



Sustainable Urban Landscapes

Topping—Tree Care or Tree Abuse?

Large, mature trees may require pruning if they interfere with utility lines, block important views, grow too close to buildings, encroach on neighboring trees, or shade solar collectors.

Topping, also referred to as heading, stubbing, rounding, or dehorning, is the drastic removal or cutting back of large branches in mature trees, with little regard for location of the pruning cut (see cover photo). This practice was formerly thought to be a good way to reduce the height of trees considered too large for a particular site.

In addition, stimulation of new, vigorous growth associated with topping was viewed as beneficial to the tree. However, professional arborists and tree care practitioners now realize that topping can create a host of problems for trees and for people coexisting with them. **Proper early training, selective branch thinning, or entire tree removal should be favored over the detrimental practice of topping.**

Topping Is Harmful

Topping is injurious to trees in many ways. By removing a major portion of the canopy, the delicate balance between foliage and the remainder of the tree is upset. Through the process of photosynthesis, leaves manufacture chemical energy required by the tree for growth and maintenance of branches, trunk, and roots. With large portions of leaf surface area removed, a tree's energy-producing potential is severely reduced. Large reserves of stored energy in many stems and branches also are lost when trees are topped. These imbalances can lead directly to decline and death or can make the trees susceptible to invasion by canker and root rot diseases.

Bark suddenly exposed to the sun after topping often is damaged by sunscald, and may become diseased, further weakening the tree.

Large branch stubs that result from topping are open invitations to insects and wood-rotting pathogens (figure 1). In particular, opportunistic pathogens find the living, but virtually defenseless stub an inviting and plentiful source of food. Unable to receive substantial amounts of energy from other parts of the tree, stubs lack the capacity to wall-off or compartmentalize the wound, allowing decay-causing organisms easy access. Once



Figure 1. Large branch stubs invite insect and disease problems.

decay has entered the branch stub, it may progress into the main trunk (figure 2), eventually killing the tree and creating a hazardous situation for people. Coating large branch stubs with a wound dressing is ineffective in stopping the entry and spread of decay-causing organisms.



Figure 2. Decay beginning in branch stubs may spread into the main trunk.

Topped trees frequently produce vigorous regrowth, called water sprouts, just below the pruning wound (figure 3). These rapidly growing shoots can have very weak attachment to the remaining stub, making topped trees highly vulnerable to wind and ice damage. Regrowth resulting from topping also is very succulent and is generally more susceptible to attack from insects and certain disease-causing pathogens, particularly those responsible for fire blight. Certain species of beech, maple, and oak fail to produce any vigorous regrowth after topping. Without adequate foliage regrowth, these trees rapidly decline and die.



Figure 3. Weakly attached water sprouts form on topped trees.

Utility companies frequently practice topping to alleviate tree interference with overhead power and communication lines. However, a topped tree often will regrow to its original height faster and with greater density than a tree that has received proper pruning (figure 4). Because the results often are short-lived, topping actually is a more costly solution to the problem of interfering trees than crown reduction by thinning.



Figure 4. Topping is a costly and ineffective solution for this interfering tree.

Topping also disfigures the tree and ruins its aesthetic value in the landscape (figure 5). Topping replaces a tree's natural beauty and form with unsightly branch stubs, conspicuous pruning wounds, and a witch's-broom form of branch regrowth. Trees planted to provide lifetimes of pleasure and beauty are transformed into landscape liabilities.

Alternatives to Topping

Of course, many problems can be avoided if large-growing tree species are not planted where they will interfere with power lines, street lights, or buildings

(figure 6). Pruning properly-sited trees then becomes a matter of simply maintaining tree structure, form, health, and appearance (figure 7). In addition, there are many excellent smaller trees that work well in urban sites or anywhere potential obstructions exist.



Figure 5. Topping disfigures trees and lowers their value.



Figure 6. Do not plant large growing trees beneath power and communication lines.

When the size of a tree's crown must be reduced, thin out selected branches by removing them back to their point of origin, or prune to a side branch of sufficient size to assume dominance (figure 8). Crown reduction is preferred over topping because it results in a more natural appearance and increases the time before pruning is needed again by reducing growth of weakly attached water sprouts. Crown reduction, however, still results in large pruning wounds that may lead to decay in major branches. Therefore, the best solution is to

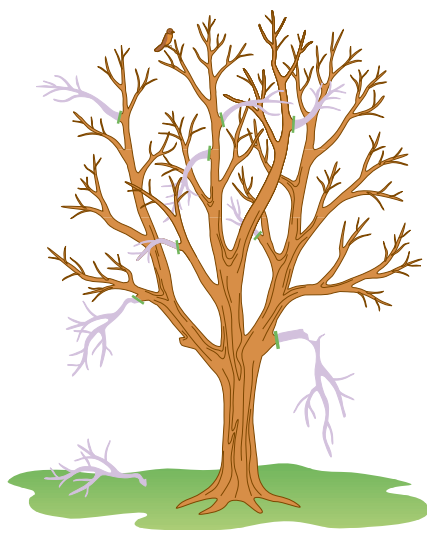


Figure 7. Trees properly sited only need pruning to maintain tree structure, form, health, and appearance.

remove the interfering tree and replace it with one that will fit within the given space.

The proper time to begin training a tree is when it is young. If because of poor tree placement, improper species selection, or improper early training, a large tree must be topped to reduce its size, removal would be the more practical solution.

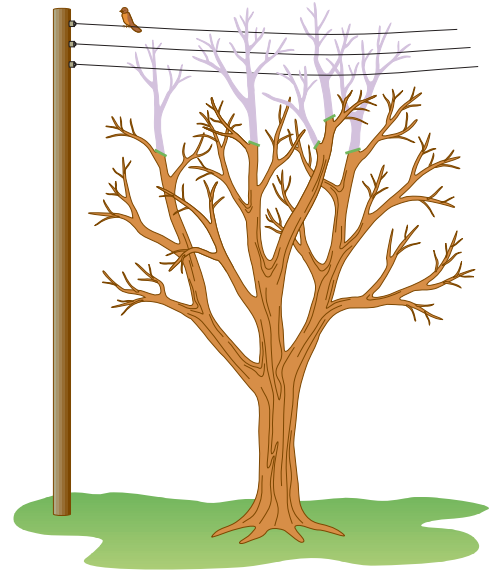


Figure 8. Crown reduction is preferred over topping.

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