



## TREE CITY USA<sup>®</sup> BULLETIN

# 8

No.  
Dr. James R. Fazio, Editor • \$3.00

# Don't Top Trees!

**T**ree topping is the senseless brutalizing of older trees. It brings about the uglification of America's urban forest, striking some communities like a plague.

Seeing trees that have been permanently desecrated by topping both angers and saddens me. I'm angered because it is so senseless and so destructive. I'm saddened because I know that people have spent good money to perform this mutilation, often with the best of intentions.

It's not that people who pay for trees to be topped aren't good people. They're just uninformed about the consequences of topping and about the better alternatives that are available to them.

Nationally, neither individuals nor communities are spending enough money on tree care. It just makes no sense to use the money that is being spent on a practice as detrimental as topping.

Jim Fazio has skillfully described the reasons you should not top trees, and the available alternatives, in this very important *Bulletin* edition.

I hope you will be relieved of the slightest temptation to top trees on your property, and that you will lend strong support to ending the topping of trees in your community.

John Rosenow, Chief Executive  
Arbor Day Foundation



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100 Arbor Avenue • Nebraska City, NE 68410

# What is Topping?

The sight of topped trees is all too common in the communities and along the roadways of America—trunks with stubby limbs standing naked in the landscape, trees stripped of all dignity and grace. To one who loves trees, the sight usually evokes anger and disgust.

As more is learned about the long-term effects of tree topping, the more senseless this practice becomes. It is more than an assault on beauty, it is unnecessary stress and increased risk to the tree's health. It is also a self-defeating exercise usually not worth the expense, and the results pose a danger from rot and weakly attached re-growth. In short, as one arborist said, "Topping is the absolute worst thing you can do for the health of your tree."

Trees are often topped because they grow into utility wires, interfere with views or solar collectors, or simply grow so large that they worry the landowner. Some people — having seen trees topped in a park or other public place under the care of an "expert" — top their trees because of a mistaken impression that the practice is good for trees, especially because of the obvious flush of new growth that follows. Topping is also a result of irreputable "tree experts" knocking on doors and convincing the homeowner that for safety reasons, the job should be done. Their services are then offered — quick 'n cheap.



David Raak, University of Idaho



James R. Fazio



Susan A. Stone

# Topping vs. Pruning

When a decision is made to reduce the size of an older tree, it can be topped, or it can be pruned properly. Although the speed and nature of regrowth will depend on species and local factors, any comparison of irresponsible topping vs. competent pruning will be dramatic.

## Topping



**Year 1**

The topped tree is an ugly stub and a remnant of a once lovely tree. If pruned properly, size is reduced but form and beauty are retained.



**Year 3**

Vigorous sprouts have sprung out of the topped tree in large numbers and are growing with abnormal rapidity. The pruned tree adds growth more slowly and distributes it more normally.



## Pruning



# Why *NOT* to “Top” — Eight Good Reasons

**1 STARVATION:** Good pruning practices rarely remove more than 1/4 to 1/3 of the crown, which in turn does not seriously interfere with the ability of a tree’s leafy crown to manufacture food. Topping removes so much of the crown that it upsets an older tree’s well-developed crown-to-root ratio and temporarily cuts off its food-making ability.

**2 SHOCK:** A tree’s crown is like an umbrella that shields much of the tree from the direct rays of the sun. By suddenly removing this protection, the remaining bark tissue is so exposed that scalding may result. There may also be a dramatic effect on neighboring trees and shrubs. If these thrive in shade and the shade is removed, poor health or death may result.

**3 INSECTS AND DISEASE:** The large stubs of a topped tree have a difficult time forming callus. The terminal location of these cuts, as well as their large diameter, prevent the tree’s chemically based natural defense system from doing its job. The stubs are highly vulnerable to insect invasion and the spores of decay fungi. If decay is already present in the limb, opening the limb will speed the spread of the disease.

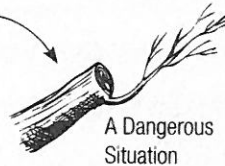
**4 WEAK LIMBS:** At best, the wood of a new limb that sprouts after a larger limb is truncated is more weakly attached than a limb that develops more normally. If rot exists or develops at the severed end of the limb, the weight of the sprout makes a bad situation even worse.

**5 RAPID NEW GROWTH:** The goal of topping is usually to control the height and spread of a tree. Actually, it has just the opposite effect. The resulting sprouts (often called water sprouts) are far more numerous than normal new growth and they elongate so rapidly that the tree returns to its original height in a very short time—and with a far more dense and dangerous crown.

**6 TREE DEATH:** Some species of trees are less tolerant to topping than others. Beeches, for example, do not sprout readily after severe pruning and the reduced foliage most surely will lead to death of the tree.

**7 UGLINESS:** A topped tree is a disfigured tree. Even with its regrowth it never regains the grace and character of its species. The landscape and the community are robbed of a valuable asset.

**8 COST:** To a worker with a saw, topping a tree is much easier than applying the skill and judgment needed for good pruning. Therefore, topping may cost less in the short run. However, the true costs of topping are hidden. These include: reduced property value, the expense of removal and replacement if the tree dies, the loss of other trees and shrubs if they succumb to changed light conditions, the risk of liability from weakened branches, and increased future maintenance.



Year 6

In a relatively short time, the topped tree is as tall—and far bushier and more dangerous—than it was to begin with. The properly pruned tree is safer, more beautiful, and its size better controlled.



## Topping by Any Other Name Is Just as Ugly

Sometimes pseudo tree experts use different terms for the malpractice of topping. Here is a rogues’ gallery of synonyms:

- Stubbing
- Heading
- Heading-back
- Stubbing-off
- Tipping
- Hatracking
- Topping-off
- Dehorning
- Lopping
- Roundover



# Alternatives To Topping

There are times when the size and shape of a shade tree need to be controlled. With care and skill, this can be accomplished without marring the tree's beauty or usefulness. Responsible pruning even contributes to the health and safety of a tree.

As alternatives to topping, some general principles are:

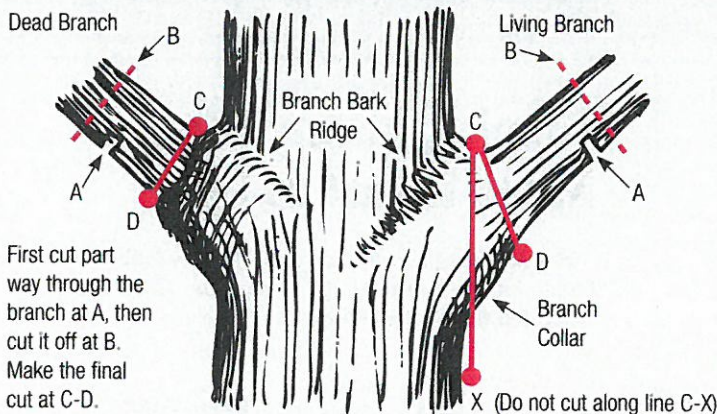
- ✓ Start out right by planting trees that will fit your available space *when they reach maturity*. See *Tree City USA Bulletin No. 4*, "The Right Tree for the Right Place."
- ✓ Begin proper pruning early in the life of a tree. See *Tree City USA Bulletin No. 1*, "How to Prune Young Shade Trees."
- ✓ To slow the growth of a tree; avoid the use of nitrogen fertilizer.
- ✓ Prune properly and regularly. A light pruning every three years will keep your tree in healthy condition. It will also have less drastic effects on both the landscape and your financial assets compared with neglecting older trees or resorting to topping.



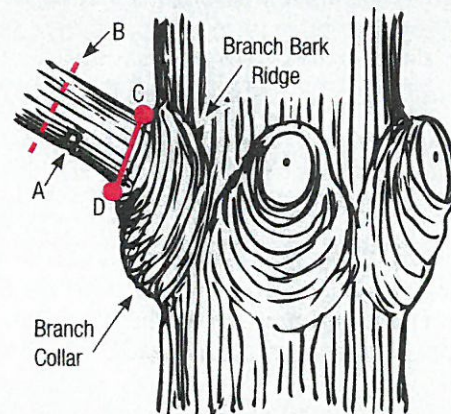
James R. Fazio

*Careful planning at planting time is the best way to reduce the need later to control size or shape of a tree. Placing utilities underground and planting the right species in the right place will allow trees to retain their natural form and beautify landscapes along streets and in parking lots.*

## Proper Pruning Principles



**HARDWOODS**



**CONIFERS**

Thanks largely to the work of the late Dr. Alex L. Shigo and other scientists at the USDA Forest Service's Northeastern Forest Experiment Station in Durham, New Hampshire, much is now understood about a tree's natural system of defense against infections from wounds. Based on this knowledge, these methods of making

pruning cuts are recommended to help work *with* rather than against a tree's natural tendency to wall off injured tissues and prevent the spread of decay. In these illustrations, final cuts should be made from points C to D. Do *not* cut along the C-X line, which is simply an imaginary vertical line to help you locate C-D.



# Reducing the Height of a Large Tree

There are sometimes legitimate reasons to reduce the size of a large tree. This can usually be accomplished through a pruning method called *crown reduction* rather than by topping.

The tallest branches are cut back to a large-diameter secondary branch so that a leader remains.

Perimeter limbs are pruned where they join large-diameter side branches.

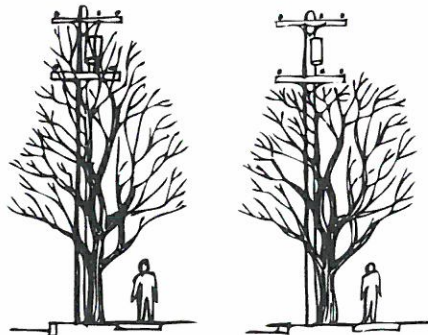
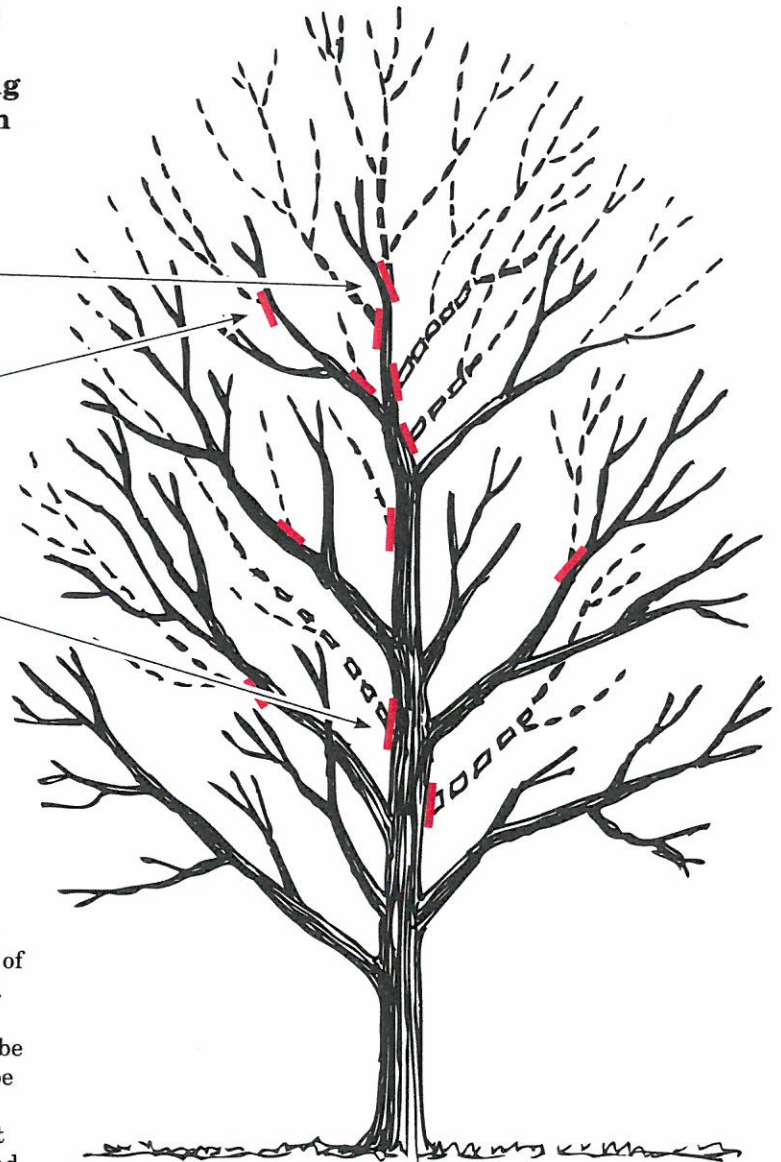
Some branches may be cut off back to the main trunk.

Arborists have different terms for pruning operations, usually based on the purpose for pruning and diameter of the limbs to be cut. These go by such names as hazard reduction pruning, crown raising (removal of lower limbs), crown cleaning, and others. A good reference on the technicalities of pruning is Richard W. Harris' *Arboriculture* (Prentice-Hall, Inc., Englewood Cliffs, NJ 07632). For standardized definitions, obtain copies of the *Glossary of Arboriculture Terms and Tree, Shrub and Other Woody Plant Maintenance — Standard Practice* (ANSI A300) from the International Society of Arboriculture (see quick link at [arborday.org/bulletins](http://arborday.org/bulletins)).

As an alternative to topping, the technique of most importance is one called crown reduction. The results can be most amazing. When done correctly, crown reduction can be like a good haircut — virtually unnoticeable.

Crown reduction is a "thinning cut" that reduces height and spread without resulting in stubs and creating the kind of problems associated with topping. Rather than the ends of branches simply being lopped off, or truncated, selected limbs forming the perimeter of the tree are pruned at their junction with side branches that are at least 1/3 the diameter of the branch being removed. In this way, the remaining limbs can take over as the new leaders. This prevents or reduces latent buds from sprouting into the bushy growth that results from lopping off branch ends. For even more assurance against sprouting, large cuts can be treated with naphthaleneacetic acid (NAA), but this should be applied only by or with the advice of an arborist.

With care, crown reduction can be achieved while at the same time retaining the species' natural form. At other times, this method may be modified to allow utility lines to pass through while sparing the tree from removal.



## Crown Reduction

An example of crown reduction to control tree growth beneath utility lines.



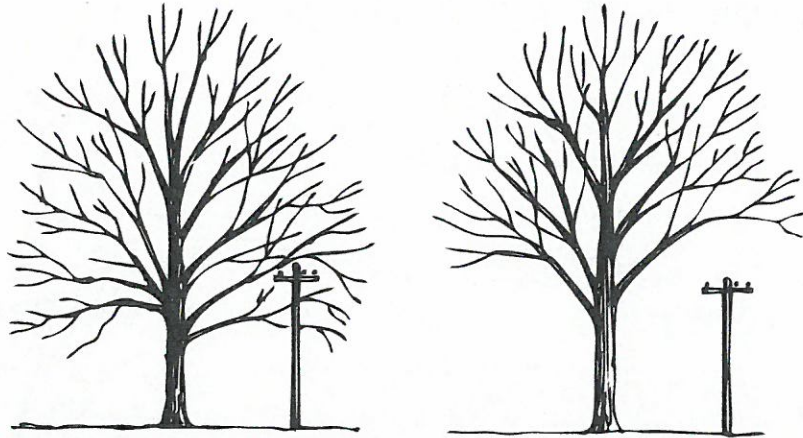
# How an Urban Forestry Program Can

An active community forestry program can be the strongest line of defense against the defacement of trees by topping.

## Working with Utility Companies

A major challenge of urban forestry is working with utility companies to help keep overhead wires safe from tree damage while at the same time assuring that street trees are not mutilated by topping. Fortunately, this problem is diminishing as increasing numbers of companies assign tree trimming to trained arborists, many of whom are members of professional groups such as the Utility Arborist Association. Workers who are not members should be encouraged to join and can do so by visiting [www.utilityarborist.org](http://www.utilityarborist.org).

In utility line maintenance, modifications of crown reduction pruning can be used as an alternative to topping or making a tree lopsided to keep it away from wires.



UNDER PRUNING

*Under pruning* is a technique that in some areas can be used on large, structurally sound trees. In this case, the lower branches are removed that may interfere with utility lines. To preserve the tree's symmetry, lower limbs on the opposite side of the tree might also be removed. Additional pruning to remove dead wood or weak limbs will help keep the tree healthy and less likely to drop limbs during a storm. However, depending on species, climate and locale, branches overhanging utility lines may not be allowed and side pruning will need to be used instead.



SIDE PRUNING

*Side pruning* is sometimes used when a tree is located close beside transmission lines. Limbs are removed that extend toward a pole or the wires. As with under pruning, selective pruning on the opposite side of the tree can sometimes prevent or reduce a lopsided appearance.

In all cases, the crown reduction technique of cutting at limb junctions will allow limbs to be removed without harmful, hedge-like truncations.

### Shigo's 90-3-90 Rule:

90%  
of the time

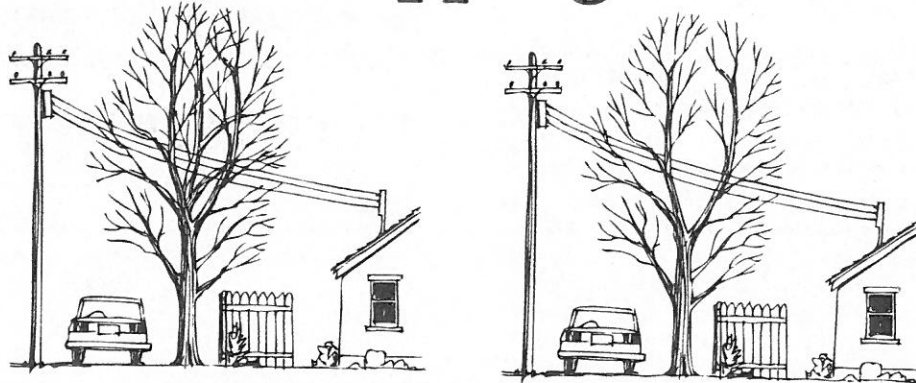
3  
branches can be  
removed to provide

90%  
of the clearance.

# Put an End to Topping



TREE CITY USA



## THROUGH PRUNING

*Through pruning*, sometimes referred to as creating a *doughnut hole*, is an alternative to topping when trees that have been planted beneath wires grow too large. Although not appropriate around high voltage lines because of the dangers involved, this can be useful around secondary lines or those leading into individual houses or buildings. With care and the use of drop-crotch principles, inner limbs can be removed without creating a highly noticeable tunnel appearance.

At times, due to prior topping or extremely bad placement under wires, it is best to remove a tree and replace it with a more suitable tree. In some communities utility companies offer free replacement. For more information about planting the right tree in the right place, see *Bulletin No. 4*.

## Education

To stop topping throughout the United States, education is needed in four ways:

1. Homeowners who do their own pruning need to understand the principles presented in this bulletin.
2. Property owners who hire an arborist must be aware enough of proper practices to insist that work on their trees be done without topping. Most responsible arborists will not include "topping" in their ads and some even refuse to perform this practice if requested by the tree owner.
3. Citizens need to understand that topping or "rounding" trees are not in the best interests of tree health so that they do not request utility arborists to perform these practices.
4. Utilities and tree care companies must routinely train workers in the proper ways to prune shade trees.

## Growth Award

While working to eliminate topping, communities can also earn points necessary for the Tree City USA Growth Award. Suggested activities include:

- B2. Forming a utility partnership.
- C8. Improving the city tree ordinance.

## Ordinances

When education and voluntary action fail to stop tree topping, some communities decide to take the most serious form of action. In this case, tree topping is outright prohibited or closely controlled through the use of a municipal ordinance. Usually this is part of a broader tree ordinance, the subject of a future issue of *Tree City USA Bulletin*.

Here is an example of an applicable section taken from a model ordinance developed by Kansas State University's Forestry Extension.

### SECTION XIII

#### Tree Topping

It shall be unlawful as a normal practice for any person, firm, or city department to top any street tree, park tree, or other tree on public property. Topping is defined as the severe cutting back of limbs to stubs larger than three inches in diameter within the tree's crown to such a degree so as to remove the normal canopy and disfigure the tree. Trees severely damaged by storms or other causes, or certain trees under utility wires or other obstructions where other pruning practices are impractical may be exempted from this ordinance at the determination of the City Tree Board.

- D2. Improving maintenance by public utilities.
- D7. Developing a special program to eliminate destructive practices.