

NATURAL RESOURCES CONSERVATION SERVICE  
MONTANA CONSERVATION PRACTICE SPECIFICATION

**TREE/SHRUB PRUNING (ACRE)**

**CODE 660**

**DEFINITION:** The removal of all or part of selected branches, leaders or roots from trees and shrubs.

**PURPOSE:**

- Improve the appearance of trees or shrubs, e.g., ornamental plants and Christmas trees.
- Improve the quality of wood products.
- Improve the production of plant products, e.g., nuts, fruits, boughs, and tips.
- Reduce fire and/or safety hazards.
- Improve the growth and vigor of understory plants.
- Adjust the foliage and branching density or rooting length for other specific intents, such as wind and snow control, noise abatement, access control, and visual screens and managing competition.
- Improve health and vigor of woody plants e.g., disease, insect and injury management.
- Maintain or improve soil quality and organic matter content.

**SCOPE:**

- On any area with trees or shrubs;
- On crop trees of high-value species (e.g., trees grown for select lumber, veneer, or Christmas trees);
- On trees where removing all or parts of branches reduces the fire hazard and/or enhances the safety of an area;
- Where removal of lower limbs from all or part of the trees/shrubs enhances the beauty and recreational use of the area;
- On trees/shrubs to remove dead, broken, or diseased portions of the woody plant.

**Tree/Shrub Pruning Specifications:** Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, and narrative statements in the conservation plan, or other acceptable documentation.

**General Specifications Applicable to all the Purposes Named Above**

Prune trees according to the following steps:

1. Locate the branch bark ridge.
2. Find A (outside edge of branch bark ridge).

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3. Find **B** (swelling where branch meets branch collar. If **B** is difficult to determine draw a perpendicular line from **A**: the angle  $\text{XAC}$  is equal to the angle  $\text{XAB}$  (see Figure 1). Stub the branch to be pruned using a first cut from below, approximately 1 to 2 feet from the base of the limb, and a second cut from above. This will prevent large branches from stripping the bark down the side of the tree. *(If a branch is small enough that it can be supported with one hand, just make one cut or snip on line AB).*
4. Make the final cut on line **AB**.
5. Do not cut behind the branch bark ridge.
6. Do not leave stubs. *(These dead stubs can block healing and be an entry point for wood decay fungi, insects, and occasionally pathogens that will invade healthy tissue and kill the branch or tree; see Figure 3).*
7. Do not cut into the branch collar.

Timing of shearing, branch removal and corrective pruning of high value tree species will be described to accomplish the intended purpose.

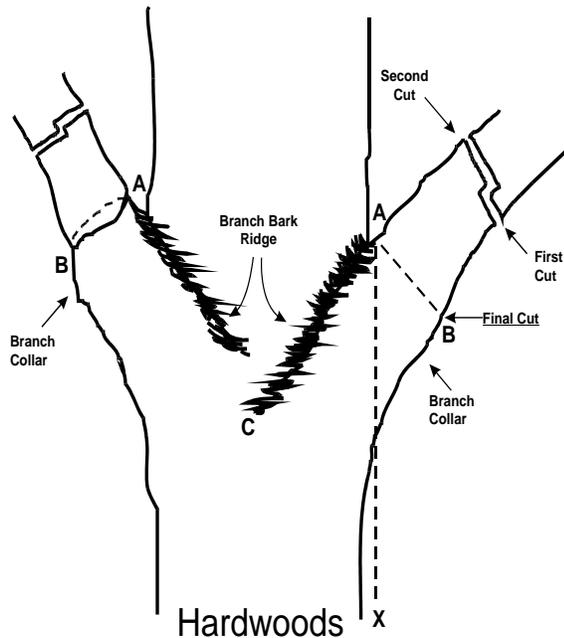


Figure 1. Hardwood Pruning

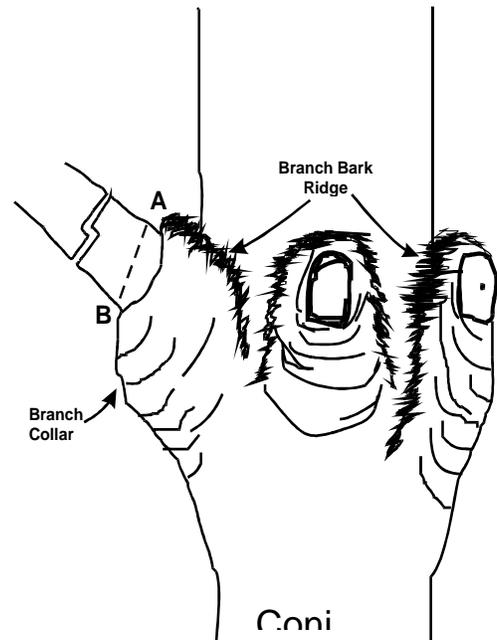
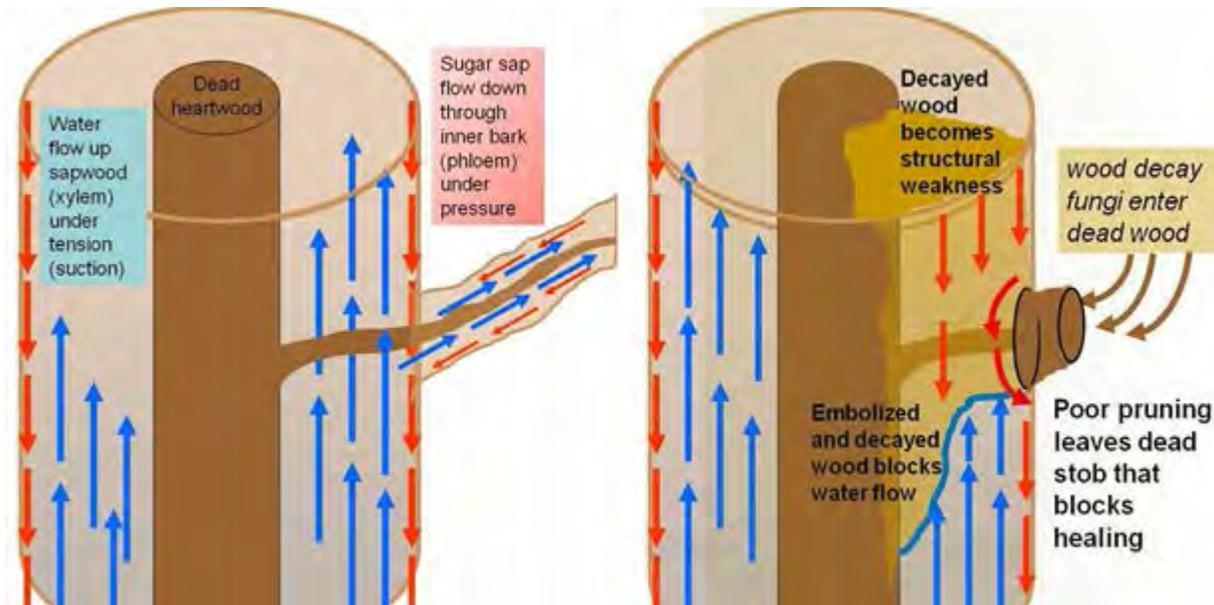


Figure 2. Conifer Pruning



**Figure 3.** How the vascular tissue of a tree functions. If the flow of water is disrupted the tree will have a harder time supplying leaves with enough water to function. The longer a wound remains open the higher the chances that decay fungi will invade and start rotting the wood (Peter Kolb, MSU).

Use any appropriate, properly sharpened and maintained pruning tools including pruning shears, loppers, pole saws, bow saws, and chain saws. The preferred tools for small and medium sized limbs are loppers, pruning shears, or a hand or pole saw with a curved blade that cuts on the down stroke.

Avoid pruning when tree/shrub is actively growing except for spring flowering shrubs.

Do not remove over one-third of the live crown in any one application and never leave less than four whorls of branches (conifers). The resulting pruned stems should not exceed one-half the total height of the tree/shrub.

It is not necessary to paint or treat pruning cuts as they will self-heal when properly pruned.

### **Additional Specifications to Improve the Appearance of Trees or Shrubs**

Pruning or shearing for quality **Christmas trees**:

Good crown density is one of the principal requirements of quality Christmas trees. Trees with poor crowns resulting from rapid growth can sometimes be improved by two methods:

- 1) Pruning lower branches from the live crown are removed to the extent that the rate of growth will be severely checked;
- 2) Shearing the leader and the tips of the branches are cut back to shorten terminal growth, stimulate lateral growth, and improve the symmetrical form of the tree.

Pruning:

- Trees should not be too tall to work conveniently from the ground.
- At least the lower two-thirds of the live crown should be removed, or high enough to give good basal whorl, and severely enough—usually 1/2 to 2/3 of the live crown—to slow the growth. This may also be dependent on the shearing operations planned.
- Trees on better sites with inherently thin crowns generally do not respond well to pruning.

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Shearing:

- Shearing should be done to improve crown symmetry and crown shape.
- Begin shearing when trees are 3 to 5 years old (approximately 3 feet in height) and terminal leader growth exceeds 12 inches. Continue shearing, usually every other year, until the trees are marketed.
- The best period for shearing is:
  - Pines: July through August
  - Spruces and Firs: November through March.
- Side shearing should be done to produce a taper of about 40 to 70 percent. Taper is the base width in relation to the height.
- Cut the leader as necessary to control height growth to about 8 to 12 inches. Shear above a bud at a 45-degree angle to the stem. If possible, select a bud on the north side of branch in order to form the straightest growth. South facing buds tend to grow outward rather than upward.
- All extra leaders shall be removed.
- Next, prune the side branches around the top leader until they are 4 to 6 inches shorter than the top leader.
- Basal pruning should be done to form a handle to assist in handling the tree when harvested.

### **Additional Specifications to Improve Growth and Vigor of Trees and Shrubs**

The ideal time for pruning is during the dormant season before new growth starts. Trees may be pruned at any time for hazard situations or to repair storm damage.

Dead and diseased branches should be removed to enhance appearance and improve health of the trees/shrubs.

Disinfect pruning and shearing tools to minimize the spread of pathogens when present (e.g., blister rust). Dip the saw or other tool in alcohol or household bleach between each cut in order to kill any pathogen. This is not necessary when pruning obviously healthy trees in a forest setting. Nightly oil all pruning tools after use. Sanitize all equipment after pruning a forest unit, even if there is no apparent disease.

Prune shrubs to improve their shape without changing their natural form to stimulate blooming and improve growth.

Spring flowering shrubs should be pruned immediately after they have bloomed to stimulate wood growth through the current growing season and abundant blooms the following spring.

Summer flowering shrubs should be pruned during the dormant season before new growth starts.

### **Injured Tree Survival**

Trees can be injured to the extent that survival is questionable and removal or replacement is the best option. This decision is based on the tree species involved and landowner preferences. Tree species such as cottonwoods, willows, green ash, many fruit trees, and Siberian or Chinese elms can re-sprout from a stump. This will mean that you will have a tree back fairly quickly, but the quality of the tree will be variable.

**Additional Specifications to Improve the Quality of Wood Products (Conifers)**

Native species in order of priority for pruning are:

- a. Ponderosa pine
- b. Lodgepole pine, 15 to 25 years old
- c. Western larch
- d. Douglas fir.

Western larch and Douglas fir do not respond well to pruning because of their tendency to re-sprout along the stem where live branches have been removed. Dead branches can be removed with only a slight chance of re-sprouting.

Give priority to the most productive sites.

Prune 50 to 100 crop trees per acre that have a high potential value and that will be left to grow to maturity. Hold crop trees at least 20 years after pruning.

Select straight, dominate or co-dominate trees free of disease, forks, or other defects and properly spaced.

Remove the lower branches when tree diameters are 4 to 10 inches Diameter Breast Height (DBH). All branches will be removed to a height of 18 feet, however do not remove over one-third of the live crown in any one operation.

Pruning shall be done in conjunction with Field Office Technical Guide (FOTG), Section IV, Practice Standards and Specifications, Forest Stand Improvement (Code 666) or other activities that manage for maximum growth.

Pruning shall be done during the dormant season before new growth starts.

Pruned branches will be cut into smaller pieces and scattered away from the base of the tree.

Diseased branches should be burned.

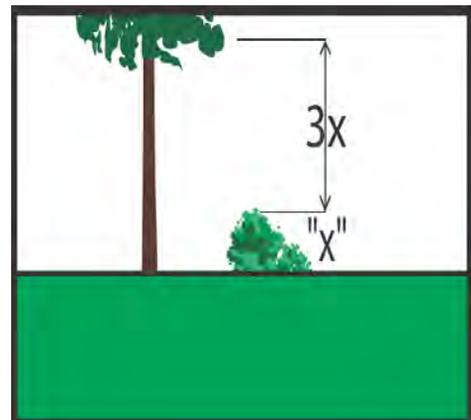
**Additional Specifications to Reduce Fire and/or Safety Hazards**

Limbs at campsites, trails, and other recreational use areas shall be pruned to a height of 8 to 12 feet to facilitate movement.

Do not prune trees touching or near utility lines. Contact the appropriate local utility authority for assistance. For hazardous fuel reduction, prune trees to three times the height of the surrounding shrubs. See Chart 1.

**Chart 1. Vertical Separation Distances Needed Between Fuel Layers**

Prune limbs to needed heights to obtain necessary scenic views on recreational and personal property.



## **Specification MT660-6**

### **Operation and Maintenance**

Periodically inspect plant condition and conduct additional treatment or mitigation if necessary.

Control noxious weeds that may establish due to increased light penetration or disturbance.

### **REFERENCES**

Hanley, Donald P., and Stephen Reutebush 2005. Conifer Pruning Basics for Family Forest Landowners. Washington State University Extension. EB1984.

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McConnell, D. W., R. L. Mahoney, W. M. Colt, and A. D. Partridge 1985. How to Prune Coniferous Evergreen Trees. Bulletin No. 644. University of Idaho Cooperative Extension System.

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