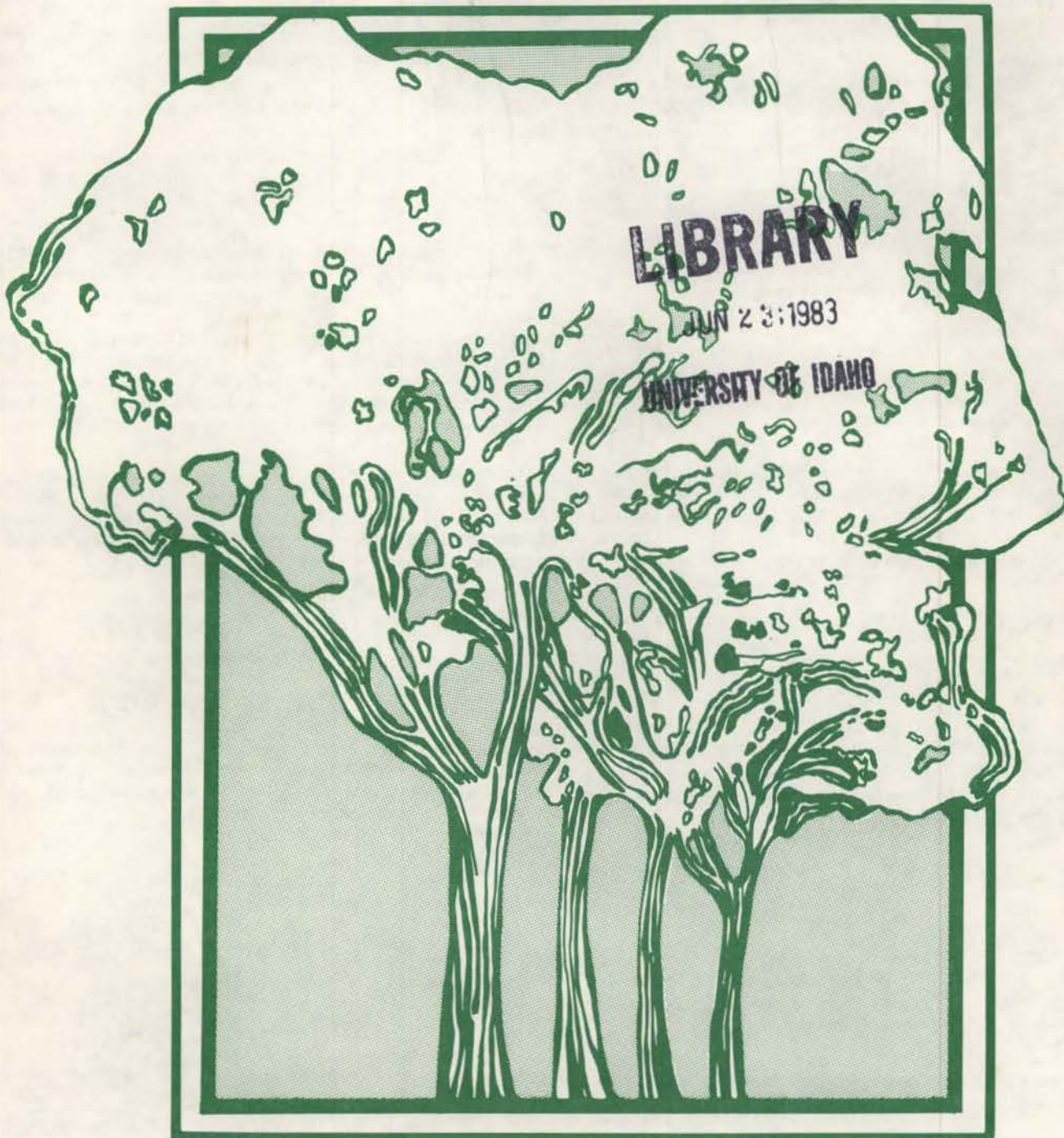


How To Prune Deciduous Trees



Don Hanley • W. Michael Colt • Arthur D. Partridge



Cooperative Extension Service

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415

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Shade trees in Idaho make important contributions toward pleasant environments around our homes, in our parks and along our highways. However, these trees are often taken for granted and receive inadequate care. A regular maintenance program should be carried out over the lifetime of the tree to minimize problems and to exploit shade tree benefits. Proper pruning techniques are one phase of a complete maintenance program.

Why Prune?

Pruning is done to maintain natural tree form, to correct undesirable branch growth or to eliminate disease. Nature's way of pruning is through crowding and shading which results in dying branches and twigs. While this process is normal, such branches should be pruned out of ornamental trees before they die.

If pruning is carried out on a regular basis and undesirable growth is removed, this will prevent the need for an extensive and expensive pruning job later. This does not mean that pruning is required each year on every tree. The key idea is that "undesirable growth" is removed on a regular basis.

Should I Prune Myself Or Hire a Professional?

This decision depends, of course, on your physical ability, your time availability, your pruning knowledge and the tree's size and location. If you decide to hire a tree service professional, follow these points:

1. The pruning contractor must be bonded and insured. Crews should have a copy of liability insurance in their possession.
2. Can the service company give references of past work in the community?
3. Require that the job is done on a "job basis" not an hourly basis. Use a written contract.
4. Does the crew have safe climbing equipment? Is the tree near a powerline? If so, you should hire a professional.
5. Don't be forced into quick action by high pressure "salesmen." Get a second or third estimate of costs.

If you decide to prune the tree yourself, read this publication. Study the illustrations carefully. Work safely. If you have questions, contact your Extension agricultural agent for advice.

When To Prune

One of the first occasions when a tree may require pruning is when it is planted. At this time, roots have been disturbed and partly destroyed. The branch structure should be brought into balance with the remaining root system. Pruning at this time consists of thinning out some of the branches by concentrating on the prevention of weak crotches and the elimination of branches which cross over each other.

In established trees, pruning should be carried out regularly. Inspections should be made each year and corrective action taken, if needed.

Deciduous trees may be pruned at any time of the year. Basically the choice of summer or winter is left up to the individual. There are, however, some reasons to prune during each season of the year.

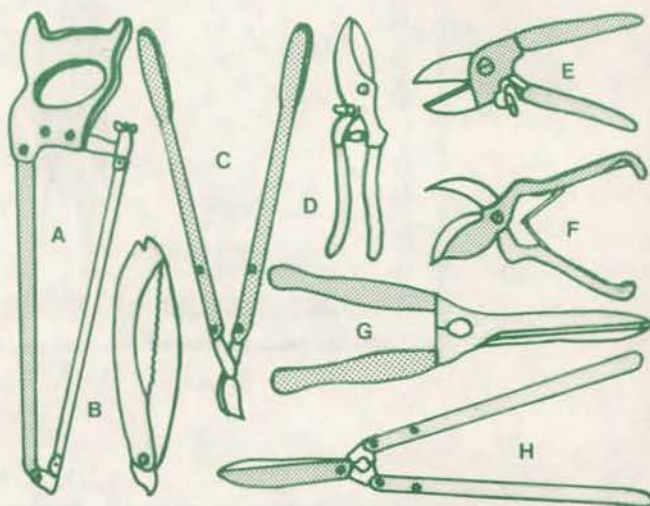
Most deciduous trees are pruned during the dormant season because you can easily see dead and diseased wood at this time. Pruning during the dormant season also minimizes the clean up effort and reduces the probability of spreading disease organisms. If pruning is done in the early spring, before the leaves develop, the wounds will begin to heal during this period of most rapid growth. Callus tissue development will be rapid. Pruning the tree while it is in leaf allows the pruner to see the effect that cuts have on the tree's form.

Additionally, some trees — such as birch, maple, walnut and sycamore — "bleed" clear sap from pruning. This sap flow is not harmful to the tree but is often unsightly. **These trees should be pruned after they leaf out in summer to minimize the sap flow.**

Flowering trees — such as dogwoods and crabapples — should be pruned after they flower. Otherwise, you will lose a year's flower production.

What Tools To Use

Hand saws that cut on the pull stroke are recommended because they are easiest to use and provide excellent control. Pole saws are desirable where branches are less than 20 feet in height. Looping shears and hand shears are also recommended for light, small branch removal.



GOOD PRUNING TOOLS — pruning saws (A and B), looping shears (C) and hand shears (D, E and F). Do not use hedge shears (G and H), as they do not make a clean cut on tree branches. Similarly, do not use chain saws for final cuts on large branches.

Hedge shears are not recommended because most of them are not large enough to remove tree branches cleanly. Chain saws are only recommended for preliminary or rough cuts.

Using axes and hatchets has needlessly injured many valuable shade trees. Removing limbs with these tools without leaving a stub or projection of some kind is virtually impossible. Stubs prevent rapid healing. A poor aim with an axe can also cause unnecessary trunk injury.

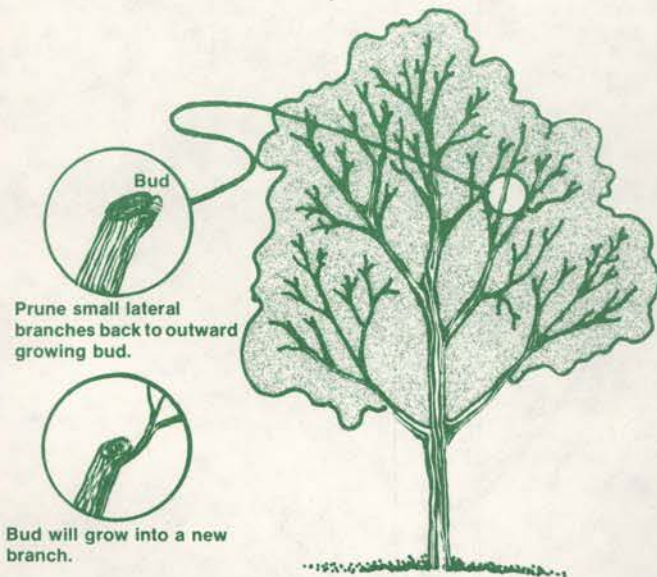
How To Prune

Pruning Small Trees

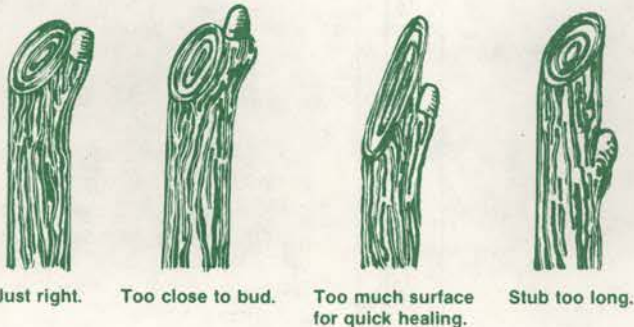
Removal of young, small limbs is quick and simple. If pruning is delayed until limbs become large, they are more difficult to remove and may affect the natural shape of the tree. A young tree, well pruned and trained in its formative stage, will need minimal pruning later on.

Small Twig Removal

The principle behind pruning twigs is always to cut back to a bud that is directed outward and which will produce new growth.



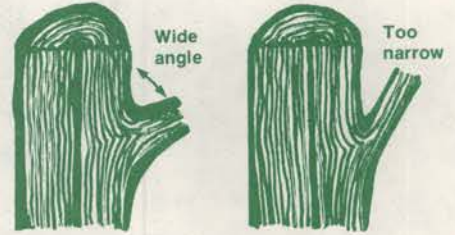
Make slanted cuts back to healthy wood. The proper pruning cut should be about one-quarter inch above the bud, slanted away from it.



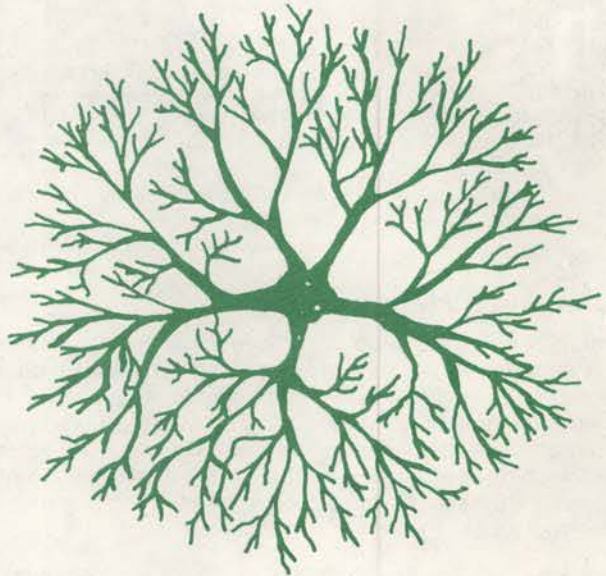
This type of cut is common when "heading back" newly planted, nursery stock. Do not leave stubs because they are a detriment to proper healing and invite diseases.

Selecting Scaffold Branches

You should select the main scaffold or lateral branches that grow at wide angles to the trunk for strong support.



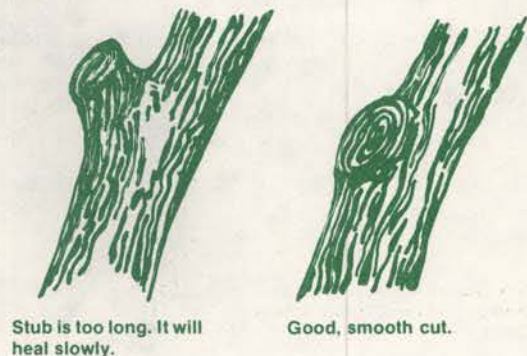
Narrow, angled crotches increase the chance of splitting during the times of stress like ice or snow storms. The major scaffold branches should be spaced at least 8 to 18 inches apart vertically. Encourage radial branch development similar to this top view.

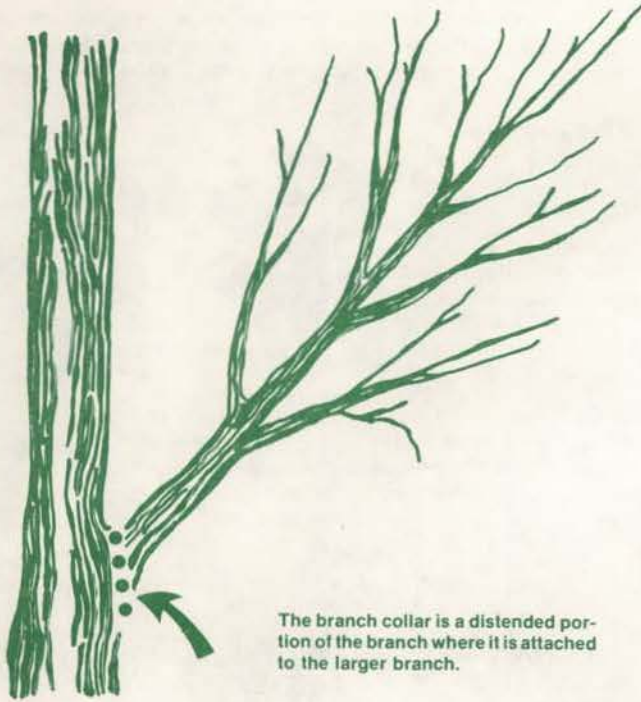


Pruning Mature Trees

Prune mature trees on a periodic basis. Make yearly inspections followed by maintenance pruning. Trees that have been neglected for many years **should not** be pruned back all at once. Never remove more than one-third of the total branches at one time because numerous water sprouts will form. These water sprouts are weakly attached to the tree and can result in a malformed tree shape.

When you have decided on a limb to cut, remove it completely without leaving a stub. Cut it just outside the branch collar parallel with the trunk or adjacent larger branch.





A chain saw cuts too roughly and should not be used for the final cut.

If one branch of a "V" crotch has to be removed, be aware that the true intersection is often lower than you expect because of thick bark at the intersection.



To remove this type of branch, make two preliminary cuts as indicated by 1 and 2. Then remove the major part of the branch. The final cut is made at the true intersection (3).

Remember, trees with narrow "V" crotches are subject to wind, ice and snow damage. **A branch making such a weak union should be removed while young if possible.**

Removing a Heavy Limb

Three cuts are required to remove a heavy limb. The first cut is made 1 to 2 feet away from the base of the limb on the underside. The second cut is made just outside the first cut allowing the branch to fall. The third cut is made just outside the limb collar parallel with the next larger limb or trunk. When making the third cut, support the stub. This method will permit the basal cut to be made smoothly without binding and without peeling the bark.



Under-cut first.



Then cut from top.



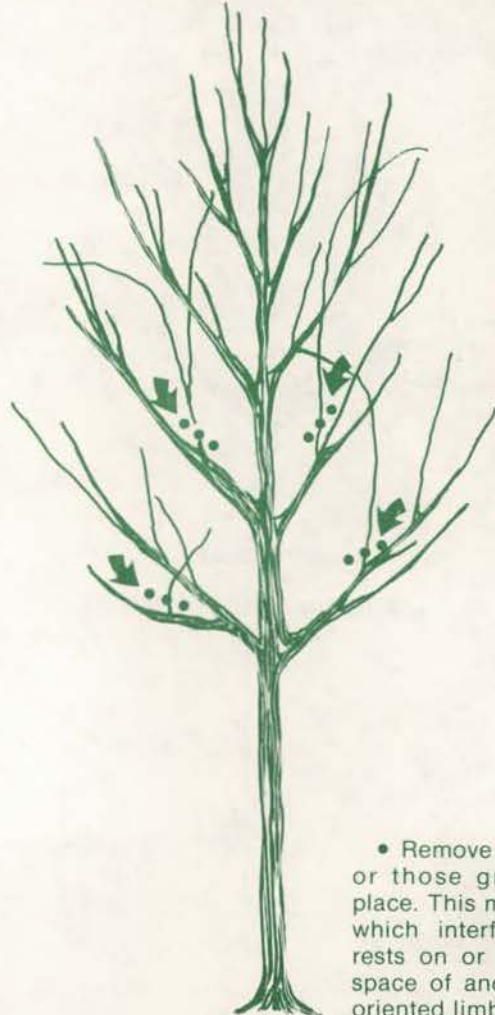
Cut to make a smooth surface to facilitate healing.

Bark tearing will result if heavy limbs are removed in one cut.



Deciding Which Limbs To Remove

- Remove deadwood and/or broken branches.



- Remove crossover limbs or those growing out of place. This may be any limb which interferes, rubs on, rests on or grows into the space of another normally-oriented limb.

• Remove one of two limbs forming a weak fork or crotch.

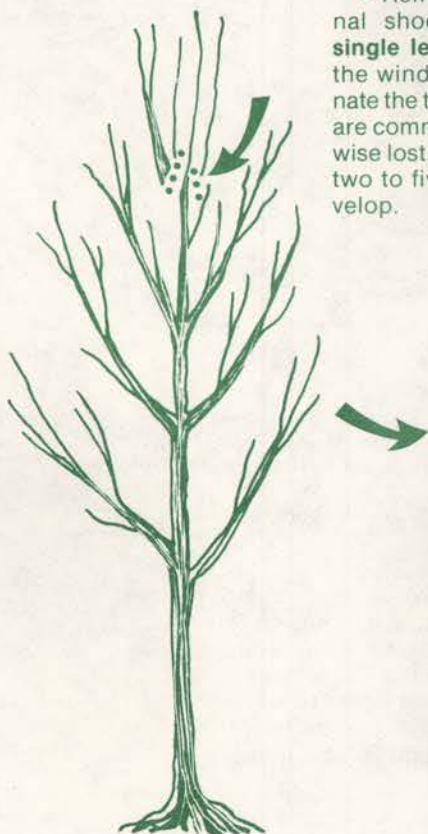


• Remove all stubs, new or old.

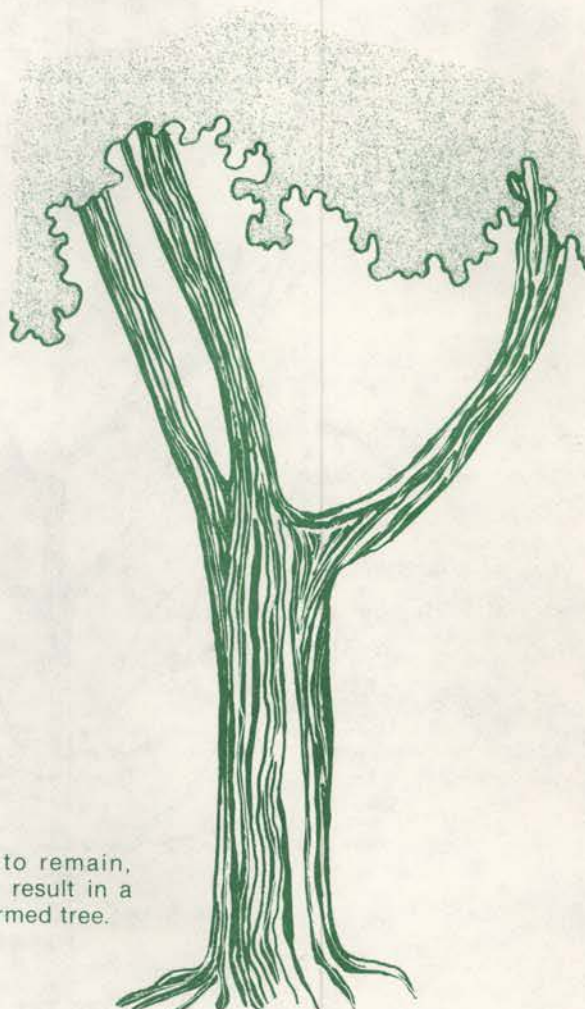


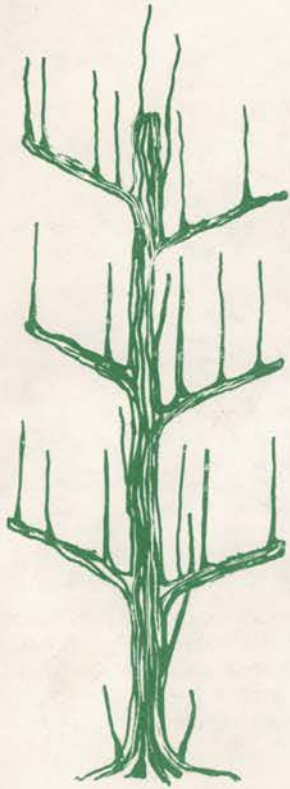
• Remove "crowded limbs." Often there are two limbs where only one is needed or where there is room for only one to grow strong and normal.

• Remove multiple terminal shoots **leaving only a single leader**, preferably on the windward side, to dominate the tree. Terminal leaders are commonly killed or otherwise lost. When this happens, two to five equal leaders develop.

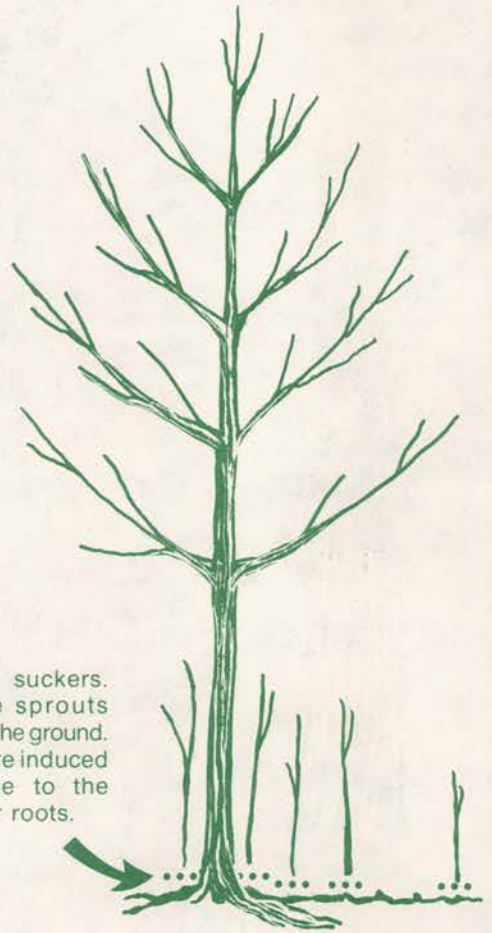


• If allowed to remain, multiple leaders result in a weak and malformed tree.





- Remove water sprouts. Water sprouts left to prevail can result in a weak, malformed tree. Water sprouts, also called adventitious shoots, occur singly or in clusters after a tree has been "opened up" from severe pruning or limb breakage.

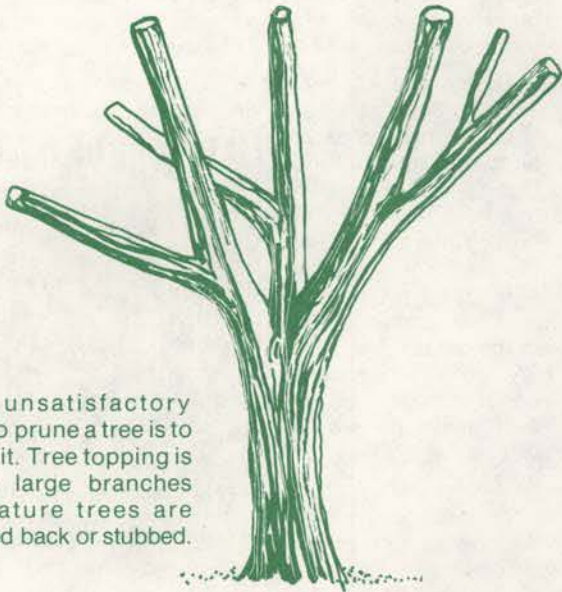


- Remove suckers. Suckers are sprouts growing from the ground. Often, they are induced from damage to the main stem or roots.

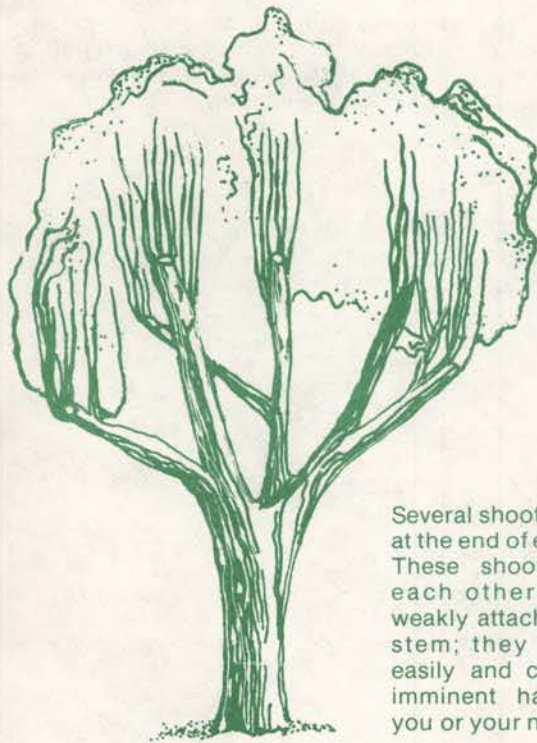


- Prune the lower limbs of shade trees if needed to make room for "traffic" underneath, but remember to leave at least two-thirds of the total volume of the top.

How Not To Prune Mature Trees



An unsatisfactory way to prune a tree is to "top" it. Tree topping is when large branches of mature trees are headed back or stubbed.



Several shoots develop at the end of each stub. These shoots crowd each other and are weakly attached to the stem; they split out easily and can cause imminent hazards to you or your neighbors.

Worst of all, trees headed or topped in this fashion lose their natural form and often are ugly and grotesque. They slowly die because the stubs almost always possess internal decay or may be killed rapidly by disease or internally feeding insects. Previously topped trees are susceptible to damage by ice and wind storms because of the internal decay.

Be aware that unprofessional tree maintenance crews use this approach because it takes little skill and is quick. (See section entitled "How To Select a Tree Service Professional.")

Controlling tree size by pruning is not recommended. You will be better in the long run to plant and grow a tree that "fits its area." If the tree is too large for its intended use, remove it and plant a smaller species. **The practice of "topping"**

to control tree size or increase vigor cannot be justified. Unnecessary or severe pruning can reduce a tree's vigor and lead to early death.

Pruning Mature Trees Near Powerlines

We strongly recommend that you hire a professional tree maintenance service when pruning near overhead powerlines.

Pruning mature trees near powerlines oftentimes presents a problem where large tree branches interfere with the lines. Commonly, power companies "top" trees under the wires because this process is fast and apparently economical. However, this practice is short lived as the numerous sprouts that develop grow back rapidly into the wires. These sprouts, weakly attached to the parent tree, are easily broken.

Side and Directional Pruning

Two other pruning techniques used by professional tree maintenance crews — "side pruning" and "directional pruning" — offer alternatives to "topping." Side pruning is the removal of a large tree's side branches when they interfere with the wires. Usually the opposite side of the tree is pruned to preserve the symmetrical shape.

Directional pruning involves the opening of paths for the wires through the tree crown.



An expert pruner can anticipate the direction of future growth and, by early and correct pruning, favor branches that will grow away from the wires and eliminate the necessity of topping.

While these two pruning methods are initially more expensive than the others, they result in the least disfigurement of the tree. They give the most lasting benefits and **cost the least in the long run.** If these alternatives cannot be used, complete tree removal and replacement with a smaller tree is preferred over "topping."

Pruning Diseased Trees

You sometimes want or need to prune a tree that is infected with disease in order to arrest the disease's spread or for general sanitation. Under such conditions, great care should be exercised so that the pruning will not actually spread the disease instead of retard it. Saws and pruners used in this work should be dipped in alcohol or household bleach or wiped with a cloth saturated in the solution **between each cut** to kill any pathogen which might be carried on the tool. Dead branches commonly harbor pathogens that are easily carried by cutting tools. In fact, cankers are the major disease of deciduous trees and are usually introduced on tools.

Sanitation pruning should be done back from infected wood. The cut should go through noninfected limbwood. Wood from such pruning should be burned as soon as possible and as close to the site as convenient to minimize the danger of spreading the disease.

Avoid pruning diseased trees in wet weather because the chances of spreading disease spores increases. If the limb you are pruning has died back, it is probably diseased. You should be sure to make your cut in live wood at least 4 to 6 inches below the last indication of dieback. Lightly oil pruning tools after use.

Wound Care and Dressing

Open wounds and long stubs can expose trees unnecessarily to damage from insects and disease. For these reasons, make sure all wounds and stubs are encouraged to heal quickly. Generally, allow wounds to dry as quickly as possible to avoid entrance of decay or insects.

To heal quickly, trim bark wounds back into healthy tissue. Trim so that the wound takes on an elliptical configuration with its long axis parallel to the trunk or limb. Use a sharp, sterile knife to create a clean wound edge. When this is done, the plant's cambium tissue grows from each side eventually meeting in the center. The outer layer of cells becomes corky and bark-like and eventually the wound will not be distinguishable from normal tissue.



Tree dressings have been recently found to be cosmetic. They do not increase the healing of a properly cut surface. Asphaltic black tree dressings can be used on large basal cuts to make the tree "look better." However, any paint used to cover a wet wound or one from which sap is seeping may entrap disease or decay causing fungi so that healing is hampered rather than promoted. House paints will often kill live tree issue thus enlarging the wound.

Acknowledgment

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