain on professional resources. Assessment and mitigation can take months. Having a management plan will help you be more prepared for making decisions when it comes time to having a discussion with your forester.

The time of year damage occurs, severity and type of damage, species of tree, management objectives and available soil moisture all influence the impact of storms. It is important that you consult with a professional forester for advice following these events to obtain the latest information.

Jane Cummings Carlson (jane.cummingscarlson@wisconsin.gov) *is the forest health coordinator with the DNR Division of Forestry in Madison.*

Don't prune oaks April through July to avoid oak wilt

MADISON – People who value their oak trees should not prune them from April through July, according to the latest recommendations from state forestry officials. Spring and early-summer pruning makes oak trees vulnerable to oak wilt, a serious and almost-always fatal fungal disease of oaks.

Special care should also be taken to avoid wounding oaks from April through July, according to Kyoko Scanlon, Department of Natural Resources (DNR) forest pathologist. Any action that might provide an opening into the tree, she says, such as carving initials into the tree or attaching a birdfeeder or clothes line, could provide an opportunity for the oak wilt fungus to invade and establish itself in the tree.

Scanlon said builders and developers should also be very careful as many oak wilt infections and deaths have occurred through inadvertent damage to roots, trunks, or branches during the construction process. If an oak tree is pruned from April through July, a wound dressing or paint should be applied to the cut surface as soon as the wound is created. Even half an hour can be enough time for beetles that transmit the disease to land on a fresh wound and infect your tree, Scanlon said. While the risk of spreading oak wilt is low after July, Scanlon said homeowners should avoid pruning or wounding oaks until autumn, to be on the safe side.

"Oak wilt can spread from a diseased tree to a healthy tree through a connected root system as well as by insects," according to Scanlon. "Very small sap beetles transport fungal spores by landing on fungal mats found beneath the cracked bark of trees that died the previous year. The spores are then transmitted from the beetle onto the fresh wound of a healthy oak tree while the beetle is feeding at the pruned or damaged site." A beetle that transmits oak wilt disease is not capable of boring into a tree, Scanlon added.

If a wound is left unprotected, Scanlon said, a new oak wilt pocket may develop in a location where oak wilt did not previously exist and will radiate to other oaks through the connected root systems. If no management steps are taken, Scanlon said the pocket could continue to expand year after year. Once oak wilt exists in an area, control of the disease is both difficult and costly. The prevention of oak wilt is the best approach.

Oak wilt is commonly found in the southern two-thirds of Wisconsin. Oak wilt has not been confirmed in Ashland, Bayfield, Calumet, Door, Douglas, Forest, Iron, Kewaunee, Langlade, Lincoln, Manitowoc, Oneida, Price, Rusk, Sawyer, Sheboygan, Taylor, Vilas, and Washburn Counties. Every year, the disease kills many oaks in the state by interfering with the tree's water and nutrient-conducting systems, essentially starving the tree. Leaves begin to wilt, and the tree may eventually die. Trees in the red oak group, such as northern red and northern pin oak, are especially vulnerable, and once wilting symptoms become visible, the tree loses most of its leaves and dies very quickly, often within weeks. Trees in the white oak group – those with rounded or lobed leaves – are more resistant to oak wilt, and the disease progresses much more slowly, often one branch at a time. White oaks could live with oak wilt for many years, and some trees may recover from the disease.

"Besides oaks, pruning deciduous trees in general should be avoided in the spring, as this is the time when tree buds and leaves are growing and food reserves are low," according to Don Kissinger, a DNR urban forester. "The best time to prune any deciduous tree is winter, followed by mid-summer — after leaves have completed their growth."

Anyone interested in learning more about oak wilt and other forest pests as well as tree pruning should visit the Wisconsin DNR Forest Health Web pages for more information. Additional information about proper pruning techniques is available from your community forester, a University of Wisconsin-Extension agent or DNR urban forestry coordinators.

For more information contact Kyoko Scanlon at (608) 275-3275 or Don Kissinger at (715) 359-5793.