

SALVAGE & MANAGEMENT OPTIONS FOR STORM DAMAGED FORESTS

July 2019

On July 20 & 21, 2019, lines of severe thunderstorms with straight line winds and tornadoes caused significant forest damage in Langlade and Oconto counties, as well as Polk and Burnett counties. Tornadoes were documented in Brown, Lincoln, Marathon, Outagamie, Waupaca counties, and many other counties have lighter amounts of storm damage to forests. This document gives some generalized forest health information to help landowners in the affected counties make some decisions.

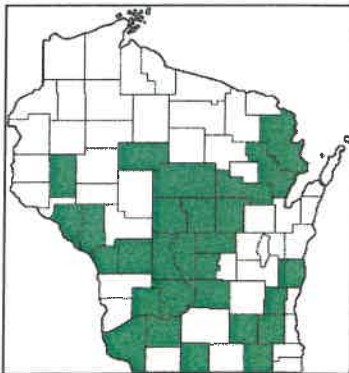
Pine salvage: Salvaging pine is much more urgent than salvaging oak or other hardwood stands. Pine that was damaged by the storm should be salvaged as soon as possible because it will begin to stain and has serious potential for insect attacks such as **bark beetles**. Bark beetles will breed and build up their numbers in the damaged pine. They will kill the damaged pine, then move on to attack the healthy pine that survived the storm. Trees that are partially uprooted or tipped will not die immediately, but many trees that are leaning or partially tipped have severe root damage and will be susceptible to insect or disease attack and may eventually fall over. Most pines do not recover well after partial uprooting and will become stressed, making them susceptible to attack by bark beetles.



Leaning pines can have root damage as well as stem damage which can make them susceptible to bark beetle attack.

Damaged pine should be salvaged as soon as possible (within 6 weeks) following the storm to avoid product degrade, bark beetle attacks, and mortality.

Heterobasidion root disease (HRD): HRD (previously known as annosum) is a serious fungal disease of conifers, particularly pine and spruce, which causes decline and eventual mortality. Infection occurs when a spore lands on a freshly cut stump and germinates. Once in a stand the disease can move from an infected stump to nearby residual trees through root contact, killing nearby trees. It also attacks and kills understory saplings and seedlings within a disease pocket.



Counties known to have HRD shown in green.

If your pine or spruce stand is within 25 miles of a known HRD pocket and a harvest or salvage will be done, it is recommended to treat pine and spruce stumps with a preventative fungicide within 24 hours of being cut. Find out if you're within 25 miles of known pockets by clicking on the "Heterobasidion Root Disease Map" link on the right hand side at this link <https://dnr.wi.gov/topic/ForestHealth/AnnosumRootRot.html>.

Oak salvage: Don't rush – deterioration of oak is not an immediate concern. A thoughtful approach to salvaging your oak stands will be more beneficial in the long term as oaks will not deteriorate quickly.

Two lined chestnut borer: Oaks with broken roots or major branch/stem breakage may be attacked by the native two lined chestnut borer. Larvae of this beetle bore under the bark of oaks and can girdle and kill branches or entire trees. Branch mortality or whole tree mortality due to this insect will not show up for 1-3 years following a major stress event like these storms.

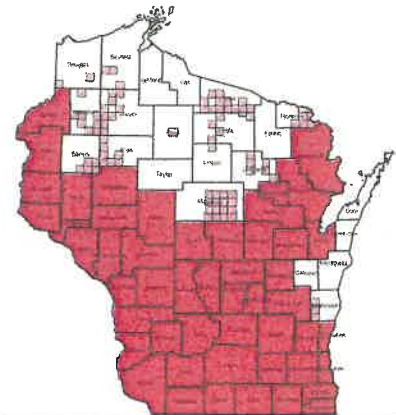
Oak wilt: The good news is that the July 19 and 20 storms occurred after the high-risk period for new oak wilt infections. Oaks are highly susceptible to infection by the oak wilt fungus (*Bretziella fagacearum*) during spring and early summer with the highest risk during April 15 – July 15 in



the north and April 1 – July 15 in southern Wisconsin. Infection occurs when an oak is wounded and a sap-feeding beetle, carrying the fungus, visits the wound. Oaks that are infected in the spring will show discoloration, wilting, and rapidly drop their leaves between July and October. Oaks in the red oak group will be killed completely, while just a branch may die on white and bur oaks.



Green leaves dropped by a tree dying from oak wilt, note discoloration of leaves while the base of the leaf is still green.



Counties shown in red have oak wilt present throughout the county, although not in all stands. Pink squares in northern counties are townships where oak wilt has been identified at least once.

If salvage of oaks will occur next spring during the high risk period, please see the oak wilt guidelines for more information on harvesting to minimize introduction of oak wilt <https://dnr.wi.gov/topic/ForestHealth/OakWilt.html>.

Oaks in your yard that require pruning of broken branches should have the wounds painted immediately if pruning occurs from April – July. Wound dressing or latex paint is an acceptable sealant for those pruning wounds.

What to salvage: Uprooted trees, and those with completely broken tops, will die and should be salvaged. Standing trees with some broken branches are judgment calls. A general rule is to salvage the tree if more than 50% of the crown or top is broken, however there may be situations when these damaged trees could be left to help your forest recover. A professional forester can help you with these determinations. Trees that are leaning more than 25 degrees may have broken roots or broken stem fibers and should be considered a risk to fail or fall. Check locally for wood disposal sites:

Cutting for firewood: Storm damaged trees can be utilized for firewood, but take precautions:

- Don't cut standing trees during the high-risk period for oak wilt (April 1 – July 15 in southern Wisconsin, or April 15 – July 15 in northern Wisconsin).
- Don't move firewood long distances. Firewood can move insects and diseases like emerald ash borer, gypsy moth, and oak wilt to new areas of the state.
- Be safe. Use appropriate personal safety equipment including a hard hat with screen, ear protection, gloves, and chaps. Storm damaged trees can be dangerous to cut.

Continued monitoring: You should continue to monitor your storm damaged stands for several years following the damage. This is especially important if additional stresses occur in the year or years after the storm damage (such as a drought, defoliation, etc.). If you notice trees dying in the year following the storm or even two years after the storm, you should discuss this with your forester.

Hail damage: There was large hail associated with some of these storms. Hail damage will show up throughout the remainder of the year, even if it's not evident right now. Branch dieback may show up, cankers (dead spots) will appear on branches as the bark dries and cracks, and in red pine the fungal disease diplodia may become prominent and kill many branch tips.

Contact your local DNR forester for additional information on salvaging your storm damaged timber. dnr.wi.gov keyword: Forestry Assistance Locator

