Pruning Mature Trees

Understand the pruning needs of mature trees and the proper pruning techniques for their care.

Pruning is the most common tree maintenance procedure. Although forest trees grow quite well with only nature's pruning, landscape trees require a higher level of care to maintain their structural integrity and aesthetics. Pruning must be done with an understanding of tree biology. Improper pruning can create lasting damage or even shorten the tree's life.

Reasons for Pruning

Because each cut has the potential to change the growth of the tree, no branch should be removed without a reason. Common reasons for pruning are to remove dead branches, to improve form, and to reduce risk. Trees may also be pruned to increase light and air penetration to the inside of the tree's crown or to the landscape below. In most cases, mature trees are pruned as corrective or preventive measures.

Routine thinning does not necessarily improve the health of a tree. Trees produce a dense crown of leaves to manufacture the sugar used as energy for growth and development. Removal of foliage through pruning can reduce growth and stored energy reserves. Heavy pruning can be a significant health stress for the tree.

There are many outside considerations, however, that make it necessary to prune trees. Safety, clearance, and compatibility with other components of a landscape are all major concerns. Proper pruning, with an understanding of tree biology, can maintain good tree health and structure while enhancing the aesthetic and economic values of our landscapes.

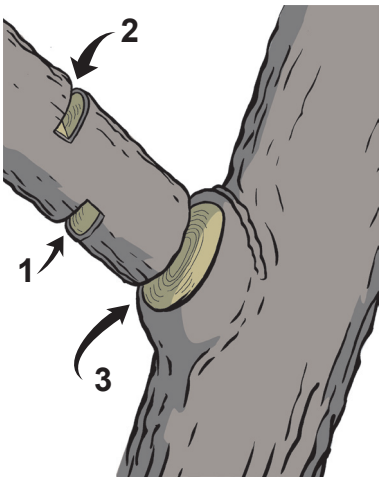
When to Prune

Most routine pruning to remove weak, diseased, or dead limbs can be accomplished at any time during the year with little effect on the tree. As a rule, growth and wound closure are maximized if pruning takes place before the spring growth flush. Some trees, such as maples and birches, tend to "bleed" if pruned early in the spring. It may be unsightly, but it is of little consequence to the tree.

A few tree diseases, such as oak wilt, can be spread when pruning wounds provide access to pathogens (disease-causing agents). Susceptible trees should not be pruned during active transmission periods.

Heavy pruning of live tissue just after the spring growth flush should be avoided, especially on weak trees. At that time, trees have just expended a great deal of energy to produce foliage and early shoot growth. Removal of a large percentage of foliage at that time can stress the tree.

Making Proper Pruning Cuts



Pruning cuts should be made just outside the branch collar. The branch collar contains trunk or parent branch tissue and should not be damaged or removed. If the trunk collar has grown out on a dead limb to be removed, make the cut just beyond the collar. Do not cut the collar.

If a large limb is to be removed, its weight should first be reduced. This is done by making an undercut about 12 to 18 inches (30 to 46 cm) from the limb's point of attachment. Make a second cut from the top, directly above or a few inches farther out on the limb. Doing so removes the limb, leaving the 12- to 18-inch (30- to 46-cm) stub. Remove the stub by cutting back to the branch collar. This technique reduces the possibility of tearing the bark.

Pruning Techniques

Specific types of pruning may be necessary to maintain a mature tree in a healthy, safe, and attractive condition.

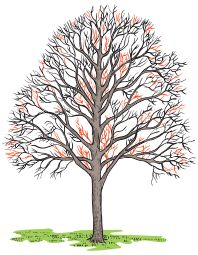
Cleaning is the removal of dead, dying, diseased, weakly attached, and low-vigor branches from the crown of a tree.

Thinning is selective branch removal to improve structure and to increase light penetration and air movement through the crown. Proper thinning opens the foliage of a tree, reduces weight on heavy limbs, and helps retain the tree's natural shape.

Raising removes the lower branches from a tree to provide clearance for buildings, vehicles, pedestrians, and vistas.

Reduction reduces the size of a tree, often for utility line clearance. Reducing a tree's height or spread is best accomplished by pruning back the leaders and branch terminals to secondary branches that are large enough to assume the terminal roles (at least one-third the diameter of the cut stem). Compared to topping, reduction helps maintain the form and structural integrity of the tree.

Before Pruning



After Pruning

How Much Should Be Pruned?

The amount of live tissue that should be removed depends on the tree's size, species, and age, as well as the pruning objectives. Younger trees tolerate the removal of a higher percentage of living tissue better than mature trees do. Generally, no more than 25% of the crown should be removed at once, and less for mature trees.

Removing even a single, large-diameter limb can result in significant canopy loss and can create a wound that the tree may not be able to close. Care should be taken to achieve pruning objectives while minimizing live branch loss and wound size.

Wound Dressings

Research has shown that dressings do not reduce decay or speed wound closure, and rarely prevent insect or disease infestations. Most experts recommend that wound dressings not be used.

Hiring an Arborist

Pruning large trees can be dangerous. If pruning involves working above the ground or using power equipment, it is best to hire a professional arborist. An arborist can determine the type of pruning necessary to improve the health, appearance, and safety of your trees. A professional arborist can also provide the services of a trained crew with the required safety equipment and liability insurance.

This brochure is one in a series published by the International Society of Arboriculture as part of its Consumer Information Program. You may have additional interest in the following titles currently in the series:

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