

PROPER PRUNING RESPECTS TREES

If you prune properly, the tree can readily cope with the injury.
If you prune improperly, you threaten the tree's health.

by Alex Shigo, Ph.D., Shigo & Trees, Associates



Two samples from the same red oak tree that had branches of the same size and age cut off six years earlier. The improper cut (left) had large ribs of woundwood and a large column of rot. No rot developed after the proper cut.

Proper pruning respects tree beauty and dignity, and helps maintain tree defense systems. Improper pruning, on the other hand, destroys beauty, dignity and defense systems.

Proper tree care starts with an understanding of how trees grow and defend themselves. Pruning is one of the beneficial tree practices. But too often, people think that because trees are so big and tough, you can prune them in any way and treat them in any way and they will continue to defend themselves.

We are seeing now that this is not so. There are limits to what a tree will endure.

Proper pruning is the removal of living, dying and dead parts of trees to benefit them. Pruning removes branches that could result in large wounds if they fell. It also corrects defective form that could result in branch failure.

It is time for some changes in the ways we treat trees. Decisions must be made on the basis of an understanding of tree biology. And, most importantly, changes must be made to seven tree pruning practices that cause serious injury.

1. Know the size and shape of the tree you want.
2. Do not flush cut.
3. Do not leave living or dead stubs.
4. Do not wait to top and tip large trees.
5. Do not over-prune.
6. If pollarding, start with a tree that lends itself to the practice.
7. Do not apply wound dressings over rotted or infected wood.

What you want

Besides knowing the size and shape of the tree you want, you also must know your planting site, and select trees that will grow best there.

Decide what kind of trees you want: tall, small, weeping, fruit-bearing.

ing, etc. Then learn what kind of site you have: wet, dry, acid, alkaline, clay, sand, etc.

When planting trees, keep these hints in mind:

- Plant at the depth the tree grew in the nursery.

- Do not fertilize until the tree is established.

- Water properly; too little or too much is harmful.

- Keep grass and annuals away from the new tree.

- Add amendments if soil structure is poor, but do not over-amend the soil.

- Do not wrap trunks or accept trees with wrapped trunks.

- Do not accept trees with flush cuts and wound dressing.

- Know the light requirements of your trees.

- Prepare a planting site, not just a small hole.

- Loosen the soil deep and far beyond the crown dripline.

- Remove only dead and dying branches and roots.

- Support, but not so rigidly that the tree cannot move.

No flush cuts

Pruning a branch by cutting it flush

with the trunk or branch it arises from forces the tree to sacrifice large reserves of energy and considerable amounts of wood. Unfortunately, some tree care professionals and many books on pruning still advocate making flush pruning cuts.

Flush cuts and wound dressings stimulate large callus that rolls inward and prevents wound closure. Flush cuts start more than 14 serious tree problems.

Over-pruning causes weakening of roots and promotes root diseases.

Make pruning cuts as close as possible to the collar at the branch base, but do not injure or remove the collar.

Food stubs

Living or dead stubs are food for organisms that start rot and cankers.

Trees do not heal as people do, by regenerating damaged tissues. Instead, they sacrifice injured wood to protect the healthy. In the vicinity of a

wound, trees activate storage cells. The cells convert their stores into compounds that coalesce around the wound and form boundaries that restrict the spread of diseases and insects. The isolated wound dies, but the rest of the tree lives on.

The best way to treat wounds is to prevent them in the first place. Wounds can be made by wire in hose bracing, lawn mowers and string trimmers.

If bracing is needed, use broad, belt-like strapping that will not cut into the bark. The tree should be able to sway slightly. Remove bracing after the tree is firm in the soil, one or two years at the most. Do not use wire in a hose!

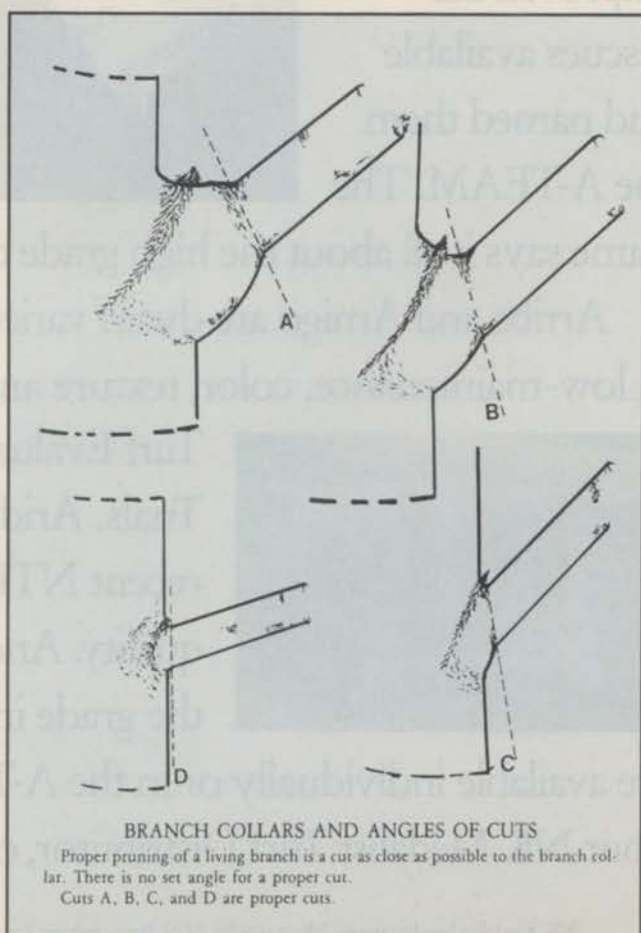
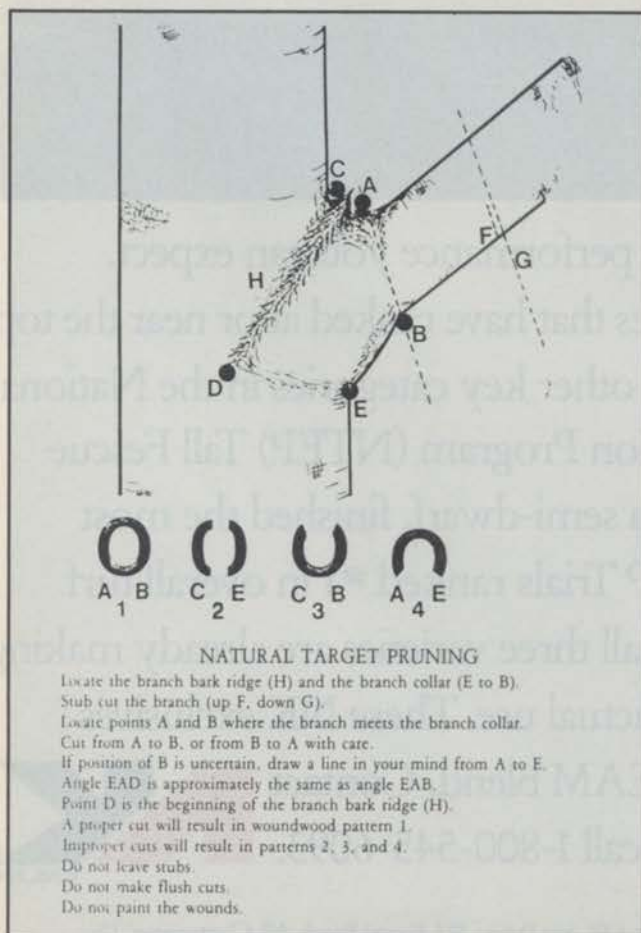
Tipping

Topping or tipping causes serious injuries to large trees and leads to hazardous conditions. Proper early pruning can regulate tree height and make later topping unnecessary.

If you think your mature tree needs topping, maybe you need a new tree, especially if it is under a power line.

So do not plant trees under power lines, or plant only small-maturing species, or start pruning when the trees are small.

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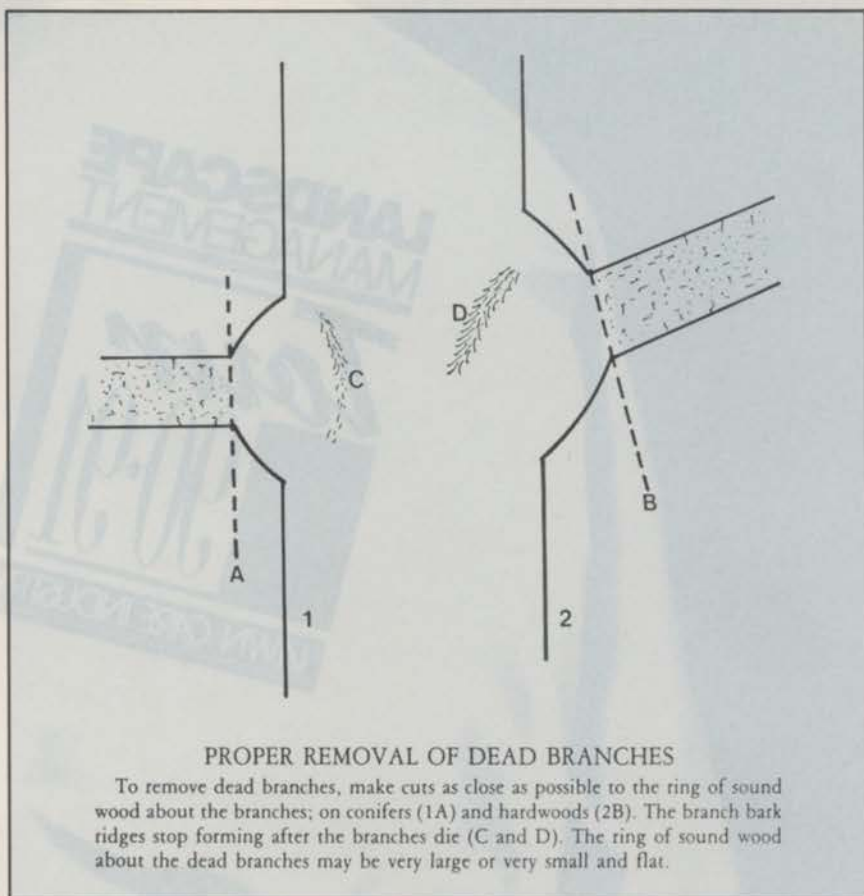
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PROPER REMOVAL OF DEAD BRANCHES

To remove dead branches, make cuts as close as possible to the ring of sound wood about the branches; on conifers (1A) and hardwoods (2B). The branch bark ridges stop forming after the branches die (C and D). The ring of sound wood about the dead branches may be very large or very small and flat.

Pruning and pollarding

Over-pruning causes weakening of roots and promotes root diseases. Over-pruning will also allow excessive sprouting and infestation of boring insects.

If pollarding, establish the desired framework when the tree is young and small. Remove sprouts every year, and do not injure the pollard heads.

Applying dressings

Remember that dressings do not stop rot. Trees respond to wounds by forming boundaries. Boundaries defend the liquid transport, energy storage and mechanical support systems. Boundaries resist spread of pathogens into wood. After wounding, trees form another boundary that separates infected wood from healthy wood that continues to form.

Sometimes tree wounds stimulate the growth of woundwood, which may roll inward to form a "rams horn" and prevent closure. To treat wounds properly:

- Remove injured bark and wood.
- Do not enlarge the wound or break boundaries. Do not clean cavities deep into sound wood. Do not insert pipes to drain water from cavities.
- Do not point the vertical tips.

● Do not paint the wounds.

We are responsible for trees. As Saint-Exupery has written: "You become responsible, forever, for what you have tamed." **LM**



Since retiring from the U.S. Forest Service in 1985, Dr. Shigo has made a career of educating people about trees. His books and brochures are available from his headquarters at 4 Denbow Rd., Durham, NH 03824; phone (603) 868-7459.