Pruning Landscape Trees – Key Concepts and Recommendations

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1. **Valid Reasons for Pruning**: Establish good structure and maintain tree health; reduce hazard risks and improve safety; provide pedestrian or roadside clearance; influence flower or fruit production; improve views; improve aesthetics (within reason).

2. **Prune Carefully**: Pruning should be done with careful forethought since it creates open wounds and reduces a tree's ability to produce food and store energy. Where space allows, low branches can be retained on some trees. This is especially important for evergreens and windbreak trees. Remember that **branches can't be put back on**.

3. **Structural Pruning Objectives**:
    a. **Remove broken**, dead, damaged, or crossing branches.
    b. For most tall-growing species, **try to maintain a single dominant leader** at least 20' into the canopy by removing or subordinating codominant stems. (There are species exceptions)
    c. Plan to **space the main scaffold branches** at least 18" apart on the main trunk.
    d. Anticipate future form by training and **pruning early** to avoid cutting large branches later.
    e. **Anticipate eventual height** of the lowest main scaffold limbs for site objectives, such as visibility and clearance over roads and sidewalks.
    f. **Retain low branches** of young trees until the tree is well-established. Low branches help the tree produce food and aid in developing good trunk taper and strength. If necessary, low branches can be subordinated until eventual removal.
    g. In general, **prune branches when they're small** and try to prevent temporary branches from growing larger than 3" in diameter. Also, try to keep all branches from growing larger than ½ the trunk diameter by shortening them.
    h. Try to maintain **a live crown ratio of greater than 60%** if possible.

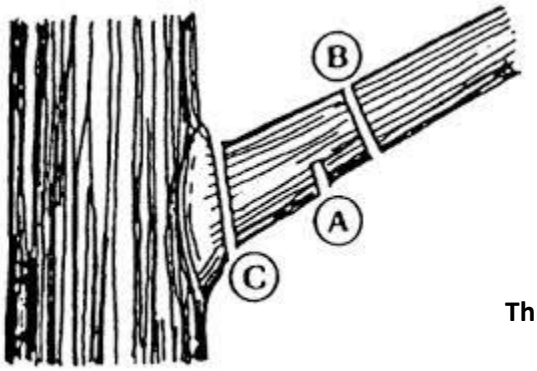
4. **Central leader**, **Codominant Stems, and Included Bark:** For most tall-growing shade trees, try to maintain a dominant central leader as high into the canopy as possible while removing problematic codominant stems. **Included bark,** or bark that turns in on itself, often forms in the junctions of codominant stems. Structural branch attachments with included bark should be addressed.

5. **Natural Growth Habit:** A tree's natural growth habit and branching pattern is important. Upright growing trees like some oaks or lindens will be pruned differently than rounded species like bur oak or honey locust. Also, it's hard to maintain a single central leader in some odd-branching species such as freeman maple, river birch, beech, coffeetree, zelkova, and yellowwood among others.

6. **Branch Bark Ridge & Branch Collar**: Structural pruning cuts should be made just outside the branch bark ridge and branch collar. Don't cut into the branch collar or wound closure will be compromised.

7. **Types of Cuts:**
    a. **A removal cut (or regular cut)** is cutting a smaller branch back to a parent branch or trunk.
    b. **A reduction cut** shortens a branch by cutting it back to a smaller lateral branch.
    c. **Subordination** is the reduction of competing leaders or stems.
    d. **Heading back** is cutting to a stub, bud, or very small branch. Heading cuts are generally not recommended except for the subordination of temporary branches or if better cuts could not be made, such as after storm damage.

8. **Prevent Branch Ripping.** For small branches, hold the branch with a free hand while sawing. For heavier branches, use the "**Three-Cut Method**" to prevent ripping of bark along trunk. The first cut (A) is the undercut, the second cut (B) removes the branch outside of the undercut, and the final cut (C) removes the stub.



Three-Cut Method for Branch Removal

9. **Wound Compartmentalizing and Wound Paints**: The pruning wound of a tree never "heals" like human flesh does. Instead, trees compartmentalize wounds and grow new tissues over and around the wounds to try and prevent the spread of decay into the tree. **Wound covers** are generally not recommended since research shows that pruning wounds close over faster when not covered in tar, paint, or dressings. One exception is when pruning oaks with the threat of oak wilt in the spring.

10. **Timing:** Light pruning can be done about anytime. For heavier pruning, **late winter and early spring are better** in aiding wound closure. For red oaks where oak wilt is a concern, and for American elms where Dutch Elm Disease is a concern, pruning should be avoided in the spring and early summer when the diseases are most active.

11. **Dose/Amount:** Try not to remove more than 30% of a tree's canopy at any one time, However, this is not a hard rule or one based on research. Some species such as elm or silver maple can be pruned in larger doses if needed. Generally, prune trees aggressively for good structure when young when the wounds will be small with less chance for decay. Prune mature trees primarily for load reduction and hazard mitigation.

12. **Topping** is the drastic removal, or heading back, of large branches in mature trees, leaving large, open wounds subject to disease and decay. **Topping should always be avoided!**

13. **Crown thinning** and **lion tailing** (removing interior branches to leave tufts or "lion tails" at the ends of branches) change wind load dynamics, making trees more prone to storm damage. These are bad practices and should be avoided.

14. **Pruning Tools**: Use sharp, easy-to-handle and appropriate tools that are well maintained. High quality hand saws and pole pruners are good for most young tree pruning. Use bypass pruners instead of anvil pruners. Don't use chainsaws for pruning unless a lot of large-branch removal is warranted. Chainsaws are a better tool for tree removal.

Resources:

- Dr. Ed Gilman, University of Florida – General Pruning, including "Pruning Shade Trees": http://hort.ufl.edu/woody/pruning.shtml
- Trees Are Good, Pruning Young Trees: https://www.treesaregood.org/Portals/0/TreesAreGood_Pruning%20Young%20Trees_0621.pdf