

Pruning Forest Trees

The most common reasons for pruning trees in plantations or woodlands are to maintain a single central leader, repair storm damage, or promote clear trunks or boles for eventual production of high grade lumber or veneer logs.

Conifers planted for windbreaks are pruned to correct multiple leaders or damage by wind or snow. Ornamental and shade trees may be pruned to improve appearance or modify shape. Christmas trees are sheared to produce full, symmetrical crowns with dense foliage and desired taper.

Forest trees may be pruned at any time of the year, but the preferred time to remove live branches is during the dormant season (late fall or early winter). Avoid pruning oak trees between March 1 and July 1 to reduce the risk of infection by the oak wilt fungus. To avoid excessive bleeding from pruning wounds, do not prune maples during spring.

Young, small trees should not be pruned except to correct multiple leaders. Maintain one central leader on forest trees to promote straight, strong trees. Once a single central stem is developed, do not prune the top of the tree. Trees such as walnut may require considerable training to maintain a single leader.

Always maintain at least two-thirds of the total tree height in living branches. Excessive removal of live side branches will reduce leaf area and retard growth rate. As the tree increases in height,

lower side branches may be removed gradually over a fairly long period of time. In high quality forest trees grown primarily for lumber or veneer log production, a clear bole length of 17 feet is a desirable target.

Pruning large side branches on existing trees is not recommended. Branches more than three inches in diameter will generally not heal over fast enough to generate clear logs by harvest time. Excessive removal of large branches will only reduce leaf area and slow diameter growth on the merchantable trunk.

Prune only high-value species with straight trunks. Select the 50 or 100 best "crop trees" per acre in your woodland or plantation, and concentrate pruning and other cultural activities on those trees. Based on potential economic return from pruning, only high quality walnut trees deserve pruning at the present time. Red and white oak trees may be good candidates for pruning, but the estimated dollar return from this activity is somewhat doubtful under current market conditions.

Dr. Alex L. Shigo, Northeastern Forest Experiment Station, has developed extensive research information on proper pruning. His years of experience and observations provide an excellent basis for recommending basic guidelines for proper pruning of *all types of trees*.

When a live branch is removed by pruning, a wound is created on the trunk. The following recommended tips

will minimize the damage and promote fast healing:

- Do not leave branch stubs. These protrusions will have to decay and fall off, or the diameter of the trunk will have to increase sufficiently to cover the stub.
- Do not use flush cuts (figure 1). Cutting too close to the main trunk excessively wounds the tree and removes the natural mechanism that promotes healing.
- Do not cut in back of the "branch-bark ridge" (figure 2). Every branch has a thick bark ridge separating it from the main stem. Always cut as close as possible to the outer edge of the branch-bark ridge, but do not cut into or behind the ridge.

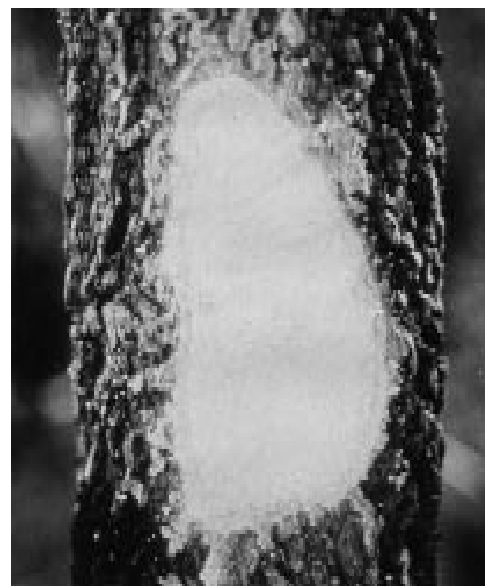


Figure 1. Example of an improper "flush cut."

- Do not tear the bark below the cut when pruning larger branches. Remove the major portion of the weight using a two-cut procedure, and then remove the stub (figure 3). Bark under the branch can tear, if the branch weight is not removed before the final cut.

- Do not use wound dressings to cover pruning cuts. Wound dressings will not help and may even hinder the healing process.



Figure 2. Photographs showing the “branch-bark ridge” and proper placement of cut.

Pruning dead branches also requires care to minimize possibility of injury and to promote fast healing. Do not cut into the callus ring that forms around the base of dead branches. Cut as

close as possible to the callus ring, but do not wound the callus material (figure 4). Damaging the callus ring will slow the healing process and promote internal decay.

- Proper pruning**
1. Under cut
 2. Upper cut to remove branch
 3. Final cut
- Improper pruning**
4. Stub too long—improper cut
 5. Split below stub—injury to stem

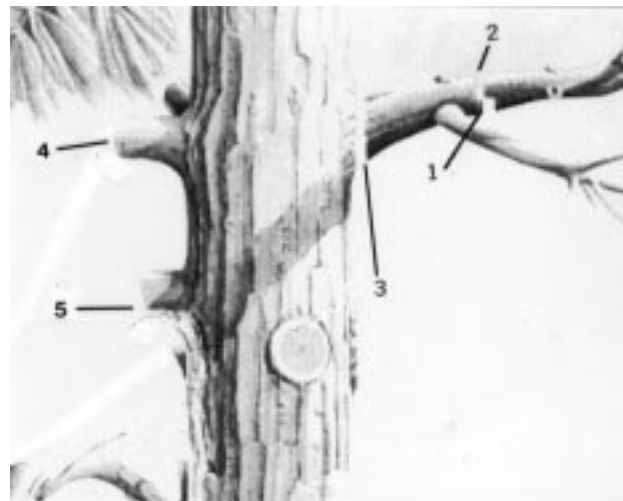
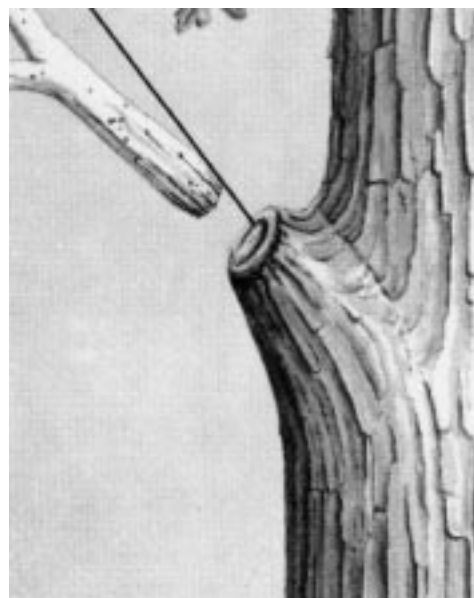


Figure 3. Proper and improper techniques for removing live branches

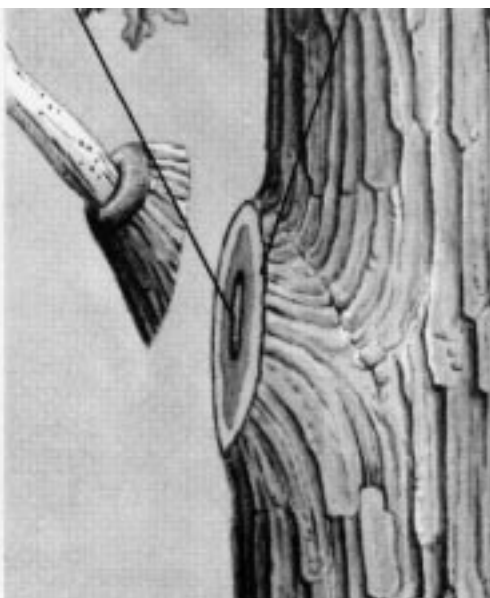
Callus ridge

Decay associated with old dead stub

New wound inflicted here



Proper pruning



Improper pruning

Figure 4. Proper and improper methods for pruning dead branches.

Proper tools for pruning include various types of shears or clippers and different types of hand saw (figure 5). Keep pruning tools very sharp. Do not use chain saws for pruning; excessive damage and improper cuts are likely to occur. Chain saws should only be used to remove the major portion of large, storm-damaged limbs. If branches are small, only a clipper or hand saw will be needed for pruning. To remove branches more than 6 or 8 feet above the ground, a pole saw or ladder will be required (figure 6).

Pruning wounds on the trunk of a healthy tree will heal quickly, if proper

cuts are made on small branches. Evidence of a proper pruning cut will be signaled by the healing process; callus material should completely encircle the pruning wound (figure 7). Trees cannot regenerate or repair damaged tissue. A wound is simply walled-off or “compartmentalized” by the tree. Good pruning techniques and careful handling will promote the tree’s ability to accomplish this compartmentalization of wounds.

Forest trees naturally lose side branches over time. Branches that are heavily shaped will die and finally break off. This process can be accelerated by artificial pruning, and clear, high quality main

trunks can be produced earlier. But substantial damage can be done unless proper pruning methods are used.



Figure 6. A pole saw may be used to prune upper branches.

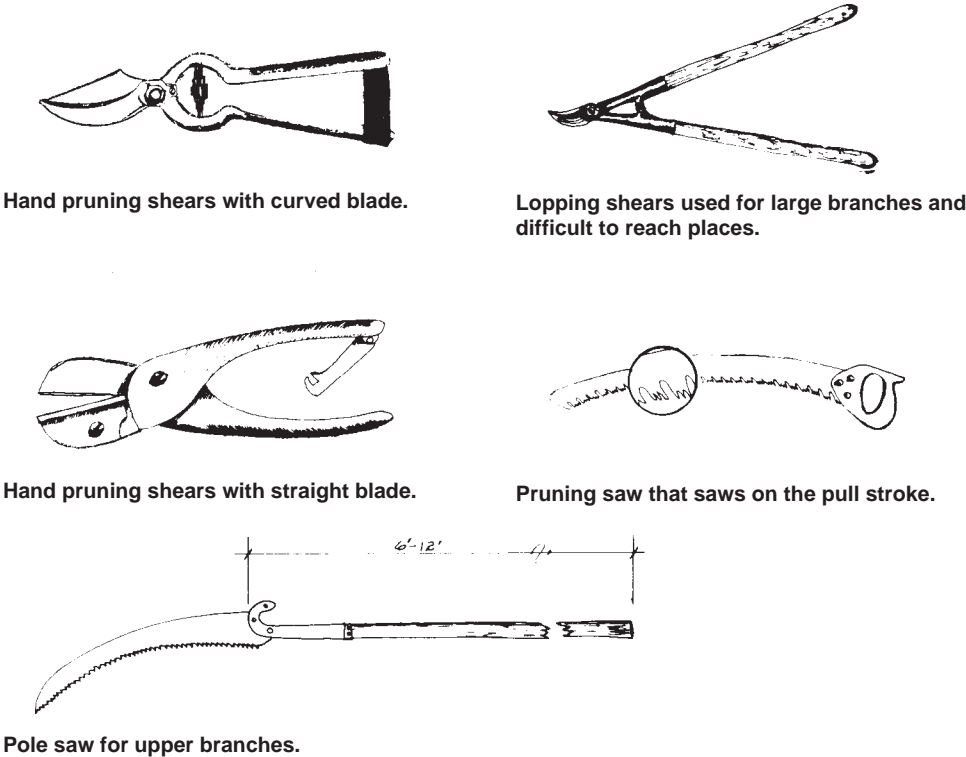


Figure 5. Various types of pruning tools.



Figure 7. Proper healing of a pruning cut; note callus ring completely encircles the wound.

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