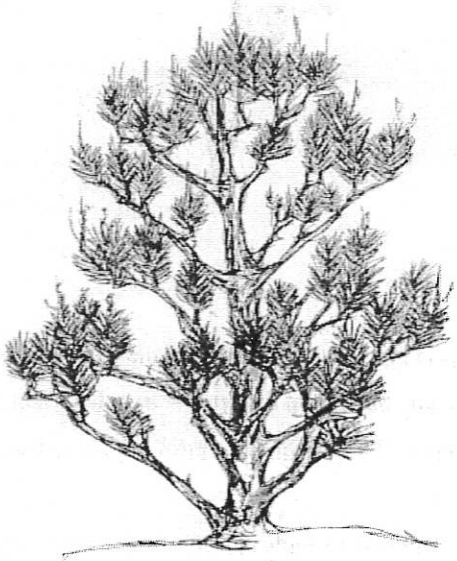
# Care and Pruning of Shore Pines



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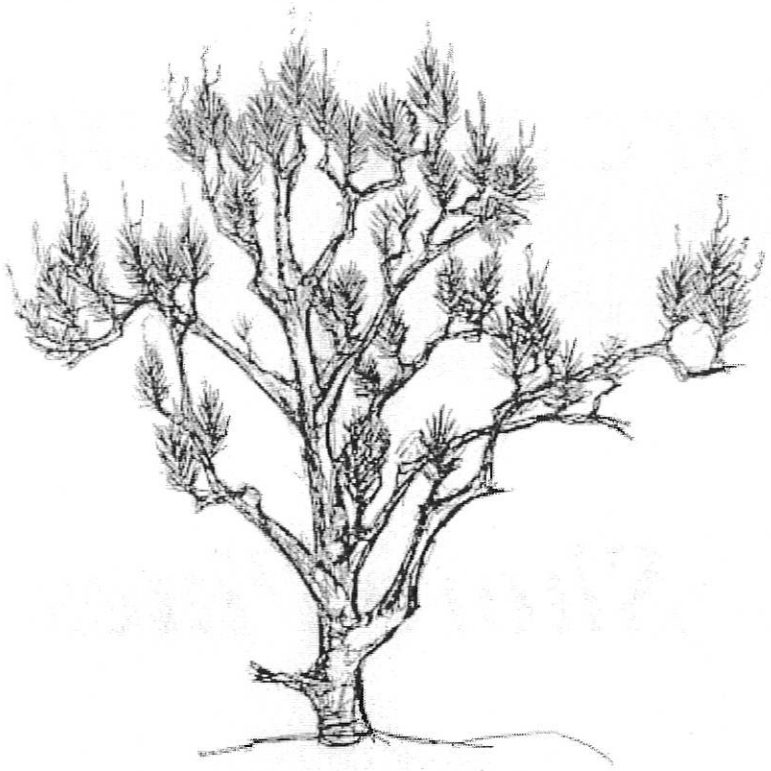


# Introduction

Shore pine, also known, as lodgepole pine (*Pinus contorta*) is one of the most widely distributed trees in North America. Near the Oregon coast these trees are typically bushy and distorted -- their buds and branches continually blasted by sand and salt crystals driven by gale-force winds. They frequently grow on coastal sand dunes and are common in many home and commercial landscapes.

In contrast, the same species growing at middle to high elevations in eastern Oregon grows tall, straight, and very slender. In these areas it is an important timber tree.

Shore pine is the only two-needled pine native to Oregon. Its cones and needles are much smaller than those of other pines. The needles are 1 to 3 inches long and twist apart from one another -- leading to the scientific name "*contorta.*" Cones are small and prickly, seldom longer than two inches.

Shore pine can grow in many different ways even in coastal Oregon. Near the ocean they are twisted and stunted. Further inland in more protected areas they can grow straight and tall as in eastern Oregon.

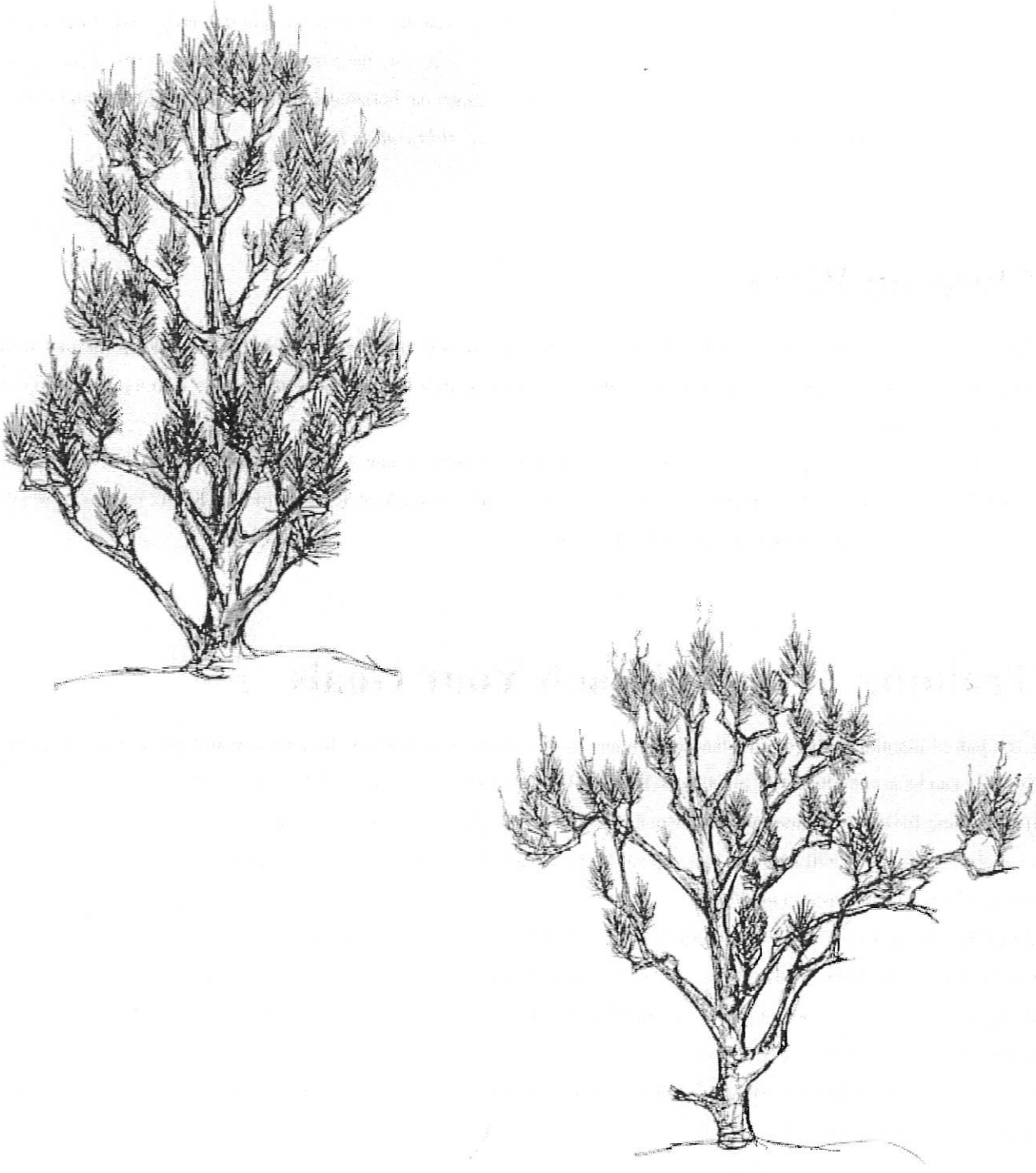


*Illustration 1*

# Selection of Trees for Landscaping

Tree selection and pruning are used in landscapes to shape shore pines to meet the goals of landowners. Selecting a tree that has the basic character that is desired simplifies the process of shaping. If a tall straight tree is desired, for example to block the sight of a telephone pole, the young sapling should preferably have an upright growth form. If an open-structured bonsai effect is desired, then the sapling should have somewhat horizontal branches. Pruning can then be used to continue shaping the pre-established natural tendency of the tree. *(Illustration 1)*

# Planting Pines

Roots continue to grow during the late summer. Therefore fall transplanting is effective if you can keep the tree well watered before winter rains. By the time the following spring arrives the tree has lots of roots developed to support healthy new growth.

In contrast, transplanting pines in late winter or early spring results in new vegetative growth occurring without an established root network. If it is planted in a wet site it may sit for a considerable period of time before new root growth begins. Trees planted under these conditions may not survive.

# Training Trees to Reach Your Goals

Even before planting a shore pine, landscapers and homeowners should decide how they would like the tree to grow. Training can be accomplished by planting techniques, the use of guide wires to bend branches or through pruning.

If interesting twists are desired and the available trees are tall and straight, the tree could be planted at an angle to the ground. Eventually it will begin to twist upward. This type of growth can turn an ordinary tree into a tree with very special character. *(Illustration number 2)*

While the tree has nice soft growth, training can be done effectively with twine without causing damage. Larger branches require guide wires and padding will be needed. A piece of garden hose serves very effectively as padding.

When using any guide wires is sure to avoid keeping them in place too long or the tree may grow around the wire leading to the creation of a serious wound.

It may only take several months for a branch to grow in a desired direction or develop an interesting bend, then the twine or guide wire can be removed.

*Illustration 2*

# Pruning of Shore Pine

Proper pruning of shore

* Can create beautiful specimen trees
* Develop hedges to improve privacy or block unsightly views
* Reduce safety hazards
* Keep trees healthy
* Restricting growth to keep trees from becoming too large

When Trees grow too large their size can be reduced through branch pruning and candling. Pines can be pruned to develop a windswept effect, trying to copy the effect of what would happen with natural windburning along the coast. This can be aesthetically attractive, especially with specimen trees where trees with coastal character is desired and height is not important.

Pines can also be shaped through pruning to develop tall, straight trees or to make a hedge. In either case the shore pine can be used to block unsightly view or to provide privacy.

Pruning is useful for improving the health or structural soundness of the tree. For example, removing some branches to increase air circulation through the tree will help reduce the likelihood certain fungus diseases such as western gall rust. Pruning improves structural soundness by removing branches that are likely to break away from the tree and become safety concerns. For example, branches with narrow crotch angles are held less firmly to the trunk due to the inclusion of bark at the point of attachment. (*Illustration 5)*

The tree's health can also be improved by removing branches that are rubbing together or are dying or dead. This helps prevent future disease problems.

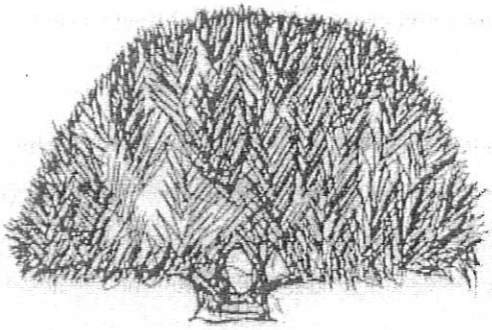
Pruning can improve visibility, resulting in a safer environment. For example, in coastal parks lower limbs from shore pines have been removed so that park visitors will feel safer using certain areas without fear of mugging. Safety concerns can also lead to the pruning to trees where utility wires are making contact with trees or where trees or branches may fall on park users, buildings or vehicles.

# Candling

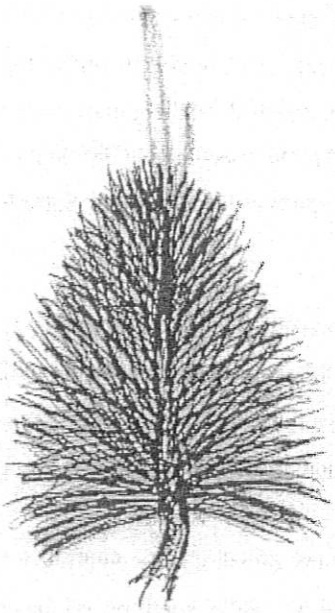
In early May shore pines put out tender new growth called candles. Pruning at this time is called "candling". Candling is done to restrict growth or to develop a windswept bonsai-like appearance.

When candles elongate in the spring they are soft and can be snapped cleanly in two. Soon after the needles start to spread out from the candles, the stem starts to become woody. This is indicated by the fact that the candle can no longer be broken without leaving woody stringers.

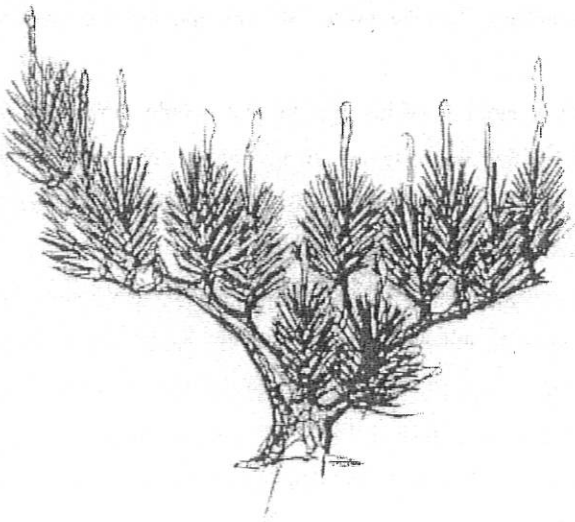
Candling should be done while the stems are still soft and the needles are just beginning to spread out from the stem. At this time pollen can also be knocked from the tree with a light brushing. Cutting the candles after they turn woody



*Mugo pine*



*Candle pruned*



*Non-candle pruned*

***Illustration 3***

results in few or no buds forming. The remaining needles will hang on for a year or two, then fall off. Eventually, all that will be left is a dead stick.

Buds will form when softwood or candles are cut. Some of these buds may not be desired, for example, if there are too many. If they are removed while the candle is still soft, more buds may form. If more bushiness is desired, that is fine. However, if a more open growth is desired, it is better to wait until the new growth gets woody before removing these buds. At that time buds can be removed without fear of the tree developing new buds, and eventually, branches.

For the same reason, repeated candling may create an over bushy tree unless some thinning is done. In some cases this thick growth can hold fallen needles and develop into a "rat's nest" of thick growth and old needles. This situation can be a perfect location for diseases to get started. Selective thinning of branches and removal of dead needles can open up this mat.

If the growth is too bushy due to past pruning practices, small branches can be thinned out at the same time candling is done. Leave the branches that are growing in the desired direction and are spaced somewhat apart. (*Illustration 3)*

If candles are removed too early, pines will frequently put out another flush of growth in the fall. The needles on this growth are often stunted, yellow, and sparse. To avoid this problem it is best to wait until the needles start to open up before candling.

The direction of future growth can be controlled during the process of candling. If the cut is made so that the taller remaining portion of the candle is left toward the outside, then the new growth will be focused in that direction. If it is left toward the inside, then the growth will be inward toward the tree. If the desire is to develop trees that grow out in windswept fashion, then the candles should be left taller toward the outside. If a more pyramidal Christmas tree effect is desired, then leave the candles taller toward the inside. In some maintenance situations it may not be necessary to cut all candles.

Removing all the new growth is another serious mistake that people sometimes make in an effort to restrict growth. Pines may sometimes recover, but this drastic step is not advisable. The end result may be a dead tree.

Remember that candling does not need to be done on every shore pine. If the tree is growing in the desired direction and if there is no need to restrict growth, leave the candles alone.

The best tools for candling are a good pair of hand clippers and manual hedge shears. Hand shears should preferably have two blades rather than one blade and an anvil. Two-bladed shears generally provide cleaner cuts as opposed to the anvil type, which mashes or tears. A candling knife is a light handled tool with a long thin blade. It's a good tool to use if there are many pines that need to be candled or if the pines are very large.

If the pine is large or if it is in an awkward place that requires a long reach, an extended reach or pole pruner can be used for candling or hardwood pruning.

A final tool that is very useful for large trees is an orchard ladder. This ladder has steps on one side hinged to a pole on the other. It provides flexibility in reaching awkward spots for pruning. Extra caution is advised with any sort of ladder.

Candling and hardwood pruning of shore pine is a messy business. The tree puts out lots of pitch. Pitch can be removed more easily from tools and hands by using oils such as vegetable oil.

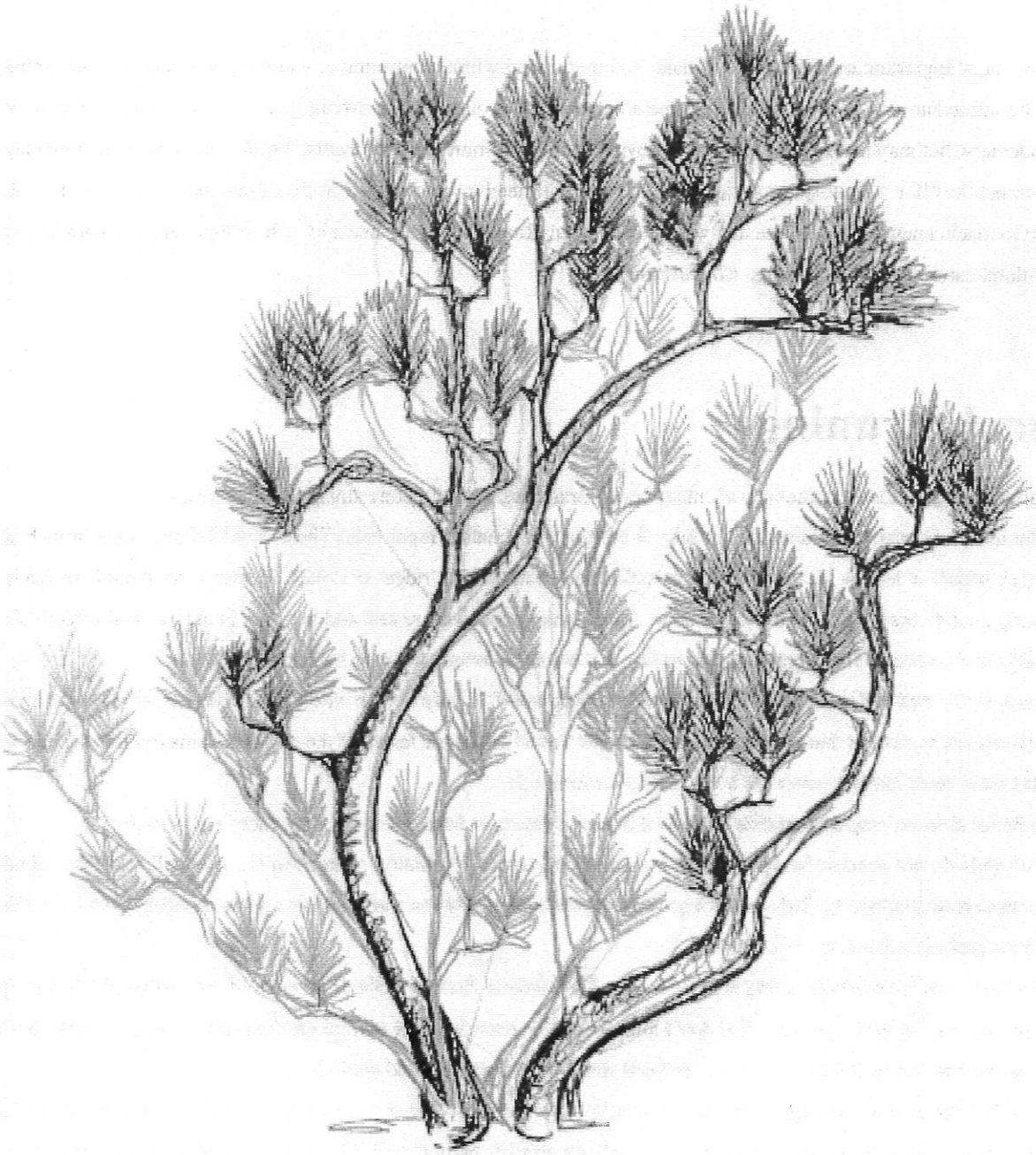


*Illustration 4*
*Thinking ahead when making pruning cuts*

One of the most important considerations to make before doing any branch pruning or candling is to think ahead. Think beyond the immediate cut to the goal for the tree's appearance in one, five or twenty years. A certain branch may be appropriate now, but may need to be removed in several years after more growth occurs. Or, the candling done now may direct a branch to fill a vacant space. Or, perhaps the tree will need to be removed in five years and pruning is done to allow sun to reach a newly planted tree that will take its place. Remember that once a branch is removed, it cannot be put back. So think carefully before pruning. *(Illustration 4)*

# Branch Pruning

Branch pruning of pines is the removing of entire woody branches; it can be done any time of the year.

One of the most important considerations in branch pruning is to make proper cuts. There is a swelling in the branch at the point at which it leaves the trunk. This is called the branch bark ridge or collar. Proper cuts should be made immediately outside the collar. When this is done only a small wound is created and the pine is able to seal effectively and quickly. If the collar is cut in pruning, the sealing process takes longer and may be harder on the tree.

The collar is really made of trunk wood as opposed to branch wood. If only branch wood is wounded, a tree is better able to ward of any rot or disease that occurs. This enables the tree to seal itself faster. If the collar is damaged this sealing is slower and rot is more likely to enter the trunk. *(See illustration 5)*

Trees are better able to compartmentalize wounds if branch pruning is done when the tree is actively growing.

Pruning wounds do not need to be treated with a commercial sealer. Normally, resin from the tree will seal the wound with no commercial product applied. And it's possible that fungal organisms and moisture can be trapped behind a sealer leading to rot problems that can't be observed.

One of the best tools for branch pruning is a turbo saw. The blade is thickest at the front edge of the teeth and thinnest at the back producing the curf. The teeth also don't turn out on the outside like a normal pruning saw. This tool works best on a pull stroke and can be used in relatively confined space It cuts quickly and smoothly.

A chain saw works well when large branches need to be removed in a three-step process to avoid major damage to the trunk. First, make an undercut about half way through the branch several feet out from the collar. Second, cut clean through the branch from the top at a point further from the trunk than the undercut. Any peeling will be stopped at the undercut. This will also remove most of the weight of the branch. Finally, make a clean cut adjacent to the collar to remove the remaining stub.

Topping of trees is one of the biggest mistake landscapers and homeowners make. This action is commonly taken to restrict growth because of fear of a tree falling on a house or desire to improve views. However, topping disfigures the tree and results in weak growth that is more likely to break out of the tree several years later. It also provides an opportunity for fungus organisms to invade and weaken the trunk.

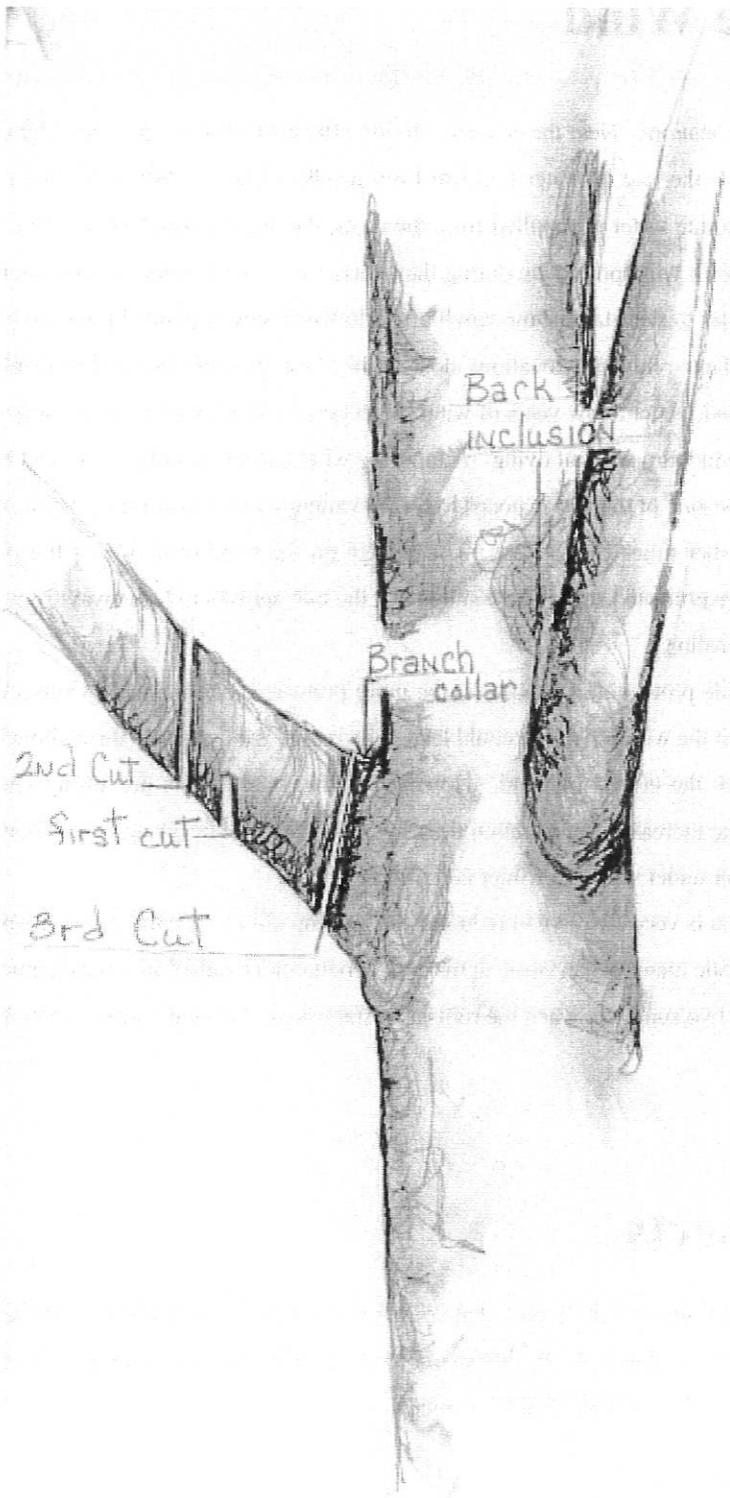



*Illustration 5*

# Dealing with the Wind

Shore pine frequently grow in windy locations. Near the coast the drying effects of wind are increased by the amount of salt in the air. Wind and salt increase the rate of water removal from needle surfaces. When the rate of removal or transpiration becomes greater than the rate water is supplied from the roots, the needles turn brown. This is sometimes called "wind burn." Pines that grow with wind protection during their early years can develop a root system that is able to supply the needles with enough water to withstand some windburn. However, newly planted pines do not have well-developed root systems. If they are planted in windy locations close to the coast, their needles will probably turn brown unless some wind protection is provided. After a few years of wind protection the pines will have developed a good root system and will be able to withstand windburn without dying. Temporary wind barriers could be removed at this time.

Frequently, wind damage occurs on the side of the tree exposed to the prevailing winds of summer. These tend to have a greater drying effect than winds at other times of the year. The foliage on the windward side of the plant does not develop as readily as those on the more protected side. The result is that the tree appears to lean away from the wind: the windswept look that many find so appealing.

Branches on the windward side provide protection for those on the more protected leeward side. Consequently, heavy pruning of even windburnt branches on the windward side could lead to increased wind damage throughout the tree.

Increased irrigation might help reduce the effects of wind. However, if the wind effects are strong enough and the amount of roots insufficient to meet the increased transpiration demand, windburn will occur no matter how much water is in the soil. Windburn can even occur under very wet winter conditions.

One type of temporary wind barrier that is very effective in reducing the burning effects of wind is the of a material called "shade cloth." This net-like plastic material can come in many different colors and allow varying amounts of air penetration. (20 to 80%) After one or two summers when the roots are established, the wind barrier can be safely removed.

# Diseases and Insects

There are a few common diseases and insects of shore pine that coastal homeowners and landscape managers are likely to face. Check the Pacific Northwest Disease & Insect control Handbooks for current chemical control recommendations. Available at your local Extension Office for review.

# Diseases

Western gall rust (*Peridermium harknesii*) is a fungus disease that causes rough round galls on the trunk or branches. During May these galls are frequently bright orange or yellow-colored as the fungus is fruiting. As the fungus does not require an alternate host, spores from the fungus can reinfect susceptible pines. The first sign of the disease may be the sight of dead branches. Be careful that you don't help spread the disease by the use of spore contaminated tools.

Whenever practical, landscape managers should remove these galls.

A needle cast fungus, *Lophodermella concolor*, a needle cast fungus, attacks shore pine. Fruiting bodies occur on last year's dead, fallen or attached needles; dispersing spores that invade the most recently produced foliage. Typically, infected trees have no green except on the ends of the branches as all but the current year's growth has died and fallen off the trees. Black football-shaped fruiting bodies are seen in the center of dead or fallen needles. Tree growth can be severely retarded.

Clean up of infected needles from the tree and on the ground will also help reduce the likelihood of new needles becoming infected.

Red band disease (*Mycosphaerella pini*) attacks both current season and needles produced in past seasons. Thus badly infected trees may lose all of their needles.

The first symptoms of red band are the appearance of chlorotic spots on infected needles during the fall and winter. The spots gradually spread, turn red-brown, and girdle the needles causing the ends of the needles to die while the base remains green. Small black fungus growths appear on the needles in early spring and wind and rain spread the infecting spores.

Cultural control of red band fungus can be obtained by pruning the lowest whorl of tree branches and cleaning out debris and weeds from beneath the tree; planting shore pine in areas with good air circulation; and candling trees during dry weather.

# Insects

Major insect pests of shore pine along the Oregon coast include the silverspotted tiger moth, the Sequoia pitch moth, European pine shoot moths, pine sheath miners, and coneworms.

The silverspotted tiger moth (*Halisodota agrentata)* is a webworm that attacks most of the coastal conifers. Webs filled with tiny caterpillar larvae are first viewed in early spring. Later, the larvae grow to ¾ inches and spread out to branches surrounding the webs. These brown, black and gold colored-insects can remove most of the needles from portions of trees, but mature trees usually aren't severely damaged.

Control of silverspotted tiger moths can be achieved by cutting out and destroying webs early in the spring or hand picking and squashing.

The larvae of Sequoia pitch moths (*Vespamima sequoia*) feed in the limbs and trunks of trees. Usually, a mass of pinkish pitch is produced at the feeding site. Control is best done by digging the larvae out of the tree.

Larval feeding of European pine shoot moths (*Rhyacionia buoliana)* damages or kills shore pine buds or shoots causing them to become bushy and deformed. Full-grown larvae are reddish-brown and 5/8 inches long with black heads. Insect pheromone traps could be used to identify the correct timing and in some cases confuse the moths and provide some control without spraying.

Pine sheath miner (*Zelleria haimbachi)* adults lay eggs on needles from early to midsummer. The larvae then mine the needle before shearing the needle sheath. Larvae are bright orange and mature insects are tan.

Cone worms (*Dioryctria sp.)* are small, brown, cream-colored larvae of nout moths that bore into fresh green cones. They may also bore into trunk cambium, branches, and shoots.