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EC82-1224 Revised Pruning Shade Trees

David Mooter

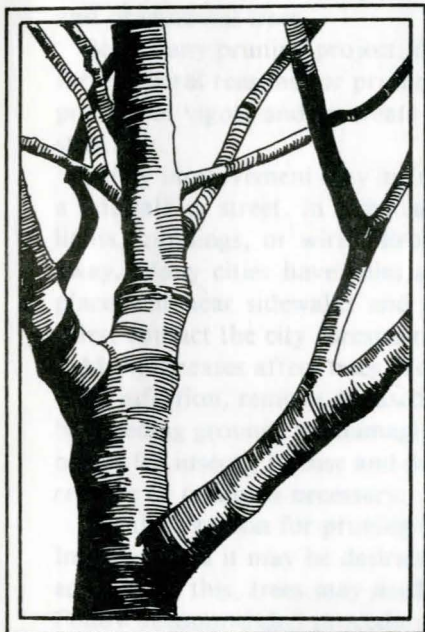
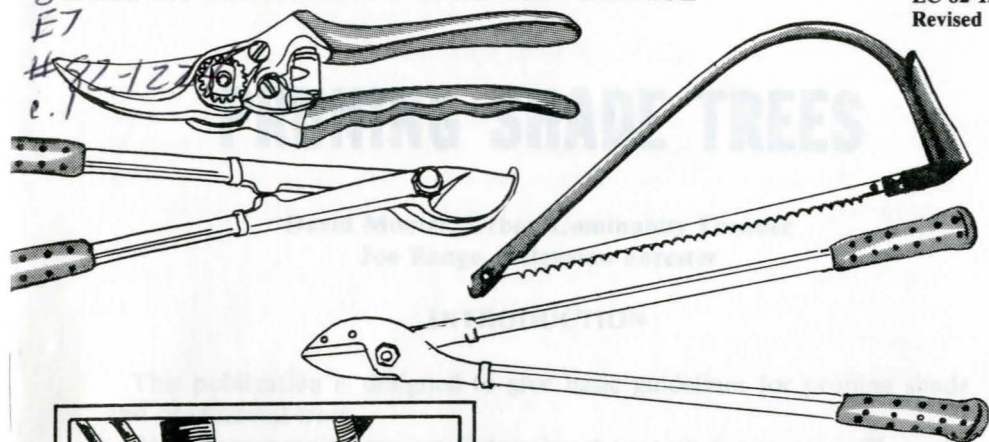
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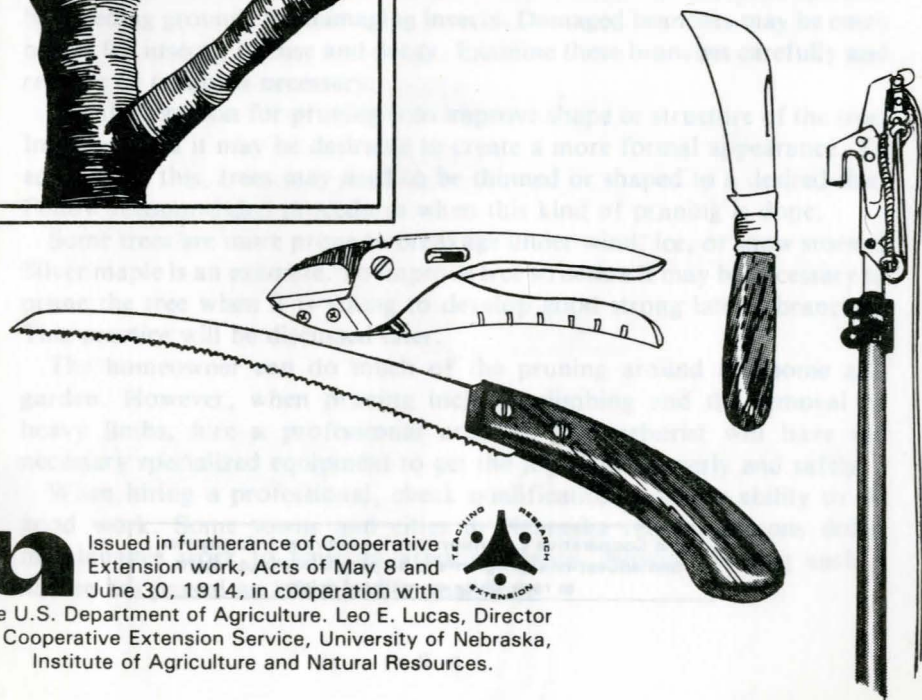
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PRUNING

Shade Trees



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PRUNING Shade Trees



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PRUNING SHADE TREES

**David Mooter, Urban Community Forester
Joe Range, Extension Forester**

INTRODUCTION

This publication is designed to give basic guidelines for pruning shade and ornamental trees.

Before any pruning project, determine the reason for pruning. There are three general reasons for pruning a tree: to correct a safety hazard, to improve tree vigor, and to create a more pleasing shape or improve branch structure.

Safety improvement may include removal of branches that hang low over a sidewalk or street. In some cases, foliage needs to be cleared away from lights, buildings, or wires. Broken or weak branches should be trimmed away. Many cities have rules and regulations that govern trees and tree placement near sidewalks and streets. If there is a question about these rules, contact the city forester or arborist.

Many diseases affect trees. To improve tree vigor and protect other trees from infection, remove diseased or dead branches. Dead branches can also be breeding grounds for damaging insects. Damaged branches may be entry points for insects, disease and decay. Examine these branches carefully and remove or repair as necessary.

The third reason for pruning is to improve shape or structure of the tree. In some cases it may be desirable to create a more formal appearance. To accomplish this, trees may need to be thinned or shaped to a desired size. Follow recommended procedures when this kind of pruning is done.

Some trees are more prone to breakage under wind, ice, or snow storms. Silver maple is an example. To improve tree structure it may be necessary to prune the tree when it is young to develop good strong lateral branches. This practice will be discussed later.

The homeowner can do much of the pruning around the home and garden. However, when pruning includes climbing and the removal of heavy limbs, hire a professional arborist. The arborist will have the necessary specialized equipment to get the job done properly and safely.

When hiring a professional, check qualifications and the ability to do good work. Some towns and cities in Nebraska require persons doing maintenance work to have an arborist license. Anyone holding such a license has passed an exam and is qualified.

SEASONS FOR PRUNING

Deciduous trees may be pruned during any season. Pruning while the tree is in full leaf will allow you to visualize the effect that pruning will have on the tree. Pruning during the dormant season is also acceptable. Branches may be more easily removed since there are no leaves to add weight to the limb.

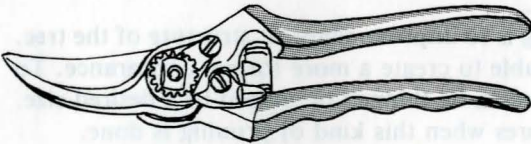
Birch, maple and walnut are examples of trees that should be pruned in the summer because they have a tendency to “bleed” excessively when pruned in the winter or early spring.

There are two times during the year that pruning is discouraged. During the spring growing season tree bark is very tender and may be easily torn. Research has shown that tree wounds are most susceptible to decay during the fall of the year when trees are in color. If possible, do not prune trees at these times.

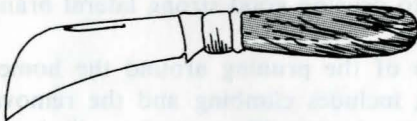
Shearing operations to shape pine, spruce, or fir should be restricted to the current season’s growth and limited to about six weeks during early summer. This period in Nebraska is usually from late May through the first week in July. This publication does not cover shearing or pruning of evergreens.

BASIC TOOLS FOR PRUNING

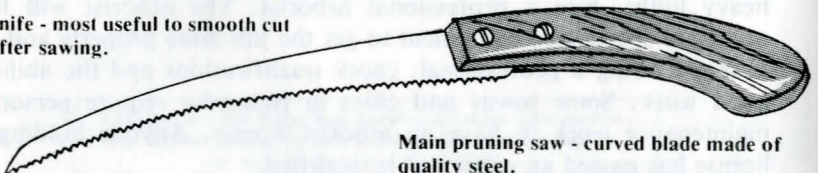
Before making any pruning cut, be sure your tools are clean and in good working order. Shears and saws should be sharpened and oiled. Dull cutting tools will tear at tree bark, creating a poor environment for proper healing.



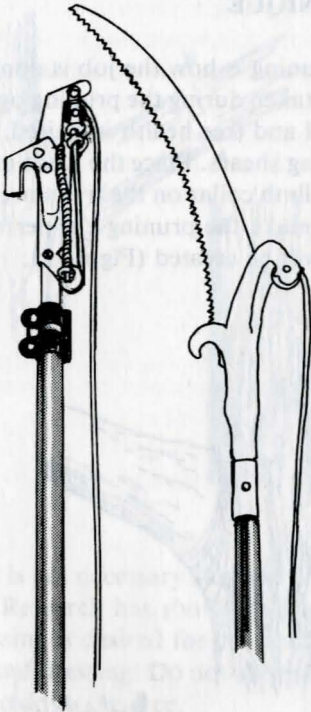
Scissor action pruner - most frequently used pruner for small branches.



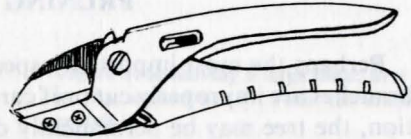
Pruning knife - most useful to smooth cut surfaces after sawing.



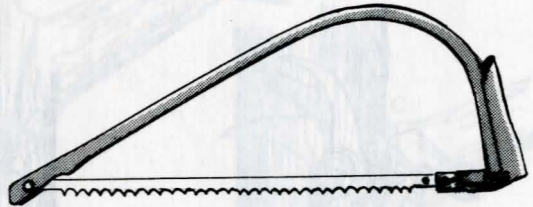
Main pruning saw - curved blade made of quality steel.



Pole pruners for removing branches high in the tree.



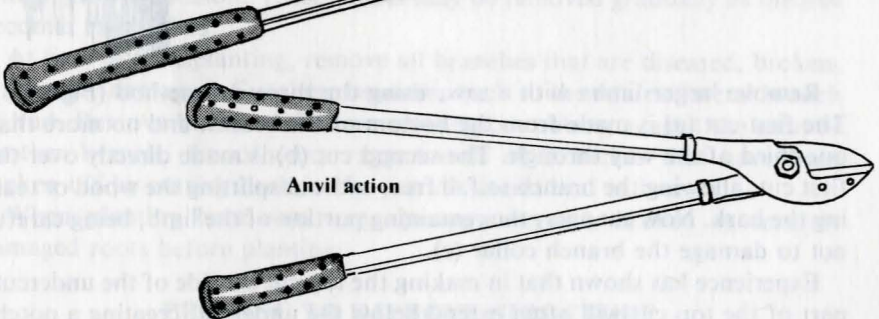
Anvil action pruner - used for small branches, designed to prevent lodging of branches between blades.



Bow saw - for general pruning and limb removal.



Scissor action



Anvil action

Lopping shears for heavy work and larger branches.

PRUNING TECHNIQUE

Perhaps the most important aspect of pruning is how the job is done. If branches are improperly cut or if care is not taken during the pruning operation, the tree may be permanently damaged and tree health impaired.

Small limbs may be removed with a pruning shears. Place the blade at the limb collar and cut up (Figure 1). Leave the limb collar on the tree since it is important for the healing process. Do not make the pruning cut perfectly flush with the stem, since a larger wound will be created (Figure 2).

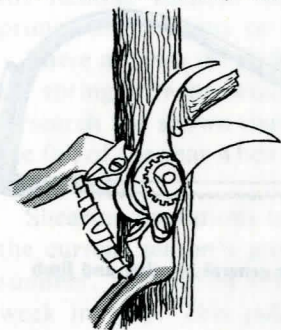


Figure 1. For close, easy cutting, place blade next to trunk and cut up.

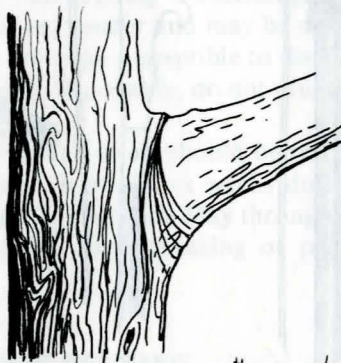


Figure 2. Final cut made at shoulder rings.



Remove larger limbs with a saw, using the three cut method (Figure 3). The first cut (a) is made from the bottom of the branch and no more than one-third of the way through. The second cut (b) is made directly over the first cut, allowing the branch to fall free, without splitting the wood or tearing the bark. Now cut away the remaining portion of the limb, being careful not to damage the branch collar (c).

Experience has shown that in making the top cut outside of the undercut, part of the top cut will often extend below the undercut, creating a notch. As the limb breaks away the saw can become lodged in this notch causing the saw to be pulled from the hands of the cutter. This is particularly true with fast cutting chainsaws.

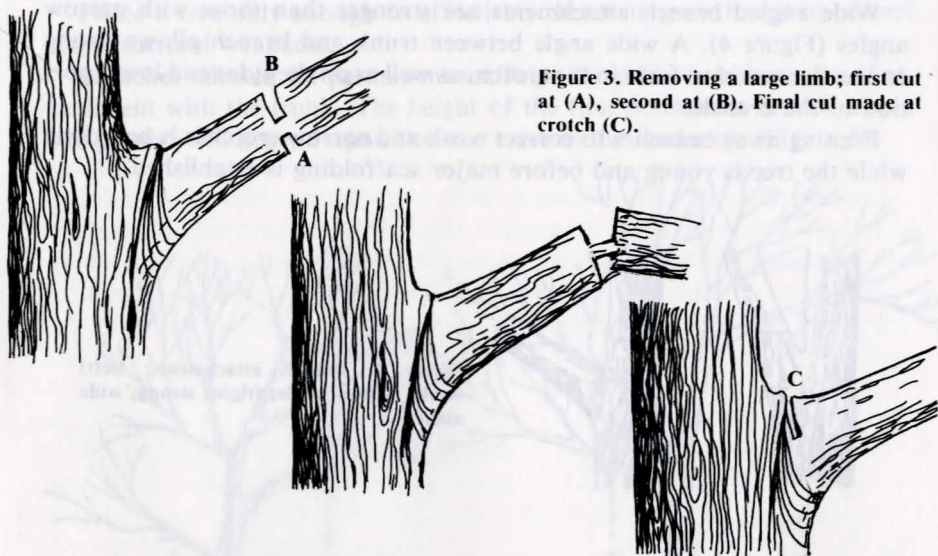


Figure 3. Removing a large limb; first cut at (A), second at (B). Final cut made at crotch (C).

It is not necessary to apply wound dressing after the limb has been removed. Research has shown that wound dressings do not promote healing. If dressing is desired for cosmetic purposes, apply a thin layer of commercial wound dressing. Do not use materials not meant for this purpose. They may be toxic to the tree.

PRUNING NEWLY PLANTED TREES

Only a minimum amount of pruning should be done to newly planted or transplanted trees. Leave lower shoots along the trunk of a new tree. They will help protect the bark from over-exposure to the sun during the first critical growing season. These shoots may be removed gradually as the tree becomes established.

At time of transplanting, remove all branches that are diseased, broken, or severely damaged. Cut these branches back to the nearest lateral branch or bud. Remove branches that are crossing or rubbing against the stem or another branch. Smooth any ragged ends of branches that have been broken off by cutting back to the nearest lateral bud or branch.

When planting bare root trees, prune away any broken or severely damaged roots before planting.

PRUNING TO IMPROVE STRUCTURE

Certain features contribute to the structural strength of the trunk and main branches of a tree.

Wide angled branch attachments are stronger than those with narrow angles (Figure 4). A wide angle between trunk and branch allows strong connective wood to form in the crotch, as well as on the sides and lower portion of the branch.

Pruning away branches to correct weak and narrow crotches is best done while the tree is young and before major scaffolding is established.

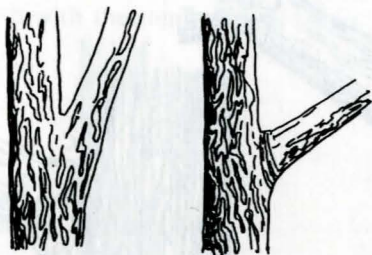


Figure 4. Branch attachments: (left) weak, narrow angle; (right) strong, wide angle.

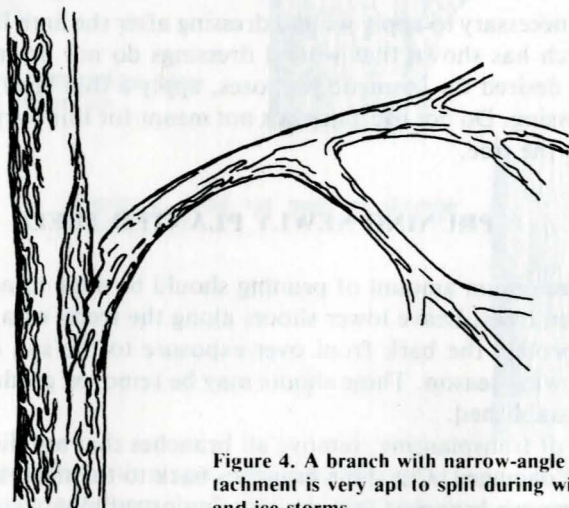


Figure 4. A branch with narrow-angle attachment is very apt to split during wind and ice storms.

TRAINING AND DIRECTING THE GROWTH OF YOUNG TREES

In most cases, young trees need very little pruning to direct growth or improve structure. Nature tends to care for itself. However, in some species, directing the growth of young trees is desirable if mature trees are to perform properly in the landscape. Remember that it is important to follow proper pruning technique.

Prune a tree only enough to effectively direct its growth and to correct any structural weakness.

Branches selected for permanent scaffolds should have wide angles of attachment with the trunk. The height of the first permanent branch above the ground will depend upon the tree's use in the landscape (Figure 5).

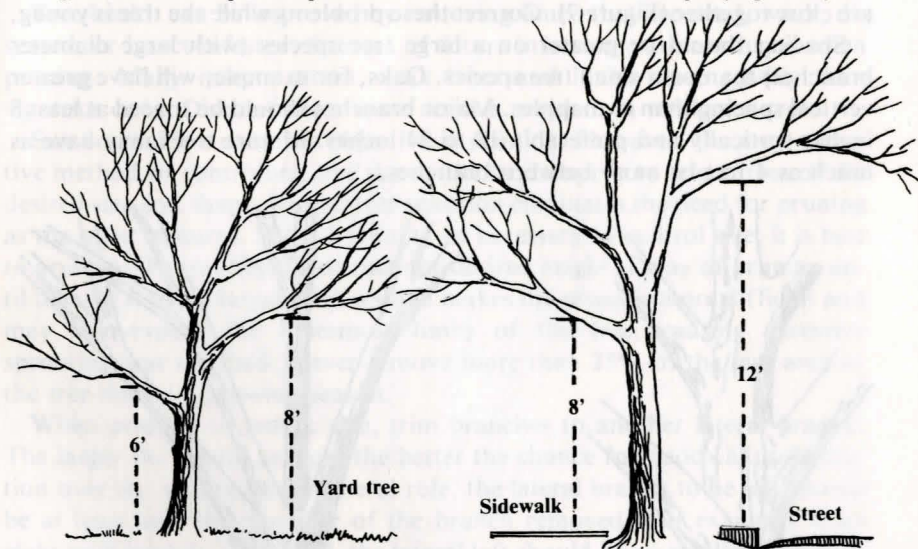


Figure 5. Height of lowest branch should depend on use underneath the branch.

The position of a limb on the trunk remains the same throughout the life of the tree. In fact, as a branch increases in diameter, the distance between it and the ground actually decreases (Figure 6) because of diameter growth.

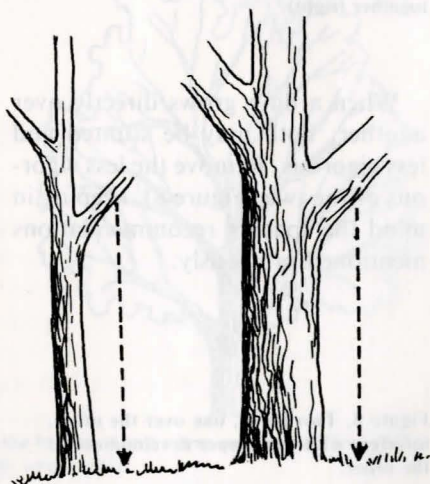


Figure 6. Branches retain their position on the trunk but as they increase in diameter they become slightly closer to the ground.

The height of the lowest permanent branch can be a few inches from the ground to more than 12 feet, depending on the clearance needed in the landscape. Consult with local city officials to check on rules and regulations near public walkways and/or streets.

Well-spaced branches are less likely to split or be damaged than those that are close together (Figure 7). Correct these problems while the tree is young.

Spacing should be greater on a large tree species (with large diameter branches) than on a small tree species. Oaks, for example, will have greater vertical spacing than crabapples. Major branches should be spaced at least 8 inches vertically and preferably 18 to 24 inches. Mature trees may have as much as 4 feet or more between branches.

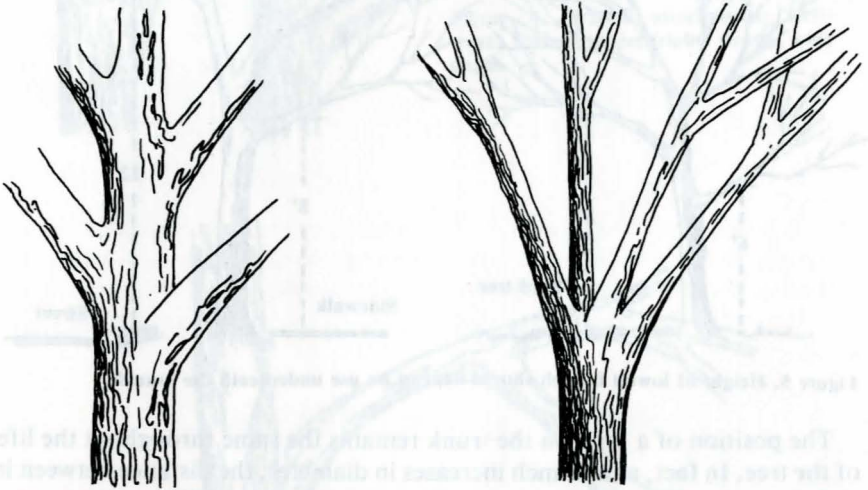


Figure 7. Well-spaced branches (left) are less likely to split out or break than those close together (right).

When a limb grows directly over another, both may be stunted and less vigorous. Remove the less vigorous of the two (Figure 8), keeping in mind the spacing recommendations mentioned previously.

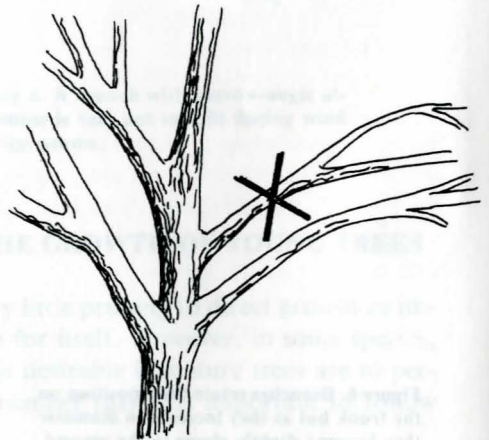


Figure 8. Two limbs, one over the other, interfere with the proper development of the other.

PRUNING MATURE TREES

The scaffold limbs and the main structure of a tree have usually developed by the third or fourth growing season. If the scaffolds are well placed, the tree may need little or no pruning for the remainder of its life. However, there are several reasons that mature trees may need to be pruned.

Tree health can be improved by removing limbs that are dead, weak, diseased, or insect-infested. Sources of future infection can be reduced when pruning. Many insects attack weak trees and limbs more readily than vigorous ones. Diseases are a more serious problem in weakened trees.

Size control is a common objective in pruning. However, the most effective method of controlling tree size in the landscape is to select trees of the desired size and shape. Proper tree selection eliminates the need for pruning as the plant matures. Should pruning be necessary to control size, it is best to prune as the tree begins to reach the desired height. Delay of pruning until the tree is much larger than wanted makes the pruning more difficult and may over-expose the innermost limbs of the tree, causing excessive sprouting and sunscald. Never remove more than 25% of the leaf area of the tree during a growing season.

When pruning to reduce size, trim branches to another lateral branch. The larger the lateral branch, the better the chance for good callus formation over the wound. As a general rule, the lateral branch to be left should be at least half the diameter of the branch removed. For example, if an eight-inch branch is removed, the lateral left should be no smaller than four inches. This method of pruning is called "drop crotching". By using this method, tree health will be maintained and the tree will retain a more natural appearance (Figure 9).

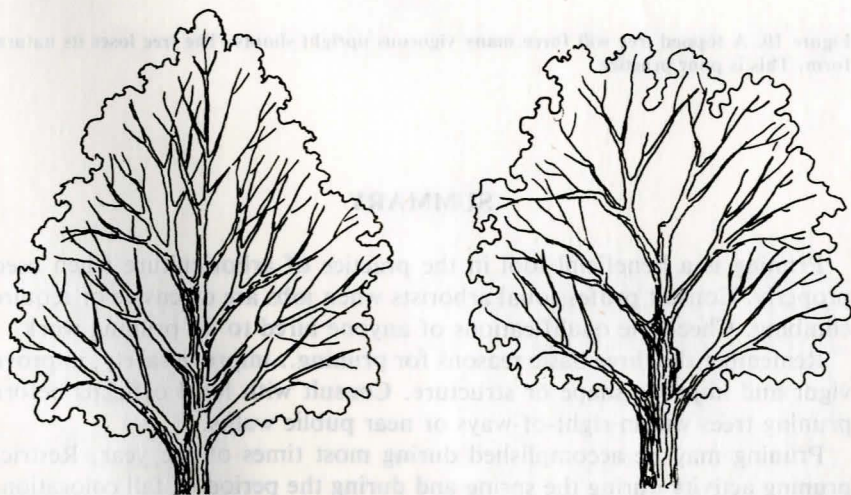


Figure 9. Thinning or "drop crotching" reduces the height of and opens up a mature tree (left) retaining the natural appearance and form of the tree (right).

Heading or "topping" is a common way to reduce tree size. The practice is undesirable. Sprouting is encouraged and the new branches are weakly attached (Figure 10). There is also a far greater chance for decay and general loss of vigor in the tree. Topping is not a recommended practice.

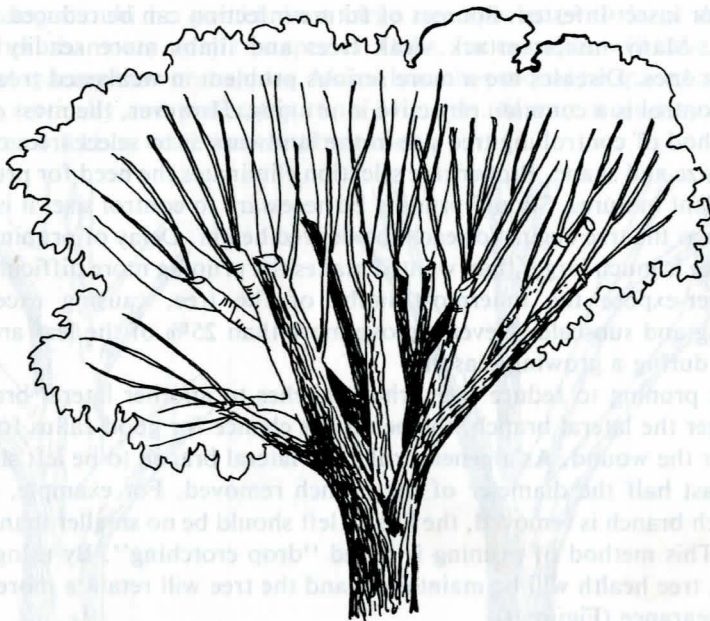


Figure 10. A topped tree will force many vigorous upright shoots. The tree loses its natural form. This is poor practice.

SUMMARY

Pruning is a beneficial tool in the practice of arboriculture when used properly. Consult professional arborists when jobs are extensive or require climbing. Check the qualifications of anyone hired to do pruning work.

Remember the three basic reasons for pruning...improve safety, improve vigor and improve shape or structure. Consult with local officials before pruning trees within right-of-ways or near public walks.

Pruning may be accomplished during most times of the year. Restrict pruning activity during the spring and during the period of fall coloration.

Practice proper techniques during any pruning operation. Keep in mind the basics of structure and tree growth. Use caution and safety at all times.