

STORM-DAMAGED PINE STANDS – salvage harvests, pests and replanting

Storms with straight line winds or tornados can wreak havoc on your forest, and there are some things to consider as you plan the future of storm-damaged stand. Pines have a number of insect and disease issues that can cause problems from the salvage stage to the replanting stage. Taking time to assess your situation can save you time and money in the long run.

Pine salvage, bark beetles and pine sawyers: Storm-damaged pine should be salvaged as soon as possible because it will begin to stain and is very susceptible to attack by bark beetles. Native bark beetles such as red turpentine beetle (*Dendroctonus valens*) and pine engraver (*Ips pini*) will rapidly attack damaged trees that are leaning, broken or uprooted as well as fresh logs in log decks. Bark beetles will repeatedly attack storm-damaged trees, and when their populations grow, they can move on to attack healthy pine that survived the storm. For more info on bark beetles check out the WI DNR bark beetle fact sheet <https://p.widencdn.net/hvn8wq/Conifer-Bark-Beetles>.



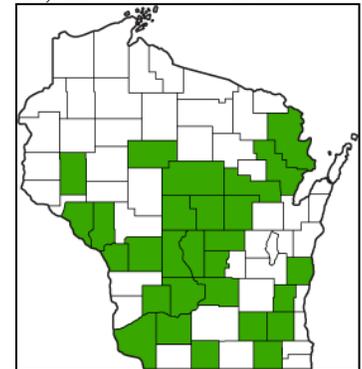
Leaning pines can have root damage as well as stem damage which makes them susceptible to bark beetle attack.

White-spotted sawyer (*Monochamus scutellatus*) is a native longhorn beetle that attacks severely stressed or freshly cut pine. If you've ever stood by a conifer log pile and heard scratchy chewing noises, you were listening to this native pine sawyer.

Damaged pine should be salvaged as soon as possible (within six weeks) following the storm to minimize product degrade, insect and disease issues and mortality.

Heterobasidion root disease (HRD): HRD (previously known as annosum) is a serious fungal disease of conifers, particularly pine and spruce, that causes tree 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 trees through root contact, eventually killing those neighboring trees. It also attacks and kills understory saplings and seedlings within a disease pocket.

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 the tree being cut. To find out if you're within 25 miles of a known HRD pocket go to dnr.wi.gov, keyword: HRD, then click on "Heterobasidion root disease web map" on the right-hand side of the page.



Counties known to have HRD shown in green (August 2019)

When salvaging storm damage, it may be difficult to quickly find a logger who is certified to apply pesticides or one who has the equipment to spray the stumps as they are being cut. It may also be impractical or impossible for logging equipment to cut and treat those trees that are down or broken. Although efforts should be made to arrange preventive stump treatment, under this type of emergency salvage harvesting, treatment of stumps at the time of harvest may not be practical. Refer to the HRD guidelines (dnr.wi.gov, keyword: HRD) and the modifications that reference salvage (Modification 4 in chapters 3 & 4).

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, but there may be



situations when these damaged trees could be left to help your forest recover. A forester can help you with these determinations. Trees that are leaning may have broken roots or broken stem fibers and should be considered for salvage. Check locally for wood disposal sites or refer to the Wisconsin DNR storm damage page dnr.wi.gov, keyword: storm and click on “Cleaning up storm debris.”

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.

Replanting- when to start over:

If you have a pine stand that was salvaged and you plan to replant to pine on that site, wait! Pales weevil (*Hylobius pales*) is a native insect that infests freshly cut pine stumps. That alone is not a concern, but as new adults emerge from stumps they must do a “maturation feeding” on conifer twigs. This feeding can girdle the twig. If the only “twigs” they can find to feed on are the seedlings that you just planted, that’s where they will feed and eventually kill the seedlings, causing extensive failure of your new planting. Wait for the second springtime following your salvage/harvest before you replant. Example: you salvage your pine stand in August 2019, do not replant until the spring of 2021. Another example: you salvage your pine stand in May 2020, you should not replant conifers on that site until spring of 2022.



Plan enough time between salvage and replanting to avoid issues with Pales weevil.

Diplodia and planting: Although this disease can make itself known on older red pine following hail damage or other stresses, a bigger issue is when young red pines are growing under or are planted under older red pines. Older, larger red pine trees will always have some diplodia, which can “rain down spores” onto any young red pine growing in the understory. Multiple branches and branch tips on these young pines will be killed which seriously stunts the growth or kills the young trees. For this reason, **do NOT plant red pine seedlings under a red pine overstory.** If you plan to salvage a red pine stand you should remove all, or nearly all, of the larger pines before you replant with red pine.



Diplodia can kill branch tips on young red pine growing under older red pine.

Planning for replanting: If you plan to replant large acreages and will be purchasing seedlings in the future, contact the nursery where you would like to purchase from soon. It takes time to grow trees, and nurseries need to know what the demand may be following catastrophic events. Additionally, many of the salvaged sites will be rough and need to be hand planted unless you planned ahead and had stumps removed while doing the salvage harvest. There are only a few hand-planting crews, and they can be in high demand following large storm damage events. If you think you’ll hire a hand planting crew in the future, consider reaching out to those folks to let them know your plans.

Contact your local forester (dnr.wi.gov, keyword: forestry assistance locator) or a reforestation specialist (dnr.wi.gov, keyword: tree planting) for advice on site preparation, species recommendations, plantation maintenance, equipment needs and any other questions pertaining to tree planting.

