How to Prune a Tree

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All landscape and shade trees require pruning at some time during their life. Trees may be pruned to:

- *Promote plant health* by removing dead or dying branches injured by disease, severe insect infestation, animals, storms, or other adverse mechanical damage such as crossing and rubbing branches;
- *Maintain the intended purposes* in a landscape, by encouraging flower and fruit development, maintaining a dense hedge, or maintaining a desired tree form or special garden forms;
- *Improve aesthetics* by controlling plant size or removing unwanted branches, waterspouts, suckers, and undesirable fruiting structures;
- *Protect people and property* by removing dead or hazardous branches such as weak or narrow-angled tree branches that overhang homes, parking areas, and sidewalks;
- *Increase visibility* by eliminating branches that interfere with street lights, traffic signals, overhead wires, or obscure vision at intersections; and
- *Improve security* around the home by removing branches that obscure the entry to your home.

Pruning can best be used to encourage trees to develop a strong structure and reduce the likelihood of damage during severe weather. Pruning for form can be especially important on open-grown trees that do very little self-pruning. All woody plants shed branches in response to shading and competition. Branches that are poorly attached may be broken off by wind and accumulation of snow and ice. Branches removed by such natural forces often result in large, ragged wounds that rarely seal. Pruning as a cultural practice can be used to supplement or replace these natural processes and increase the strength and longevity of plants.

Pruning Approaches

Proper pruning cuts are made at a node, the point at which one branch or twig attaches to another. In the spring of the year growth begins at buds, and twigs grow until a new node is formed. The length of a branch between nodes is called an internode. The most common types of pruning are:

- *Crown thinning* primarily for hardwoods, is the selective removal of branches to increase light penetration and air movement throughout the crown of a tree.
- *Crown raising* is the practice of removing branches from the bottom of the crown of a tree to provide clearance for pedestrians, vehicles, buildings, lines of site, or to develop a clear stem for timber production.
- *Crown reduction* pruning is most often used when a tree has grown too large for its permitted space. This method, sometimes called drop crotch pruning, is preferred to topping because it results in a more natural appearance, increases the time before pruning is needed again, and minimizes stress.

Pruning Cuts

Pruning cuts should be made so that only branch tissue is removed and stem tissue is not damaged. At the point where the branch attaches to the stem, branch and stem tissues remain separate, but are contiguous. If only branch tissues are cut when pruning, the stem tissues of the tree will probably not become decayed, and the wound will seal more effectively.
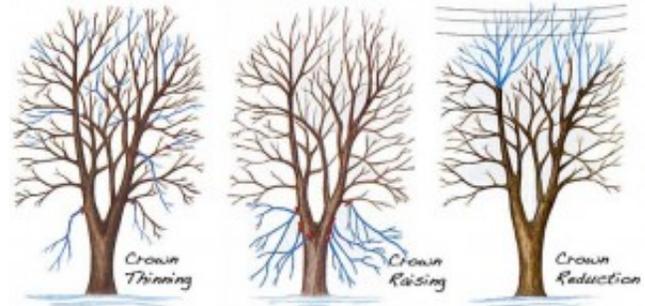

Figure 1. Common types of pruning. Branches to be removed are in blue. Cuts should be made where indicated with red lines.

Pruning Live Branches

To find the proper place to cut a branch, look for the branch collar that grows from the stem tissue at the underside of the base of the branch. On the upper surface, there is usually a branch bark ridge that runs (more or less) parallel to the branch angle, along the stem of the tree. A proper pruning cut does not damage either the branch bark ridge or the branch collar.
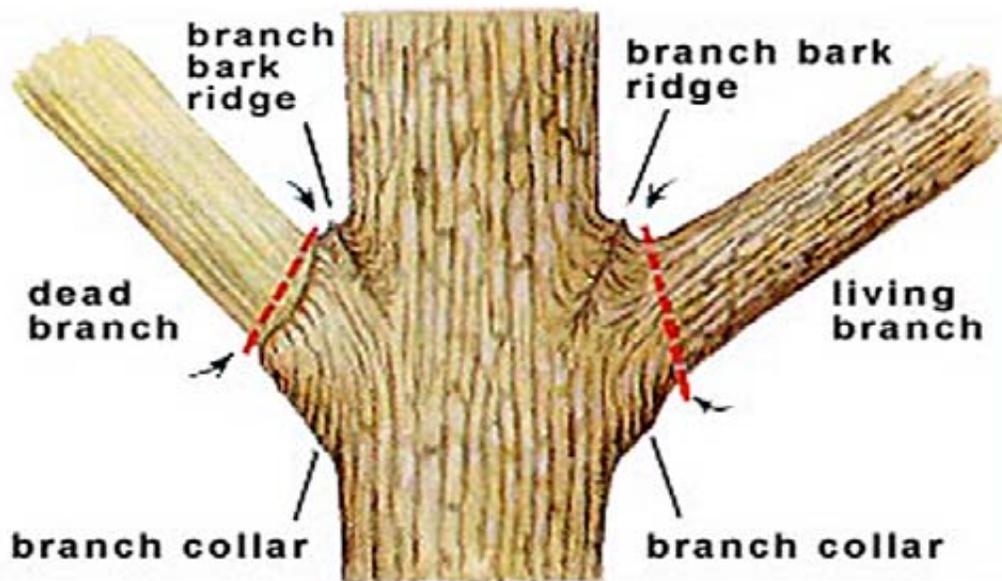
Figure 2. Pruning cuts.

A proper cut begins just outside the branch bark ridge and angles down away from the stem of the tree, avoiding injury to the branch collar. Make the cut as close as possible to the stem in the branch axil, but outside the branch bark ridge, so that stem tissue is not injured and the wound can seal in the shortest time possible. The second cut should be outside the first cut, all the way through the branch, leaving a short stub. The stub is then cut just outside the branch bark ridge/branch collar, completing the operation.

Pruning Dead Branches

Prune dead branches in much the same way as live branches. Making the correct cut is usually easy because the branch collar and the branch bark ridge can be distinguished from the dead branch, because they continue to grow. Make the pruning cut just outside of the ring of woundwood tissue that has formed, being careful not to cause unnecessary injury.

Drop Crotch Cuts

A proper cut begins just above the branch bark ridge and extends through the stem parallel to the branch bark ridge. Usually, the stem being removed is too large to be supported with one hand, so the three cut method should be used.

1. With the first cut, make a notch on the side of the stem away from the branch to be retained, well above the branch crotch.
2. Begin the second cut inside the branch crotch, staying well above the branch bark ridge, and cut through the stem above the notch.
3. Cut the remaining stub just inside the branch bark ridge through the stem parallel
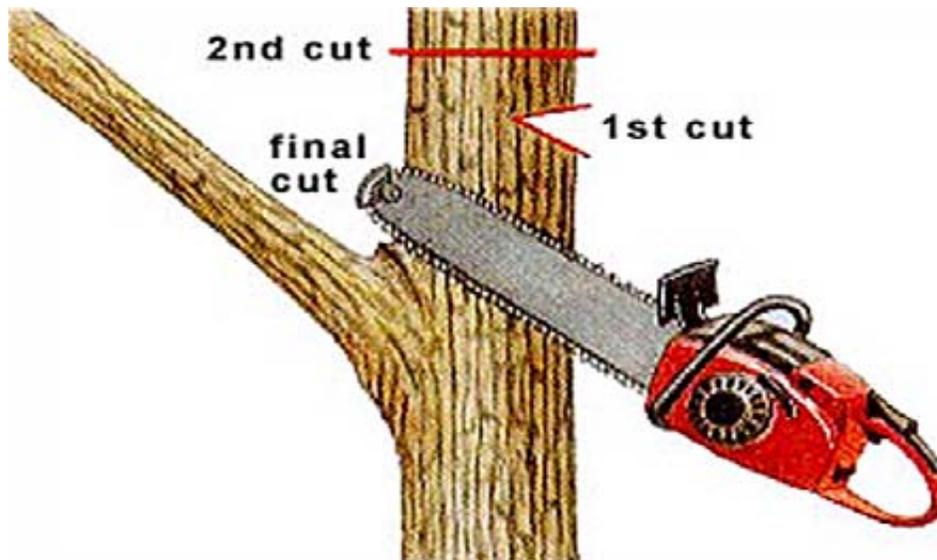
to the branch bark ridge.

Figure 3. Pruning cuts.

To prevent the abundant growth of sprouts on the stem below the cut, or dieback of the stem to a lower lateral branch, make the cut at a lateral branch that is at least one-third of the diameter of the stem at their union.

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Pruning Trees and Shrubs

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