

North Shore Forest Collaborative

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White Pine Tree Planting and Care on the North Shore

Planting white pine on Lake Superior's North Shore requires planning, preparation, and extra care. White pine is susceptible and may be destroyed by deer and snowshoe hare browsing, tip weevil (insect), and white pine blister rust (fungus). The following is a brief explanation of how you can help your seedlings become mature trees.

Soil: Best sites are moist, sandy loam, and may include clay and/or gravel. Generally, choose well-drained sites where the soil is preferably deeper than four-feet above bedrock. Avoid the extremes of continually wet soils and shallow soil above bedrock.

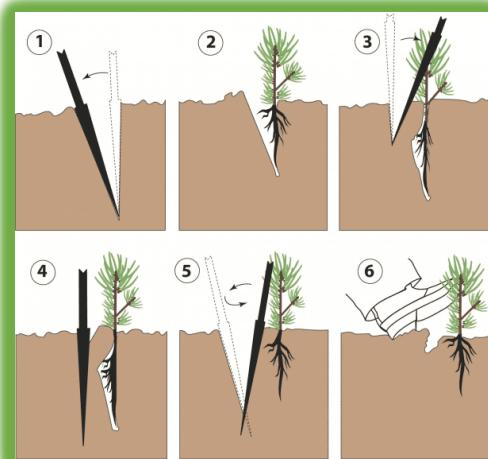
Shade: White pine can tolerate growing under a canopy of trees that provides a moderate amount of shade (40 % to 50 % shade). Shrubs compete for nutrients and sunlight, so remove shrubs as recommended, below.

Topography: Avoid planting white pine in depressions; v-shaped valleys; on dry ridge tops; in shallow soils; or adjacent to water bodies or swamps.

Handling and Storage: Keep tree seedlings cool and moist right up to the time they are planted. If they are somewhat dry, wet them down and try to plant them as soon as possible. If you need to store them for a few days before planting, keep them in the package they were shipped in and place in a cool, darkened space, such as a refrigerator.

White Pine Planting: Spring is usually the best time to plant white pine when good soil moisture and cooler conditions are present (late April to mid-May). Tree roots must be kept moist and not exposed to sunlight. Plant using a spade or planting bar to form a hole wide enough to allow the roots to spread out and fully extend downward. Ensure the seedling's transition zone between the stem and the roots is level with the top of the soil. Make sure to water the seedling.

White Pine Seedling Spacing: Allow about 10 feet between planted white pine so their crowns have space to grow over time. Consider random seedling spacing throughout your property.

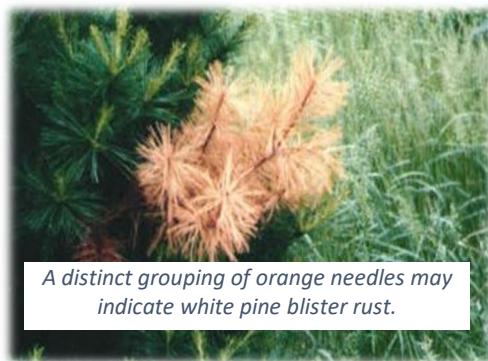


Planting with a spade/shovel or planting bar.

Controlling Competition: White pine require moderate control of competing weeds and shrubs to allow light to cast down upon their branches within a three-foot diameter—but leaving enough vegetation to confuse insects pests like tip weevil. Grasses and weeds should be controlled by hand twice per year. Mulch around your young white pine using wood chips, leaves, or needles to control competing plants and retain soil moisture--keeping the trunk's root collar exposed and free of mulch.

Controlling Deer and Snowshoe Hare: White pine buds are a favorite deer food. The best way to stop deer from browsing young white pine is to use a fence enclosure: Use 6-foot (height) 2"x4" metal wire fence and fashion a 30" diameter cylinder. Anchor the enclosure using two 3/8" reinforcing rods at four-foot (length). For structural support, weave the rods through the enclosure and drive about a foot of the rod into the ground. Leave the enclosure in place until the main part of the tree crown is above the reach of deer (about 6 - 7 feet), and the tree trunk has reached

about four inches in diameter at four-feet above the ground to avoid buck deer antler rubbing, which also causes significant damage. In snow-free seasons snowshoe hare can enter under a gap between the topsoil and enclosure. Try to level the soil or compress the uphill portion of the enclosure to reduce gaps between the ground and the fence.



A distinct grouping of orange needles may indicate white pine blister rust.

White Pine Blister Rust

Blister rust is a common fungal disease that creates white and orange cankers that can kill the tree.

There is high likelihood your trees will become infected with blister rust at some point in their lives. Rust spores come in on the wind;



Blister rust canker

and cool, moist conditions near the ground are most favorable for infection. To reduce the chance of trees dying from blister rust: **1.** Clear vegetative competition near the seedling/sapling, to increase air flow **2.** Prune the lowest branch levels (as recommended, below) to remove the most vulnerable branches, beginning when the seedling is 1.5 feet in height. **3.** If you spot a branch of dying/dead needles, look for a blister rust canker. If present, prune off the branch if the canker is more than 4" from the trunk. If the canker is closer than 4" from trunk, you can prune the branch, but the fungus may have already reached the trunk and will further damage and/or kill the tree. **4.** Prune the lower tree branches, but preserve the tree's crown to a level of 1/2 of its height (to no more than 2/3 of its height) during the years of pruning. If the tree has a pattern of robust annual growth, you may preserve a crown of 1/3 of its height to offer a bit more mitigation from blister rust. **Note:** A portion of prior years' needles turn orange and are shed annually—and should not be confused with blister rust infections.

Controlling White Pine Tip Weevil: White pine that grow in open areas, and away from shade, are very susceptible to attack from tip weevil. These insects prefer to lay eggs on terminal leader "tips" (think: "very tip of the tree"). The larvae kill these leaders, thus stunting the trees, and cause a "bushy" tree appearance. However, tree leaders that grow in shadier areas tend to be thinner and the adult weevils have a harder time finding preferred leaders, especially if the weevil's view is obscured with stems and branches of other trees and shrubs. If the terminal leader is killed, choose one of the branches on the next living set of branches, to become the new leader, and remove the remaining branches at that level. Note: Choosing the new leader branch from the north-side of the tree will encourage it to grow southward toward the sun and help straighten the mature tree trunk over time.



Tip weevil damage

Pruning Guide (following the diagram): Small branches can be cut with pruning shears. Leaving the branch collar assures healing, and with no remaining branch stub there is no opening into the trunk for insects and diseases. When branches are too large for pruning shears (and you must use a pruning saw): **Step 1:** Starting away from the branch collar, make a short bottom "undercut" on the branch, as shown on the diagram. This step will help keep the cut branch from peeling a strip of bark down the trunk. **Step 2:** Starting on the distant side of the Step 1 undercut, fully cut and remove the branch as shown by the dashed line. **Step 3:** Finish by cutting the remaining branch stub from point A to B.

