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Proper Pruning

When people think of forest management equipment, they tend to focus on chainsaws, spacing saws, winches and large harvesting machines. Yet one of the most effective (but often overlooked) tools is a pruner. Pruners, either hand held or small saws on the end of long poles, are used to clip off unwanted branches and they can be very useful when managing forest trees for high value wood products and maintaining tree health.

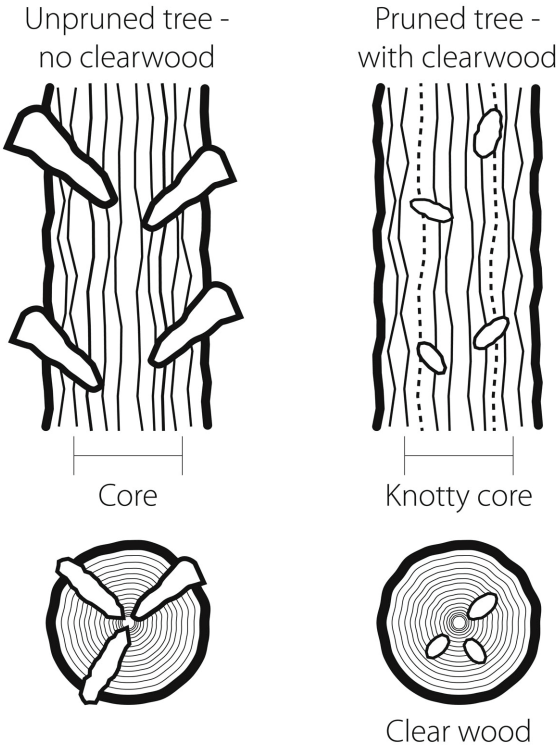
Why Prune?

Go to a hardware store and compare the cost of knot-free lumber and similar boards that contain at least some knots. In many cases, the cost of the knot-free lumber will be significantly higher because it can be used to make high end furniture, flooring, cabinets and many other wood products.



Knots are defects which can tarnish the look of the wood and decrease its strength and load-bearing capabilities. As a rule, the larger the knot, the bigger the defect in the wood and thus, the lower the value of the wood. This also applies to wood with multiple small knots.

Many land owners realize that proper pruning can create higher value products that will often fetch a premium price. They understand that logs that look the same on the outside can have significantly different values at the mill - particularly logs with more years of post-pruning growth.



What are Knots?

A knot is basically a section of side branch imbedded in the wood. As a tree grows, the trunk of the tree will often grow around the base of the lower branches. In many cases these branches simply die and fall off. However in some cases, the tree will encase the remains of the old branch inside the wood and this segment of old branch is called a knot.

Live branches can also form knots but in both cases, they create flaws in the wood that can reduce the strength and look of the wood.

When should I start to Prune?



As a rule, the smaller the branch, the easier it is to remove and the faster the tree will recover but starting too soon can also slow down the tree's growth. Therefore, it is usually best to wait until the tree crowns begin to touch and the lower branches start to die off naturally. In a plantation or a young natural stand, trees usually reach this

stage when they are between 15 and 20 years old but the correct timing will be influenced by the overall growth rate and development of the stand. As well, if possible it is best to try to prune branches before they reach 2.5cm (1 in) in diameter.



However, this is often the time when the first thinning is done in many young stands, so it is also advisable to wait until after that thinning treatment has been finished before you start any pruning.

Where do I Start?

After the first thinning has been completed, it is much easier to work in the stand and to identify the individual trees with the highest potential. This potential depends on the owner's goals and values but it is usually a combination of factors such as tree species and the straightness, diameter, height and lack of other defects or damage on individual trees. There is little to be gained by pruning a tree that will only produce low value material or does not otherwise meet your goals for the stand.

Before any pruning starts, it is very important to locate the branch collar. This is a raised ring that surrounds the branch where it extends out from the trunk. This collar helps the tree to heal the pruning wound quickly and effectively, so it is important to avoid damaging or cutting into it.



You don't have to prune all of the trees in one area or one operation. Selecting only the best trees and spreading the work out over a number of seasons can be a much easier job!

Begin to prune when the lower 2 - 3m of branches start to die off naturally. Dead branches can be pruned at any time of year but live branches should only be pruned when the tree is dormant for the winter. Most land owners prune up at least 2m from the base of the tree during the first pruning. As the tree grows and develops additional pruning can reach 5m or more.

Larger branches may require an under cut to prevent the limb from breaking off and stripping bark off the trunk.

It is also important to remove no more than 1/3 of the live branches (crown) in any pruning operation. In order to maintain good growth and health, the tree must have about 2/3 of the live crown intact. Many owners also keep a record of when the pruning was done and the diameter (at a predetermined height above the ground - usually 1.4m) of each pruned tree at the time of pruning. This allows them to show potential buyers that the tree has had 10, 20 or more years of knot-free growth and is now 2", 4", 6" or greater in diameter.



Are There Other Benefits to Pruning?

Proper pruning can also help reduce problems with certain diseases. For instance, Eastern White Pine often suffers from a fungal disease known as White Pine Blister Rust. Pruning dense branches permits more wind to circulate and increases the drying effects of sunlight. This reduces the chances that the fungus can become established and damage or kill the young white pine tree.

Corrective pruning can also help to repair damage caused by insects and diseases or breakages from snow loads. In cases where the central branch (the leader) has died or was damaged, corrective pruning techniques can be used to encourage a good quality side branch to become the new leader.

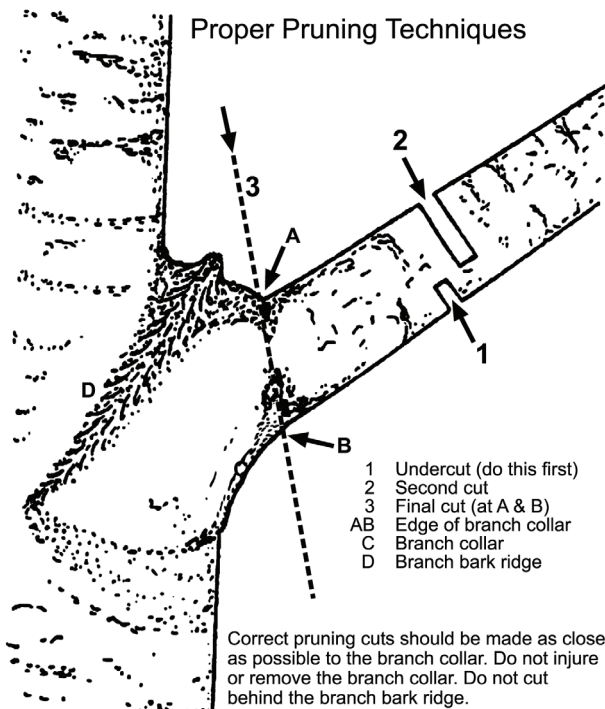
Pruning also allows more sunlight to reach the floor, helping to warm the soils in spring and promote the growth of new plants and trees in the understory.

What Kind of Tools Should I Use?

Never use an axe to prune a tree! An axe is difficult to accurately direct and will usually result in cuts in the trunk and tearing to the bark surrounding the branch. Both of these actions will damage the lumber potential of the tree.



The most common tool is a good quality hand pruner or clipper. You can use one to carefully remove unwanted branches up to head height.



For higher branches, you can use a telescopic pole pruner. This unit usually has a small saw at the end of a long pole that can be used to cut off a branch. Many also have a small clipper component that will snip off other high branches.

Other Factors:

Sanitation:

Pruning can provide many benefits but you have to ensure you do not spread infectious agents from tree to tree. Proper and regular cleaning of your equipment are essential.

Begin by wiping the tools with a cotton cloth to remove any sap or gum that adheres to the blades after pruning. Dampen the cloth with paint thinner to remove the pitch resin excreted by coniferous trees such as pines.

Finally use rubbing alcohol or diluted bleach (10% solution) on an old cloth and wipe down the blades of the pruning tools to kill fungi or other harmful organisms. Allow the tools to dry completely before using them again or storing them.



Season:

Dead branches may be pruned off at any time.

Conifers can be pruned in all seasons but many people prefer to prune when the tree is dormant in order to minimize sap flow. This is also the period when most infectious or harmful agents are also dormant, reducing the risk of pruning related infections.

Deciduous species are also left to the dormant months because sap flows can attract harmful insects. It is also often easier to see what you are pruning when the leaves are off for the winter.

Damaging the tree:



For species such as White Spruce (*Picea glauca*), it is important to refrain from pruning until the unwanted branches have died off naturally. Pruning live white spruce branches can cause the tree to react by increasing sap flow, and as this sap hardens it can

stain and create other unwanted defects in the wood.

For all trees regardless of species it is important to avoid cutting or damaging the bark or the roots. Wounds allow fungi and insects to enter the wood, often ruining the economic value of the tree and shortening its lifespan.

Safety:

Areas with high human traffic can benefit by the removal of lower branches. This prevents accidental injuries caused by running into a sharp branch.

Conclusion:

Each tree species has its own special pruning requirements but with a little time and understanding you can improve the quantity and quality of solid wood growing on your land. The Forest Enhancement Program (www.gov.pe.ca/forestry/fep) provides information and incentives to help land owners manage their lands for any number of values including producing high value wood products.

