Structural Pruning

By: Steve Nimz
Consulting Arborist

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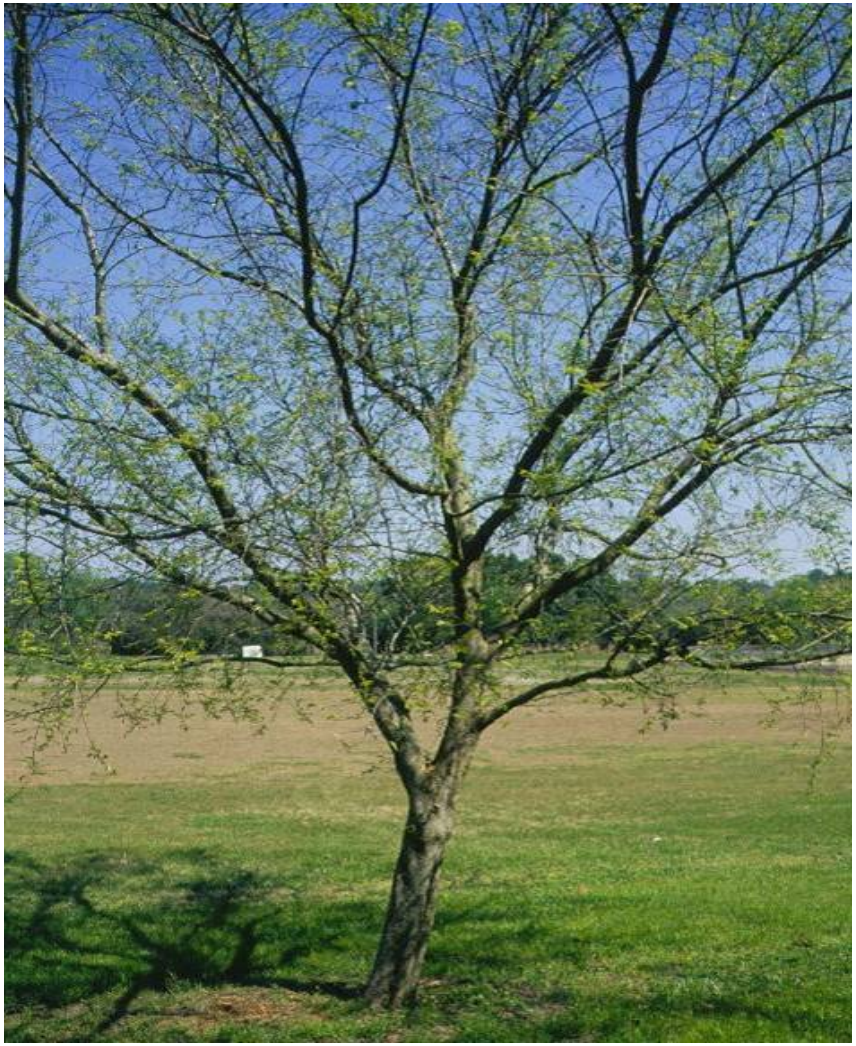
When is the best time to begin structural pruning?

- A young tree is 100% dynamic mass, this is the best time to begin structural pruning.



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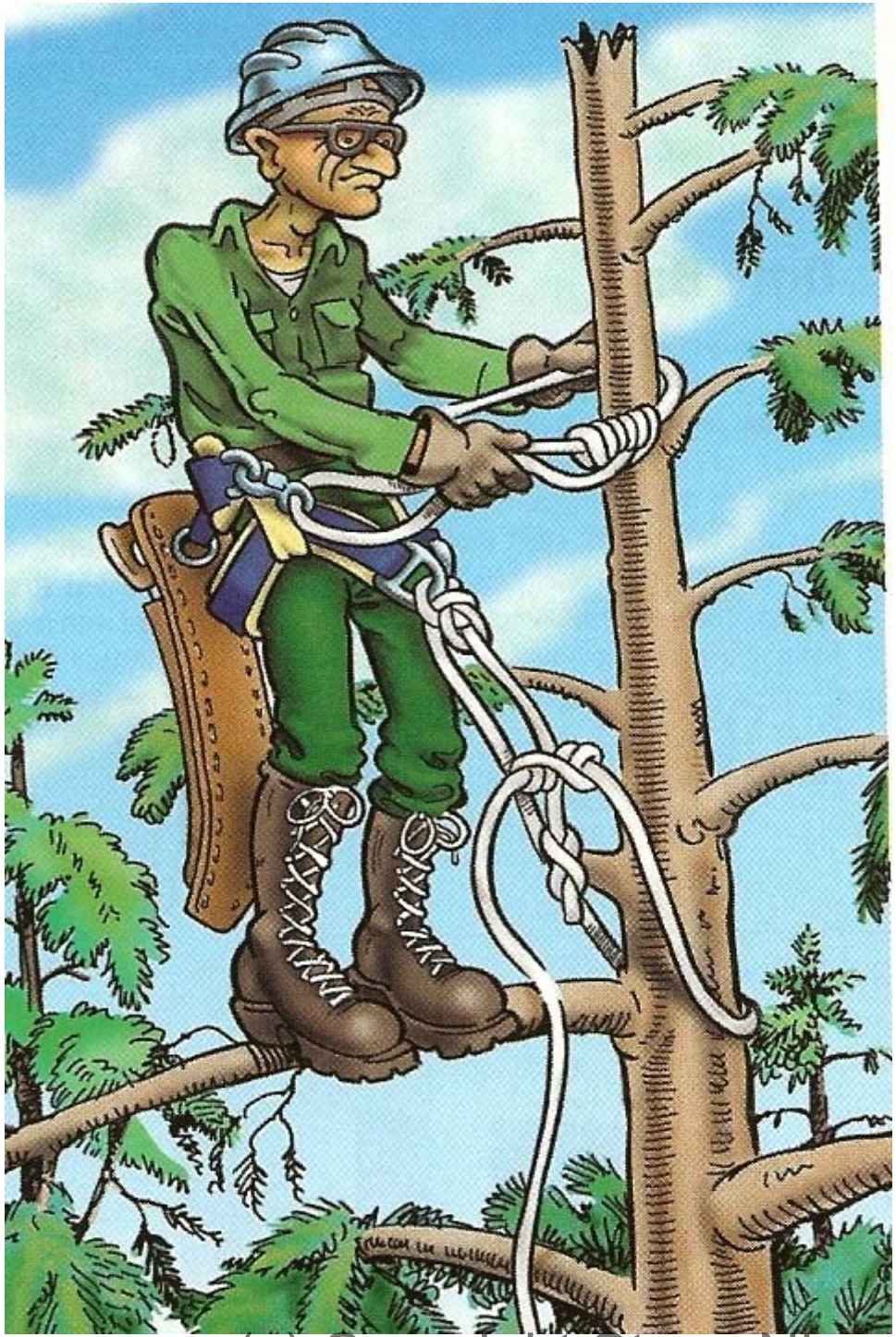
- Before you *Jump* in, lets stand back and *Think* about what we are about to do.



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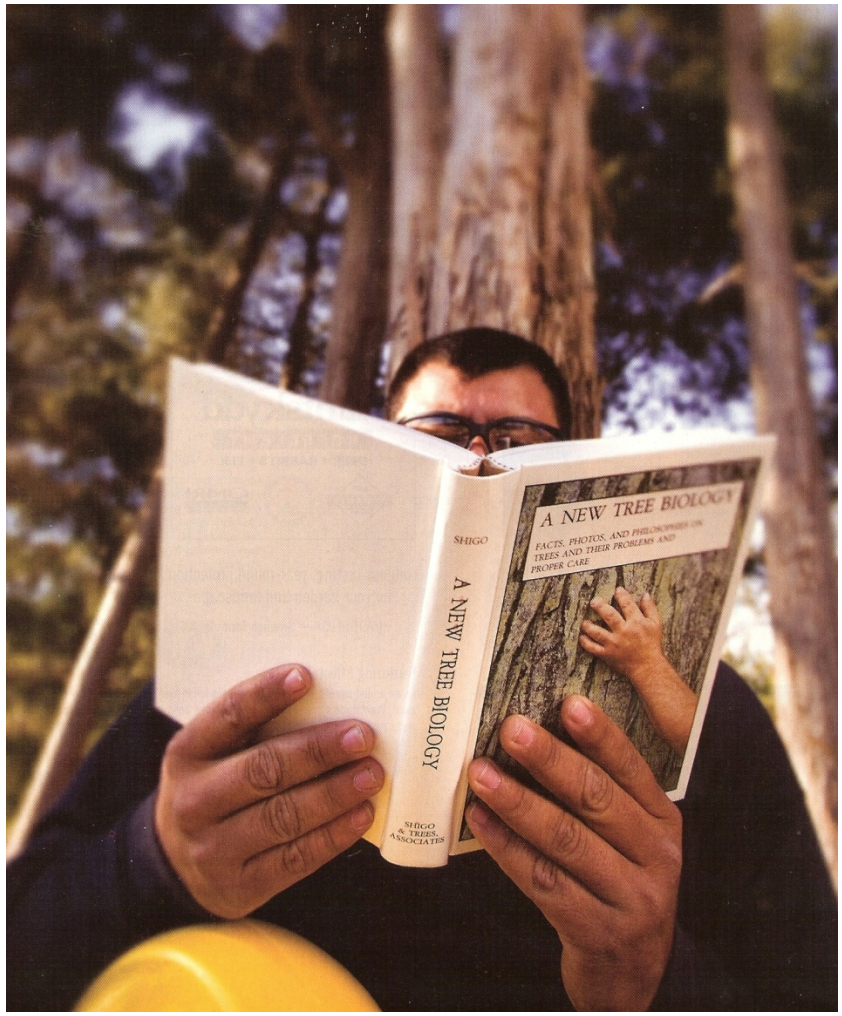
Pruning will always be a controversial subject, there are many variables:

- How much to prune
- When to prune
- How often to prune
- How to prune for structure, fruit, privacy, shade, sun, clearance, etc.
- When to prune to kill a tree



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The answer is simple. Learn how trees are constructed, how they function and how they defend themselves. Know their natural growth patterns and rates for foliage and roots, tolerance to pruning, best growth environment etc.

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Pruning brings together Science, Art and Common Sense.

- Science gives us the proper knowledge about how trees are constructed and proper pruning technology (tree biology)

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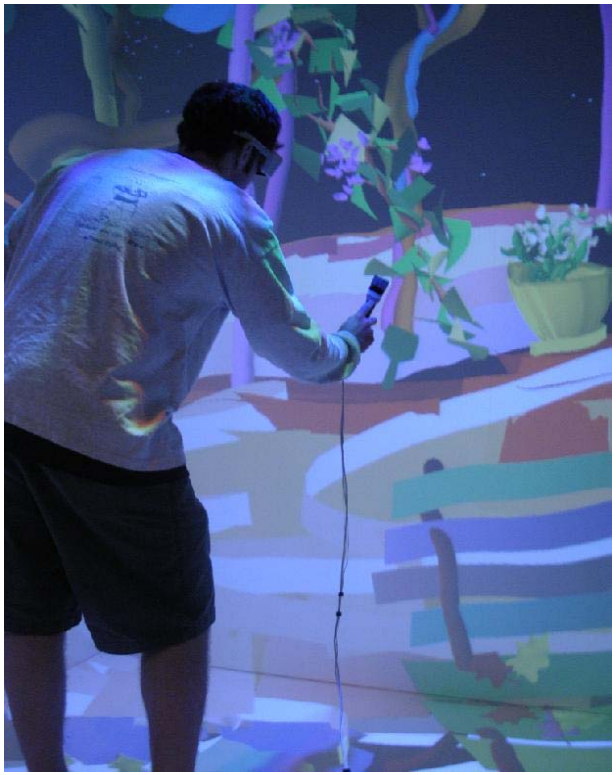
- Artistic skill brings the desired results



- It takes more than a chainsaw to properly structurally prune a tree.

  Similar to the other artists, each piece is different.

  We're not flipping hamburgers.

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- **Common sense is the judgment call in doing pruning, remembering the results (document), and repeating what is correct and is best for the tree.**

- **The responsibility of a professional Arborist is to give trees as much high quality care and time as possible.**

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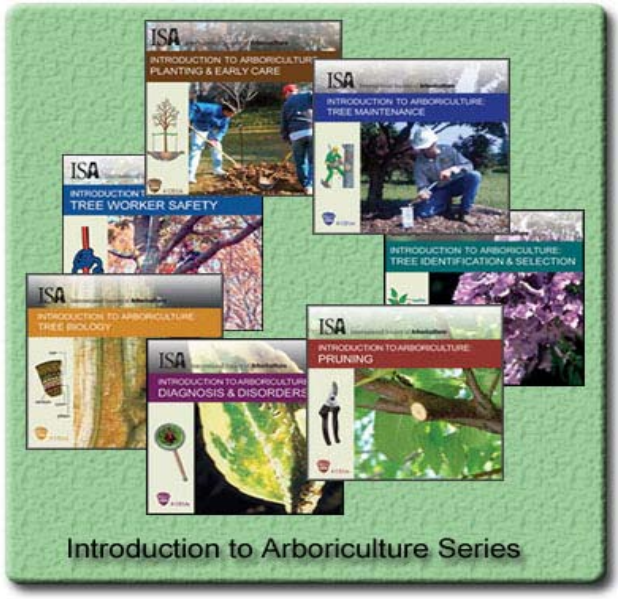
There will be no Recipes today,
Recipes make Robots
(we are not baking a cake)

Use Guidelines and Terminology to direct you in making the right decision.



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Pruning young trees is similar yet different in several ways compared to what we as Arborist deal with daily on mature trees.

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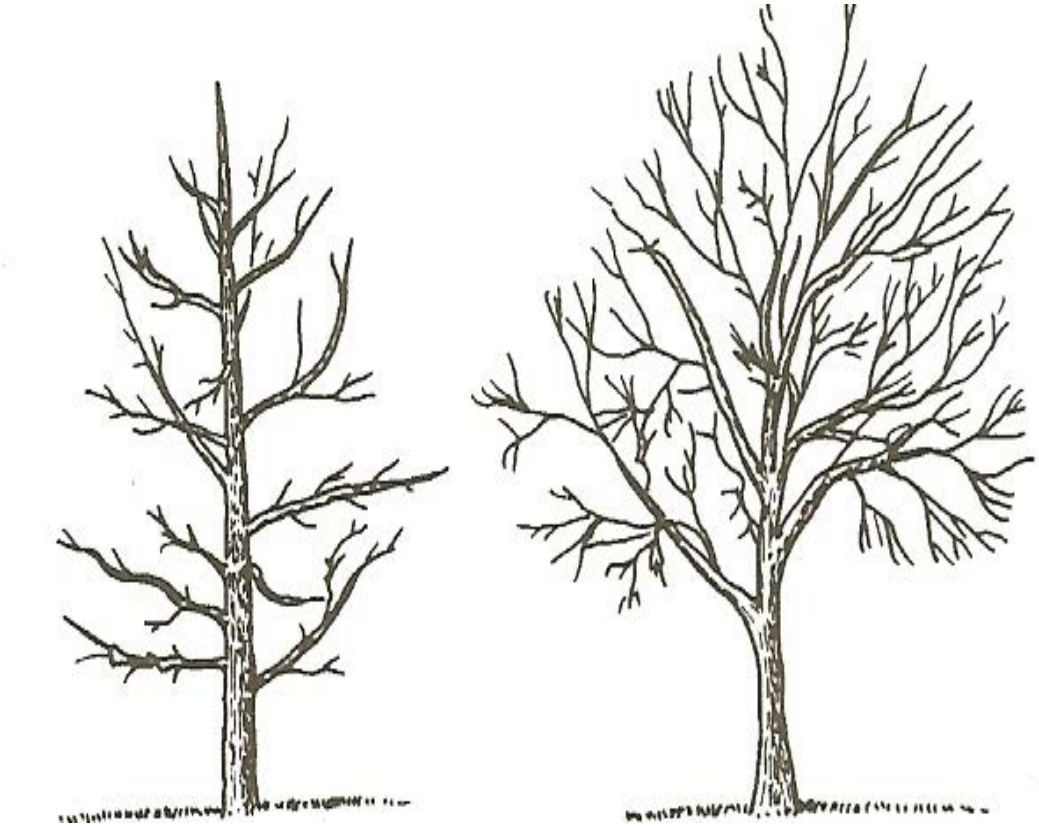
Understanding different pruning procedures for ex current and de current trees



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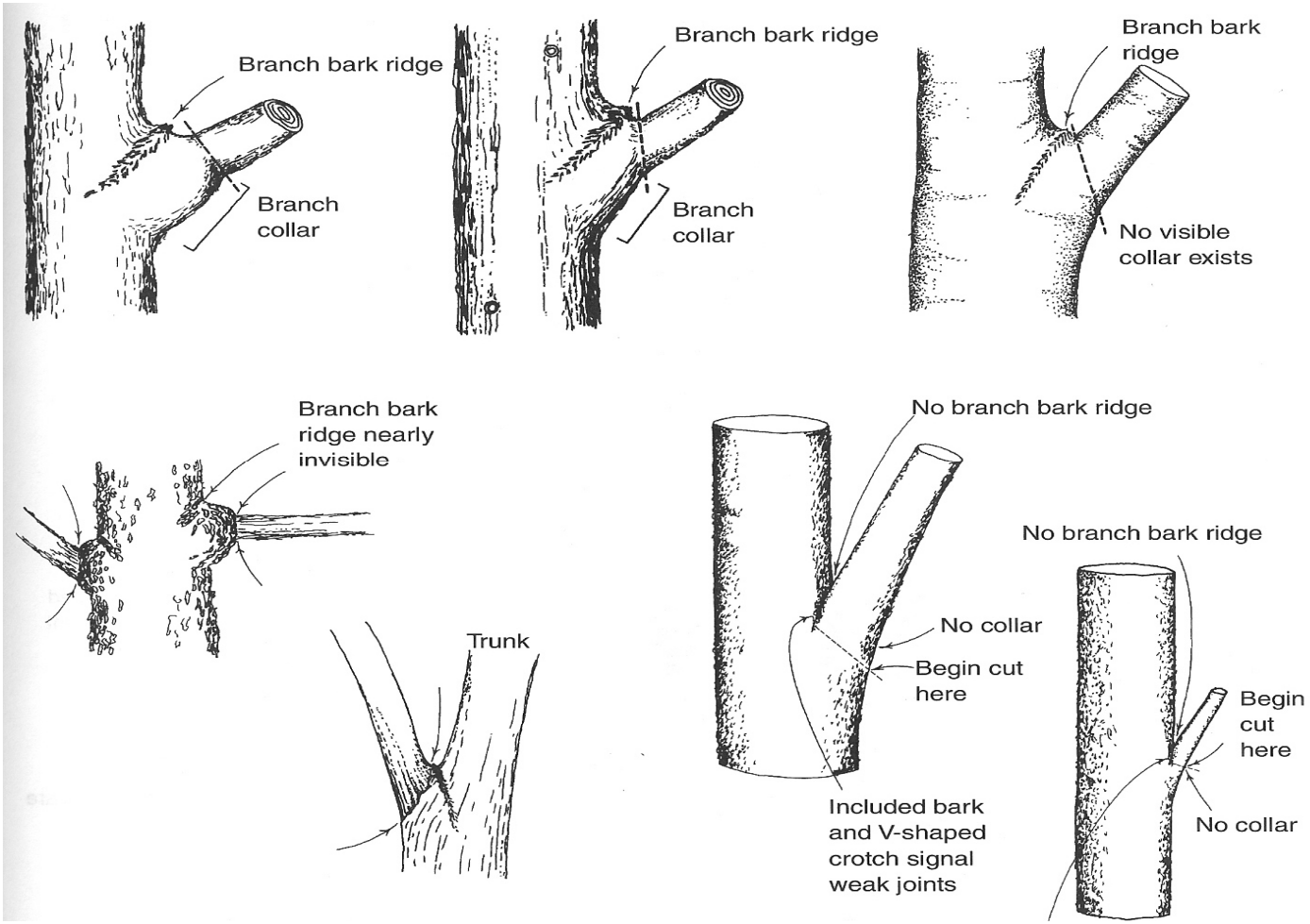
Tree Structure for branch bark ridge and collar



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Prune at branch collar

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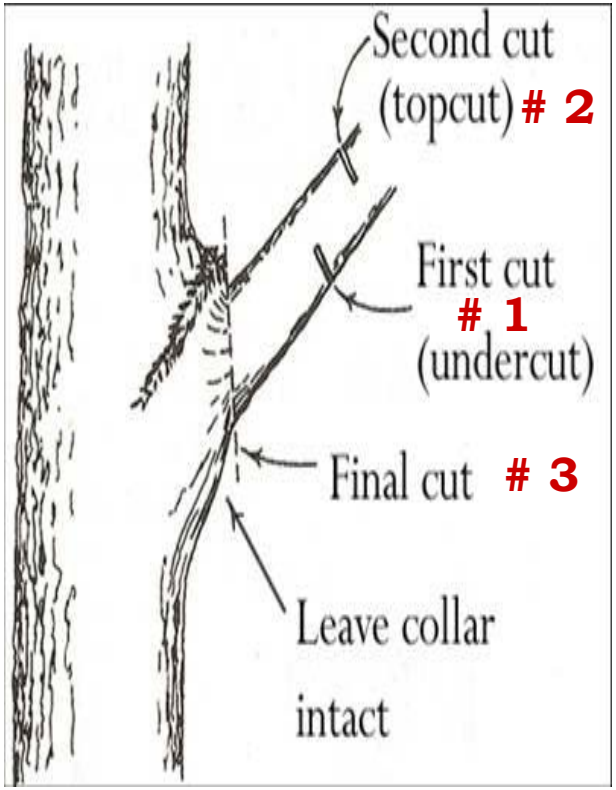
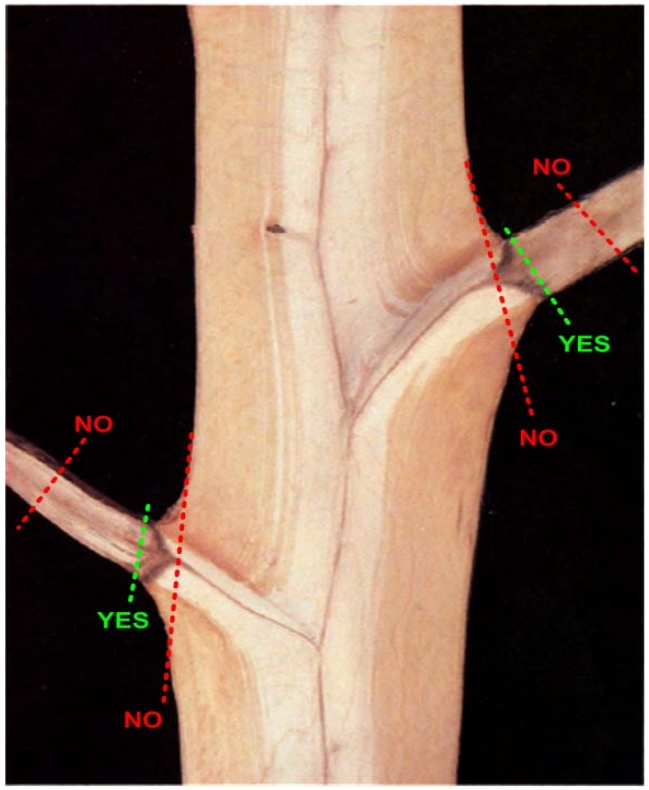
Proper branch removal guidelines





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Included bark

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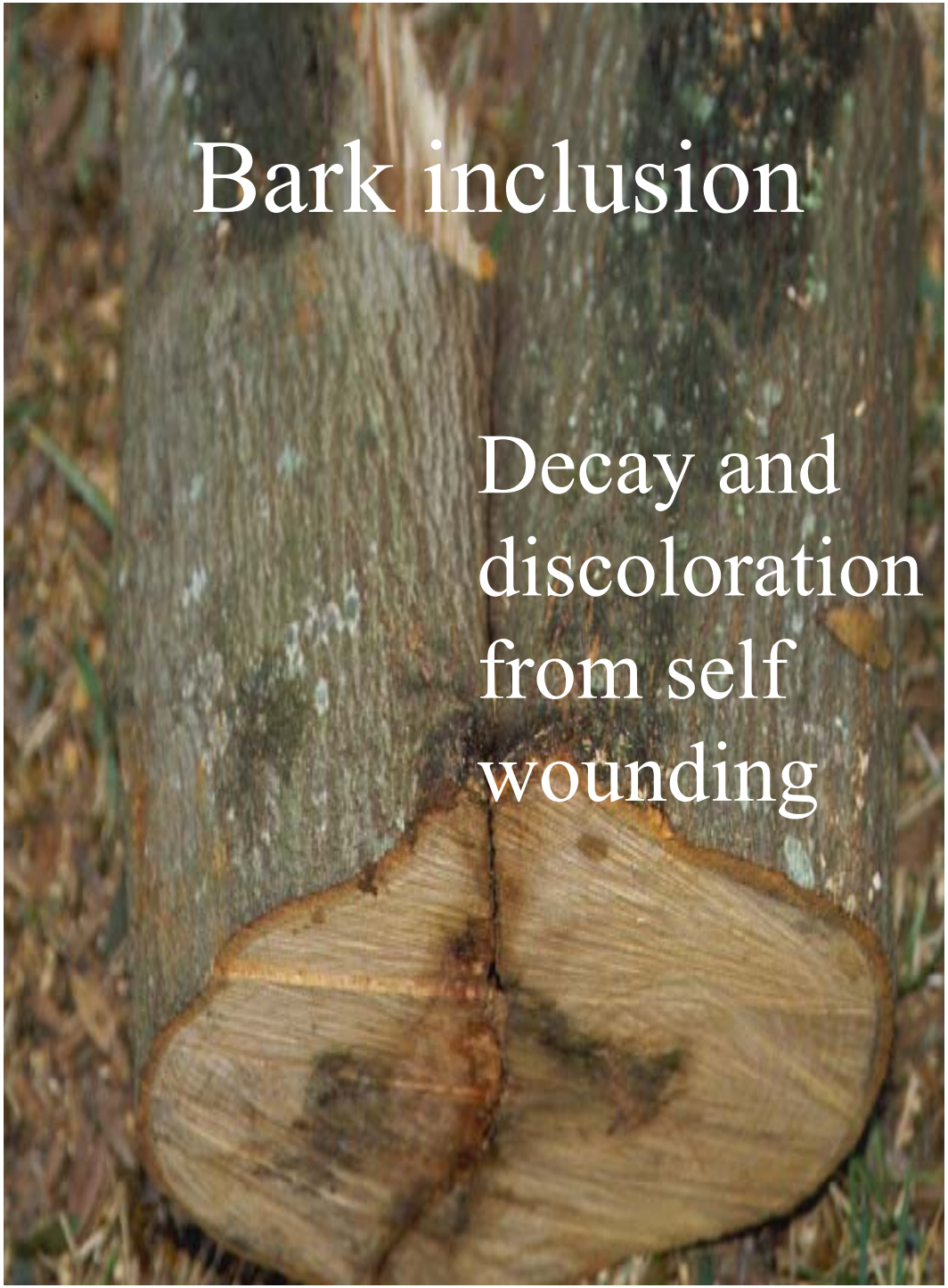

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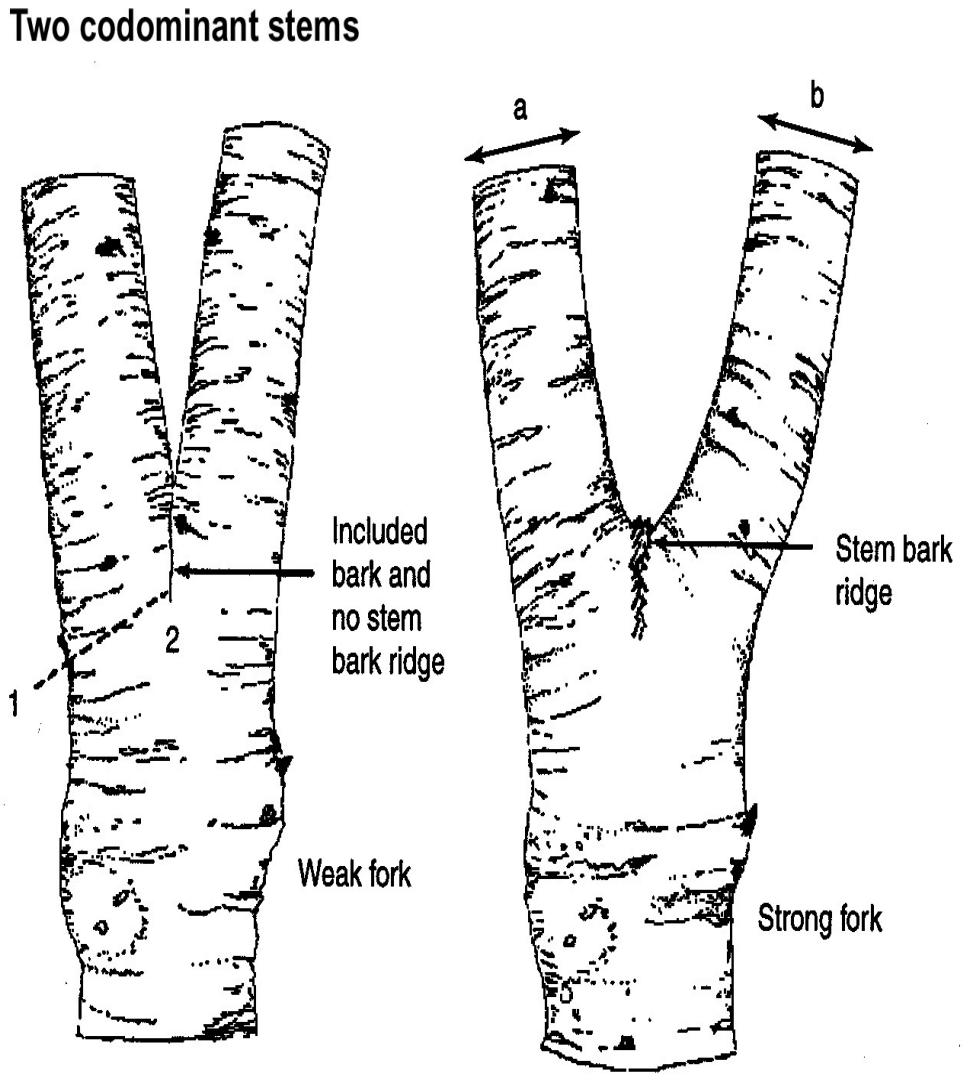
Co-dominant Stems



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Pruning Techniques

- Crown cleaning
- Crown thinning
- Crown raising
- Crown reduction
- Heading

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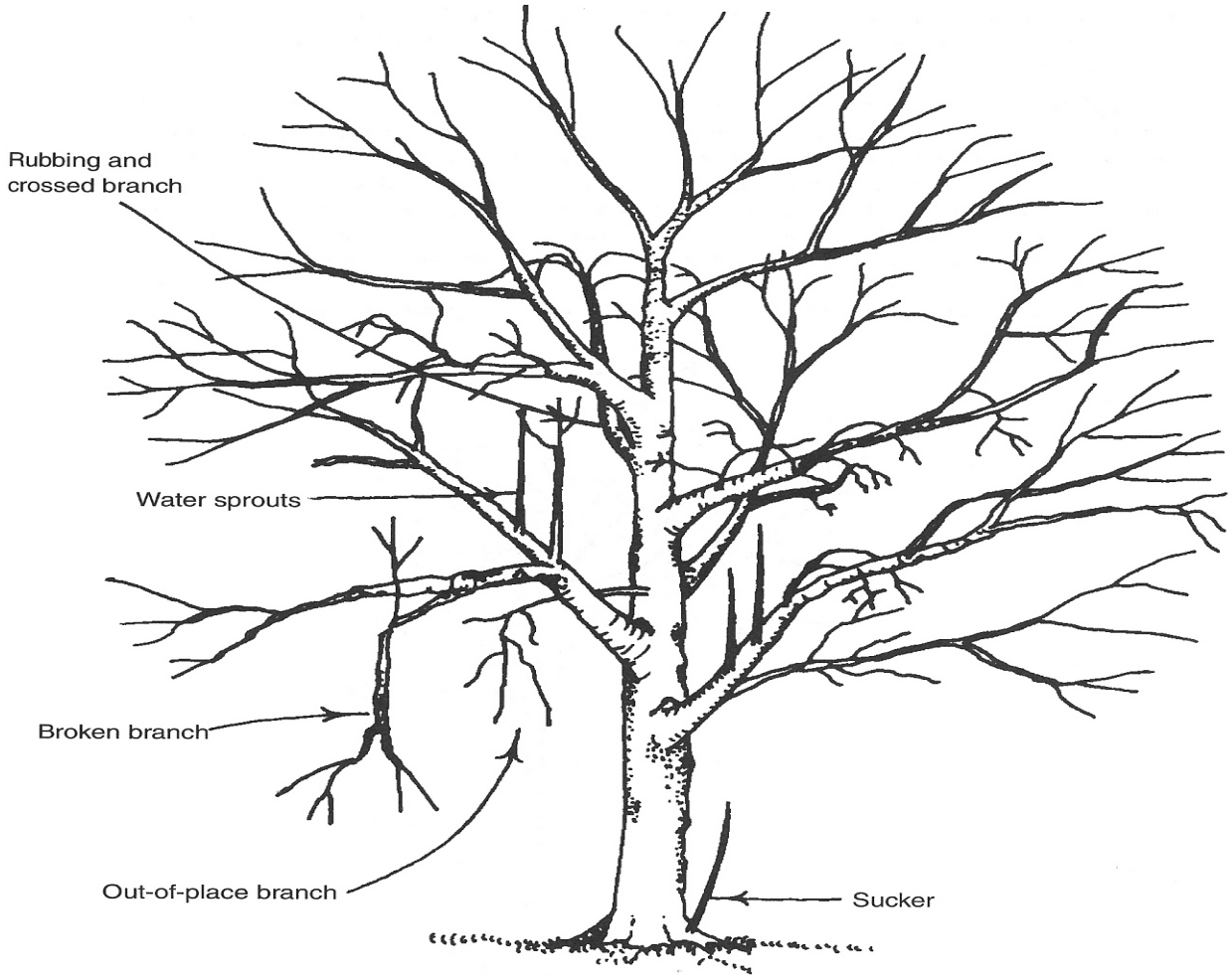
- **<u>Crown cleaning:</u>** removal of dead, diseased, weakly attached branches from the tree's crown



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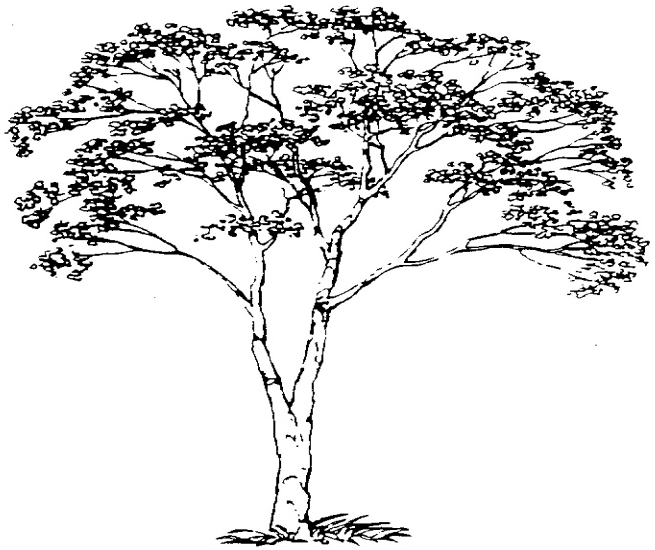
- **<u>Crown thinning:</u>** includes crown cleaning plus selective removal of branches to reduce weight and to increase light penetration and air movement. Develop an even distribution of branches throughout the crown. Be careful not to lion tail branches.



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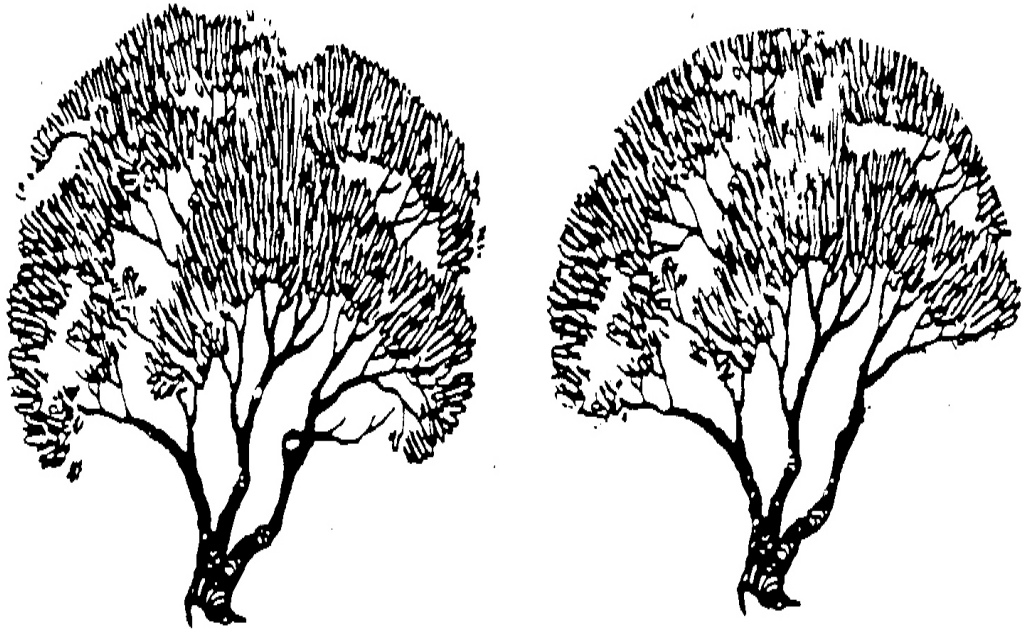
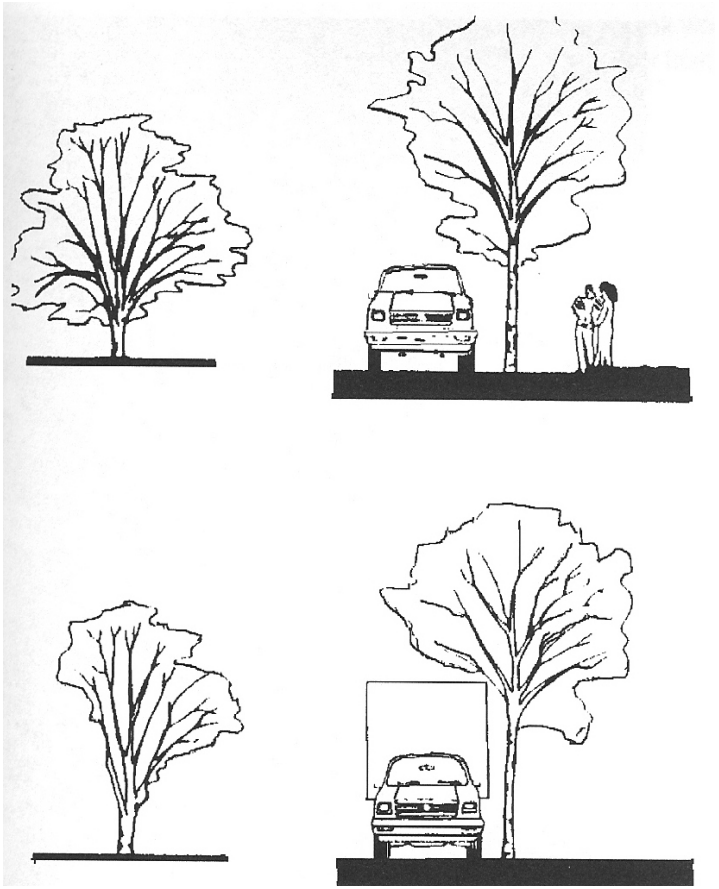
- **<u>Crown raising:</u>** includes crown cleaning plus removal of lower branches to provide clearance for buildings, signs, vehicles, pedestrians and vistas.





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Lion Tailing

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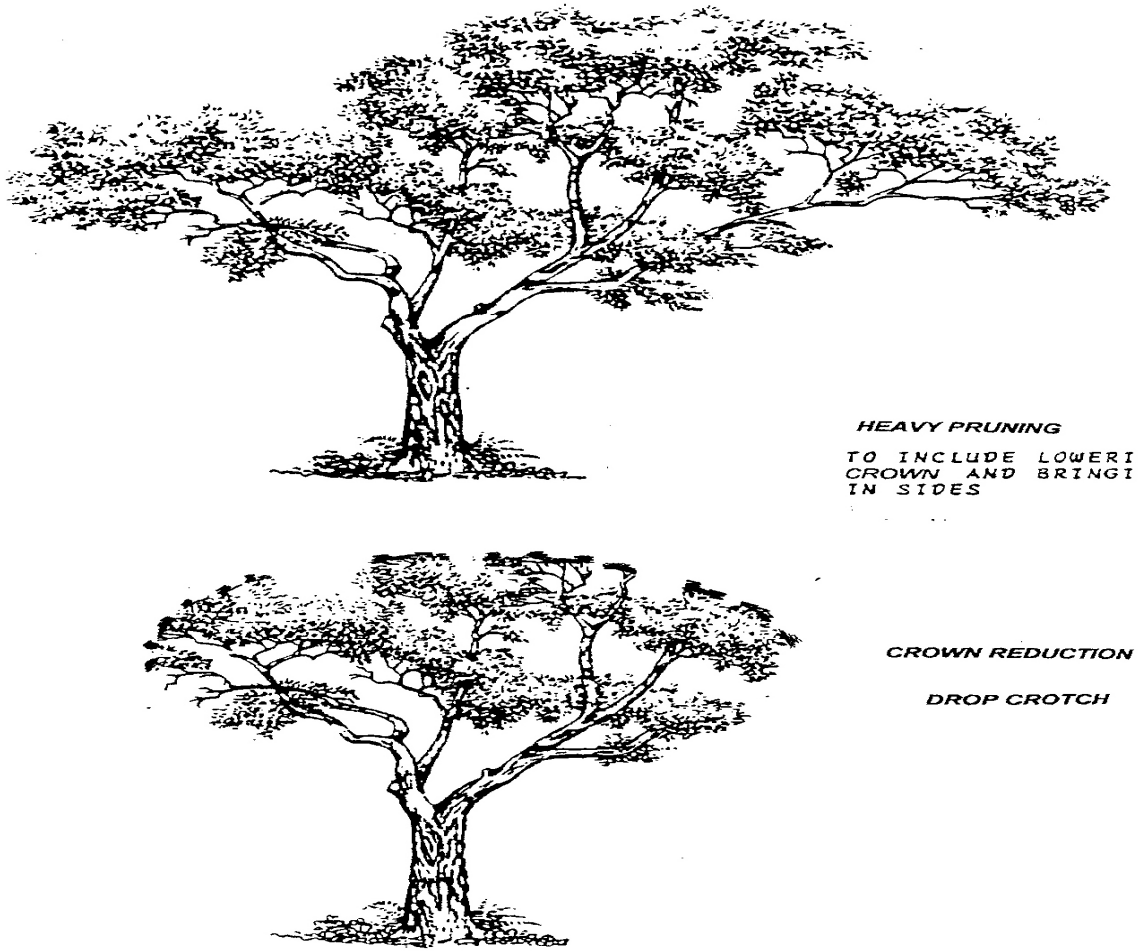
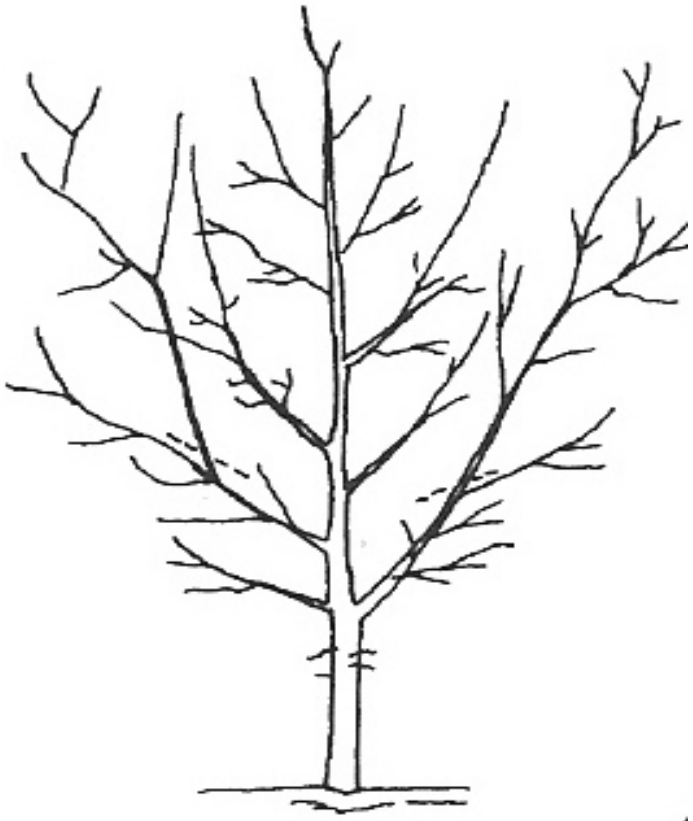
- **<u>Crown reduction:</u>** includes crown cleaning plus the reduction in the size of the tree by pruning back the outer crown to laterals (drop crotch method).





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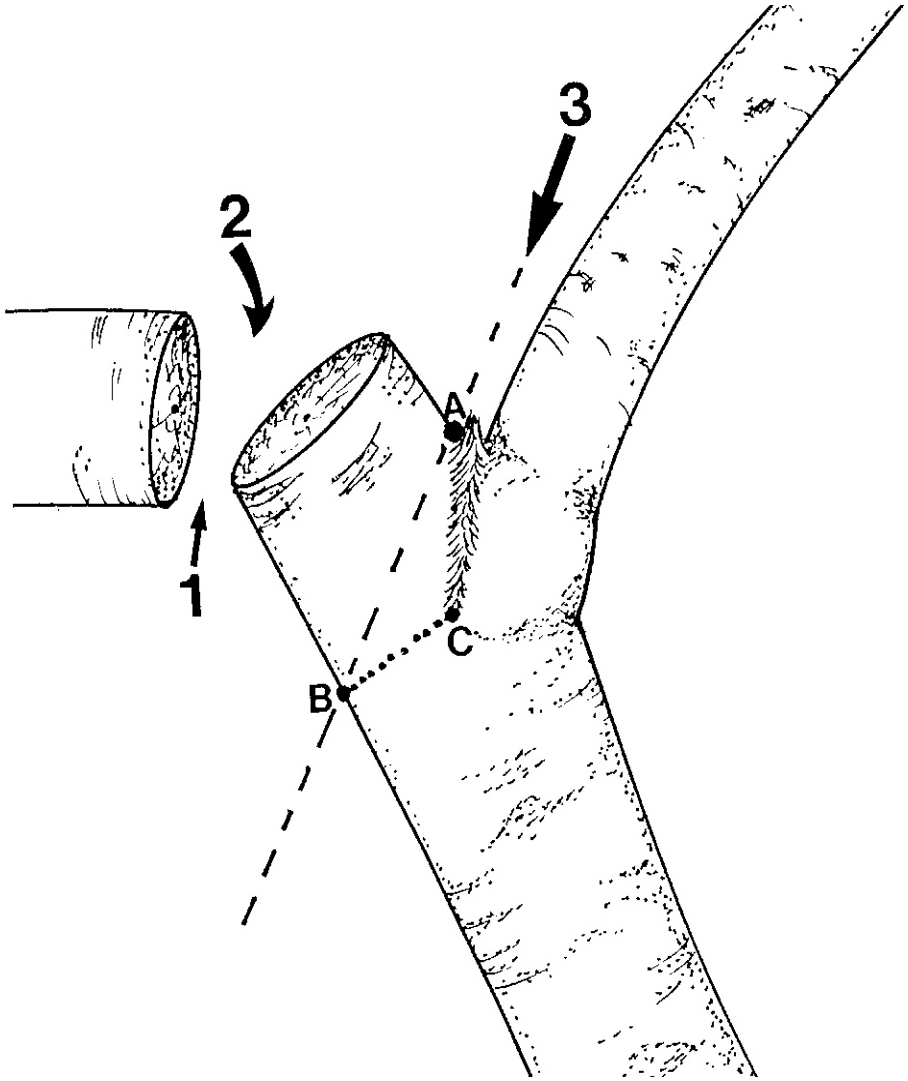
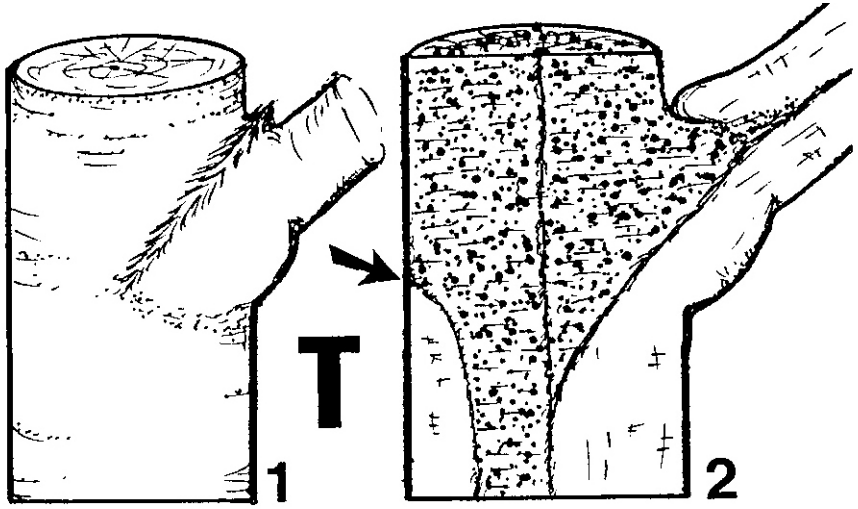
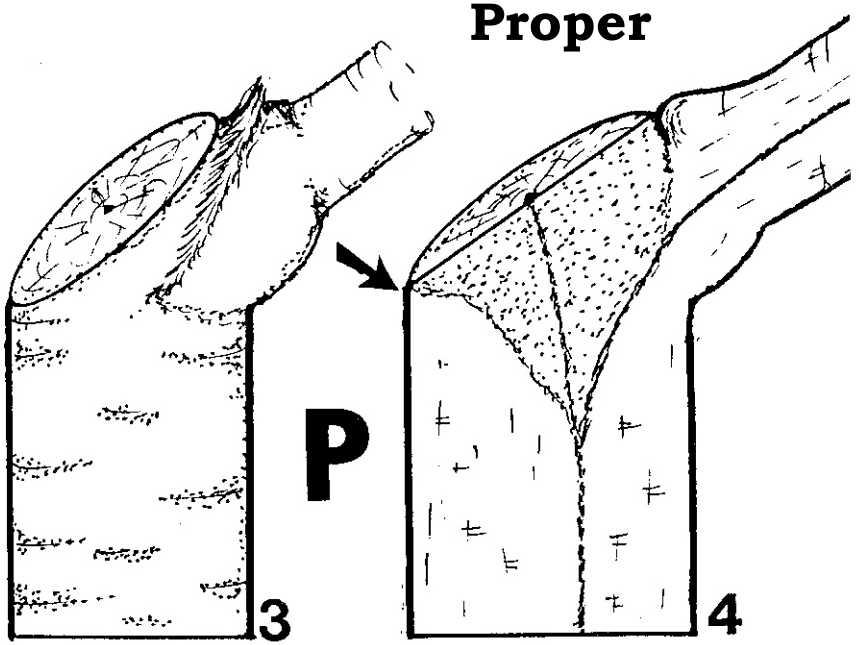
Correct removal of small leader on young tree





Improper

Proper



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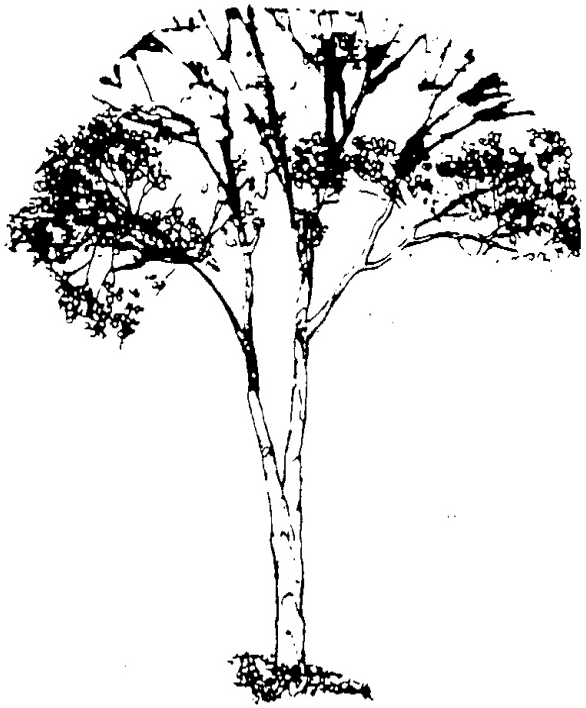
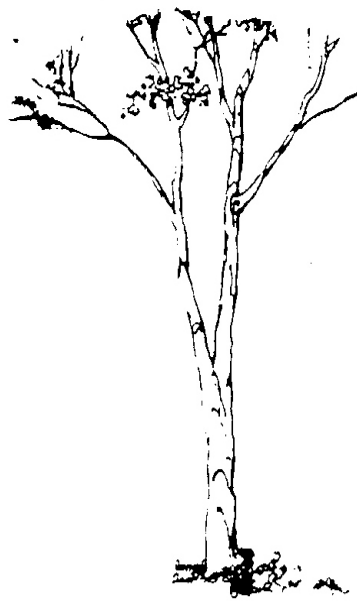
- **<u>Heading or Topping back:</u>**

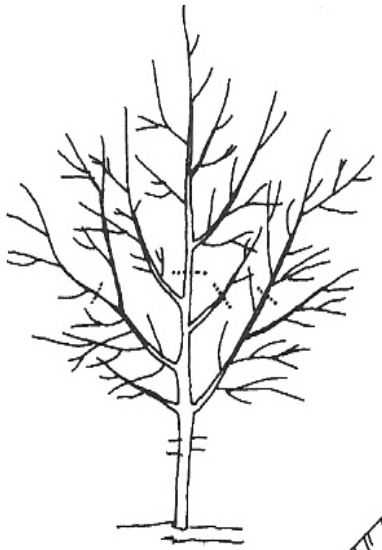
  cutting limbs back to stubs

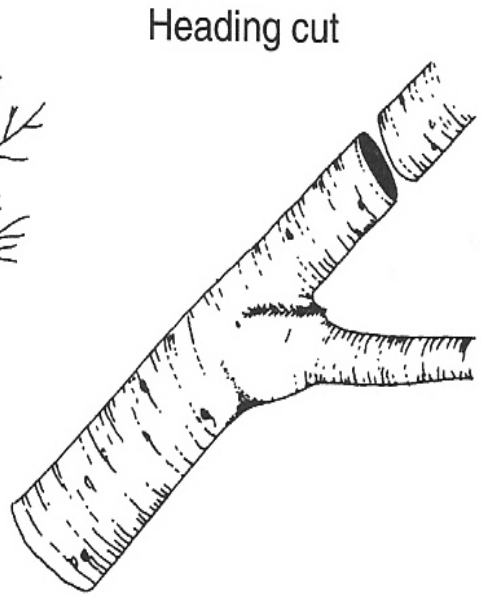
  Warning: negative repercussions may occur from this type of pruning (decline, death or poor branch connections)

  Other pruning methods should be explored prior to using heading cuts









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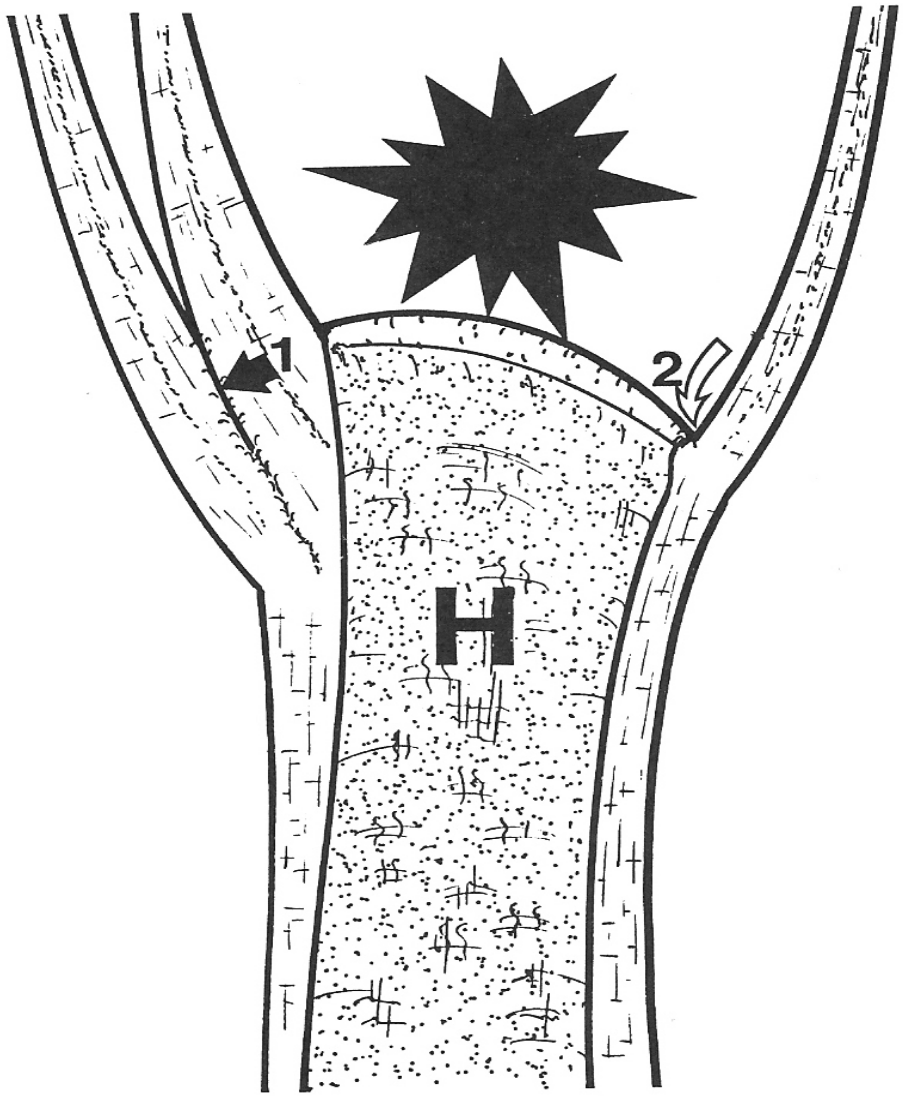
Poor branch attachment usually occurs on heading cuts



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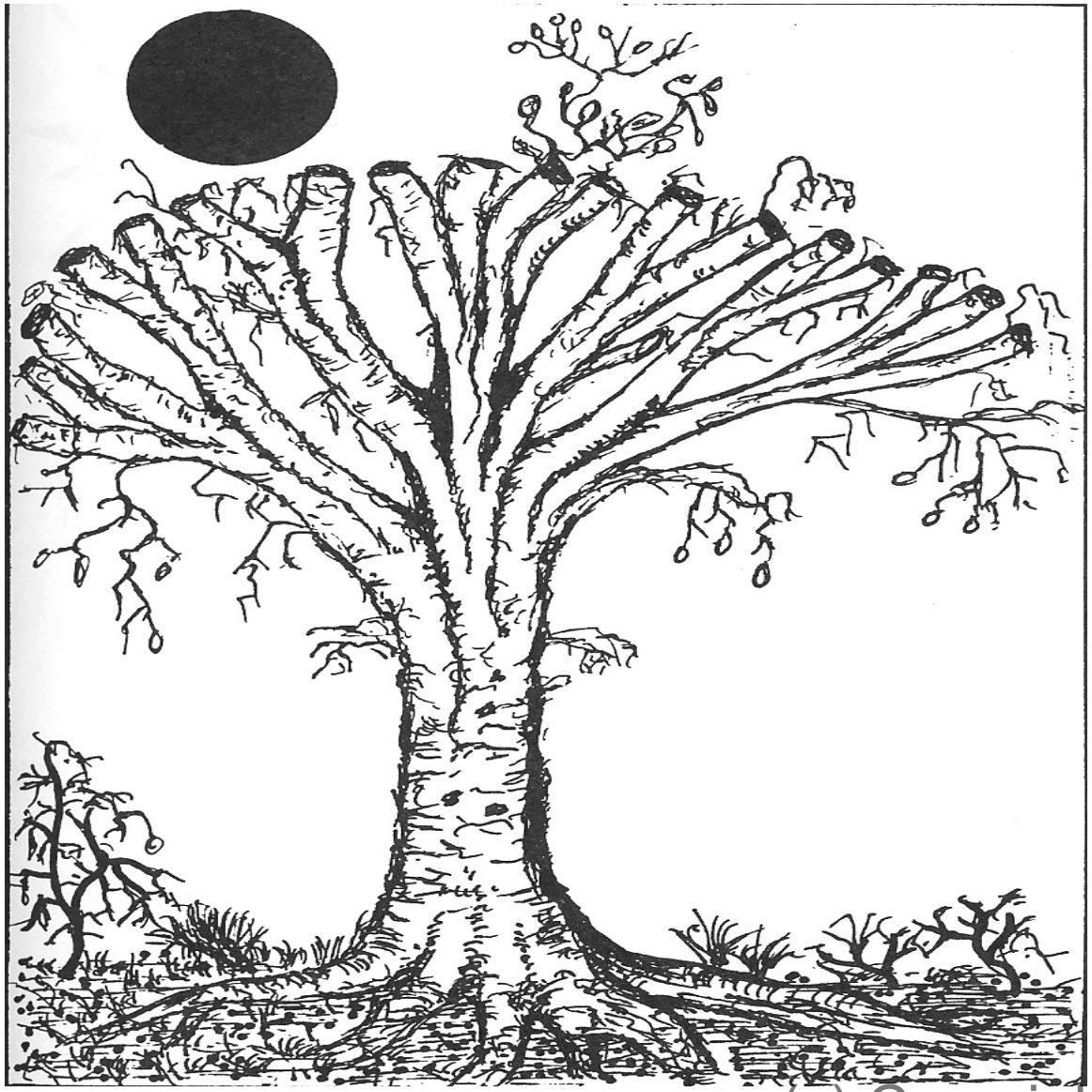
Trees have Dignity



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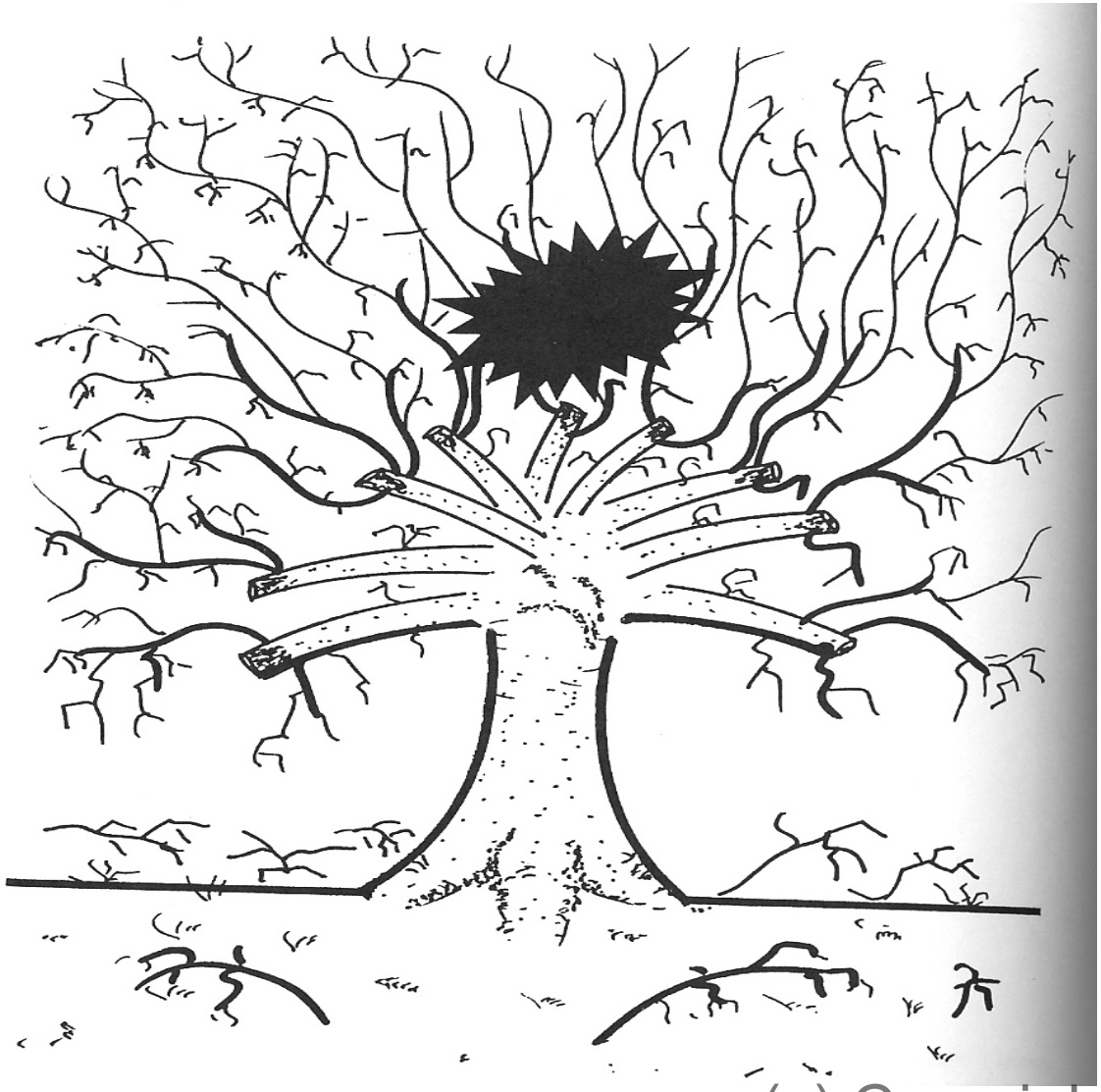
When topping is done without knowledge and common sense It is a crime to nature



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•**Basal Pruning:** when trees have grown out of proportion to their location and cannot properly be maintained and/or become a hazard, removal and replacement is the best alternative

Replacement planting

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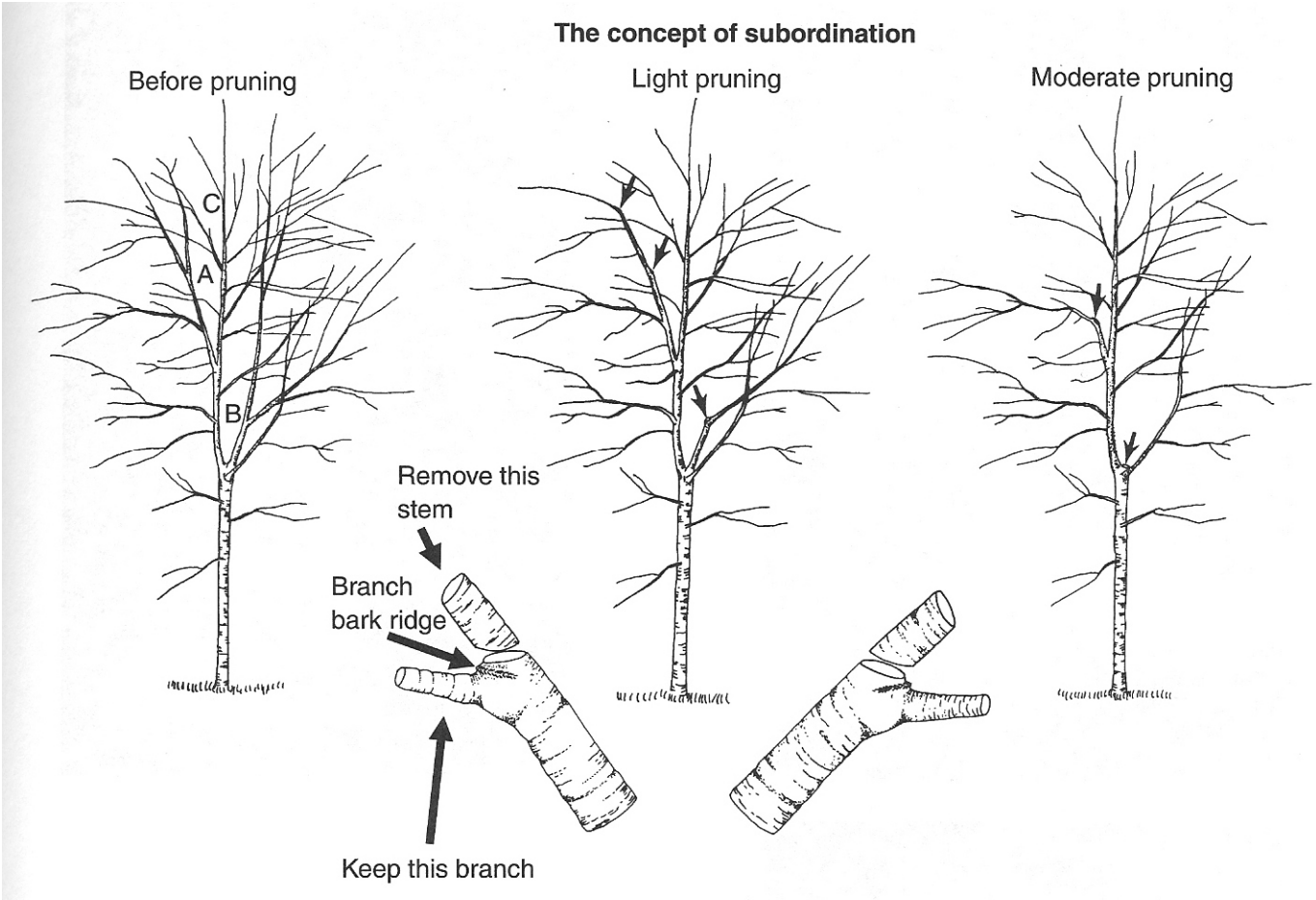
- **<u>Subordinate pruning:</u>** remove or prune back competing (codominant) stems to promote one dominant leader.



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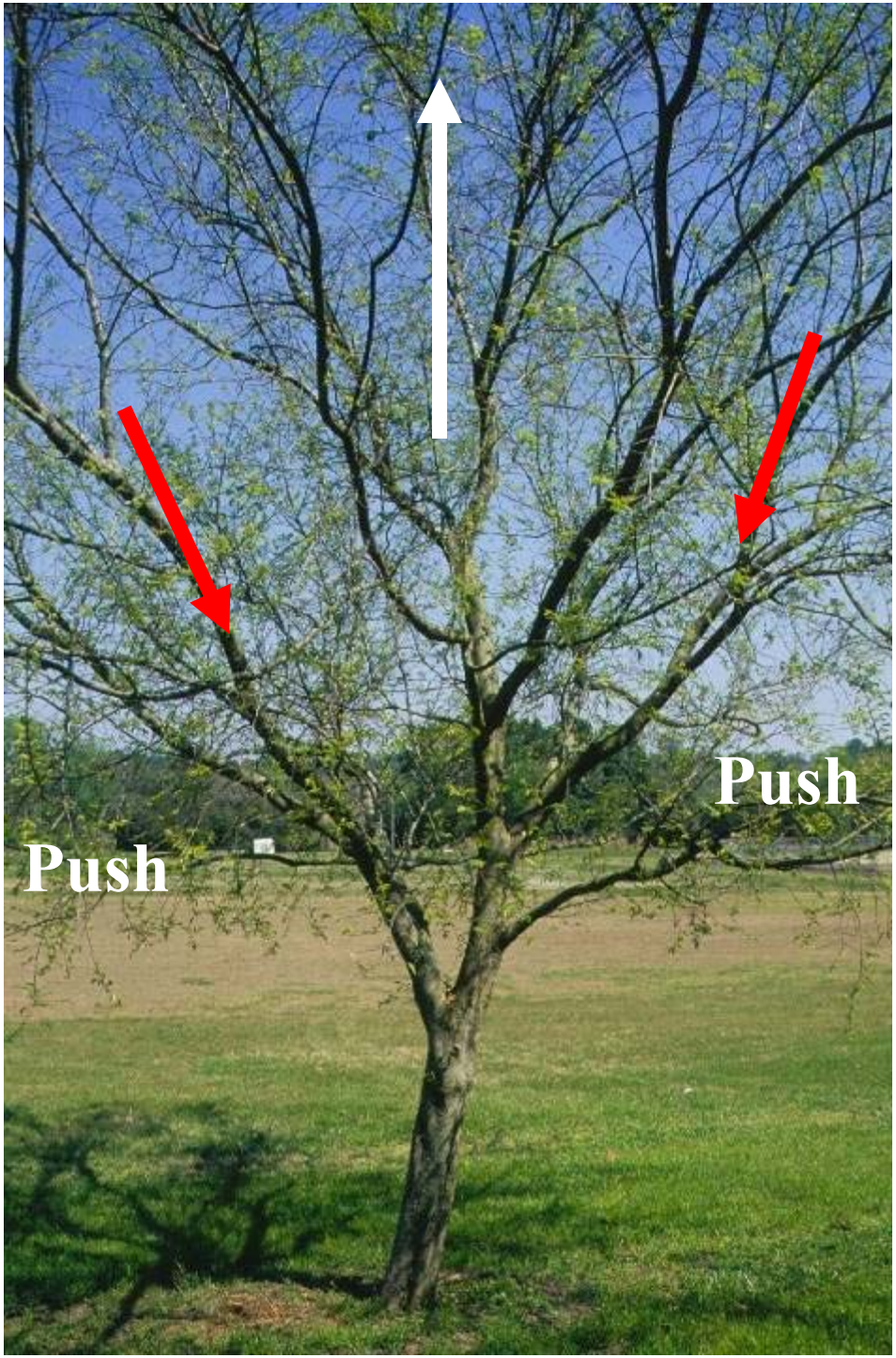

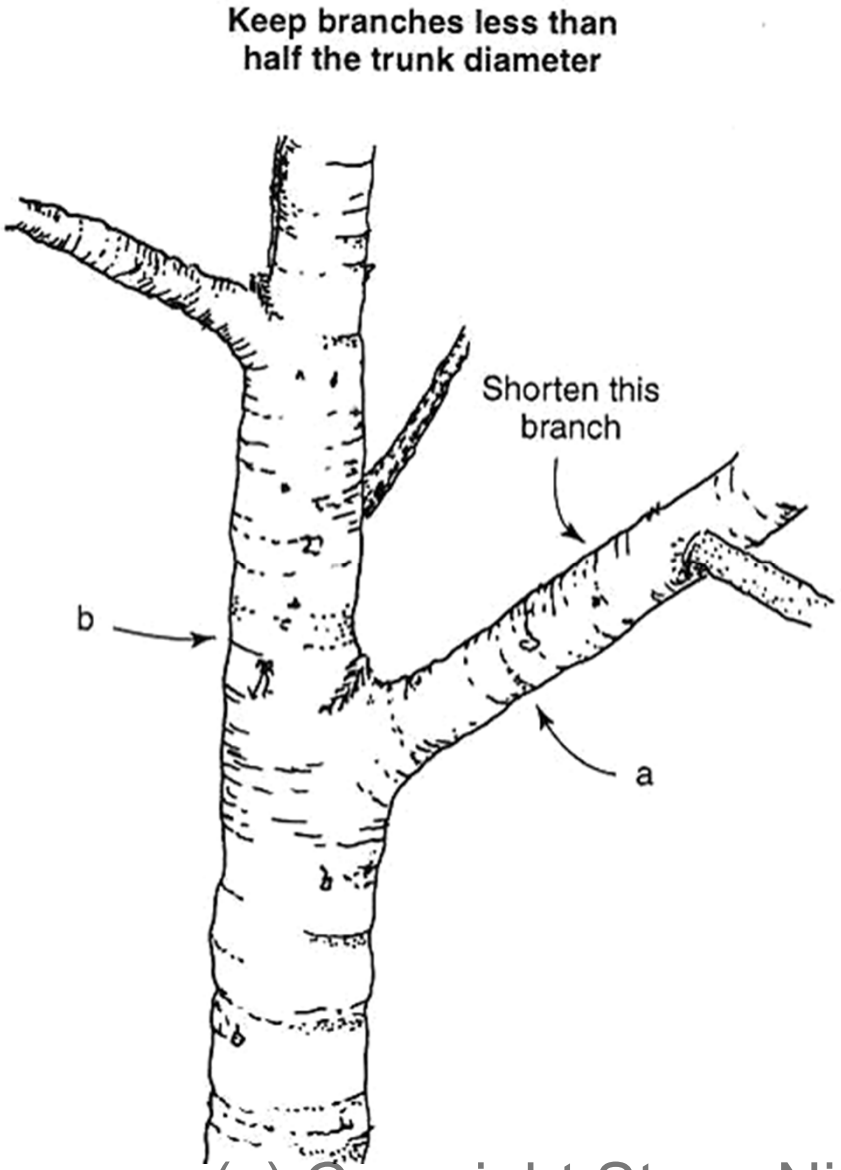

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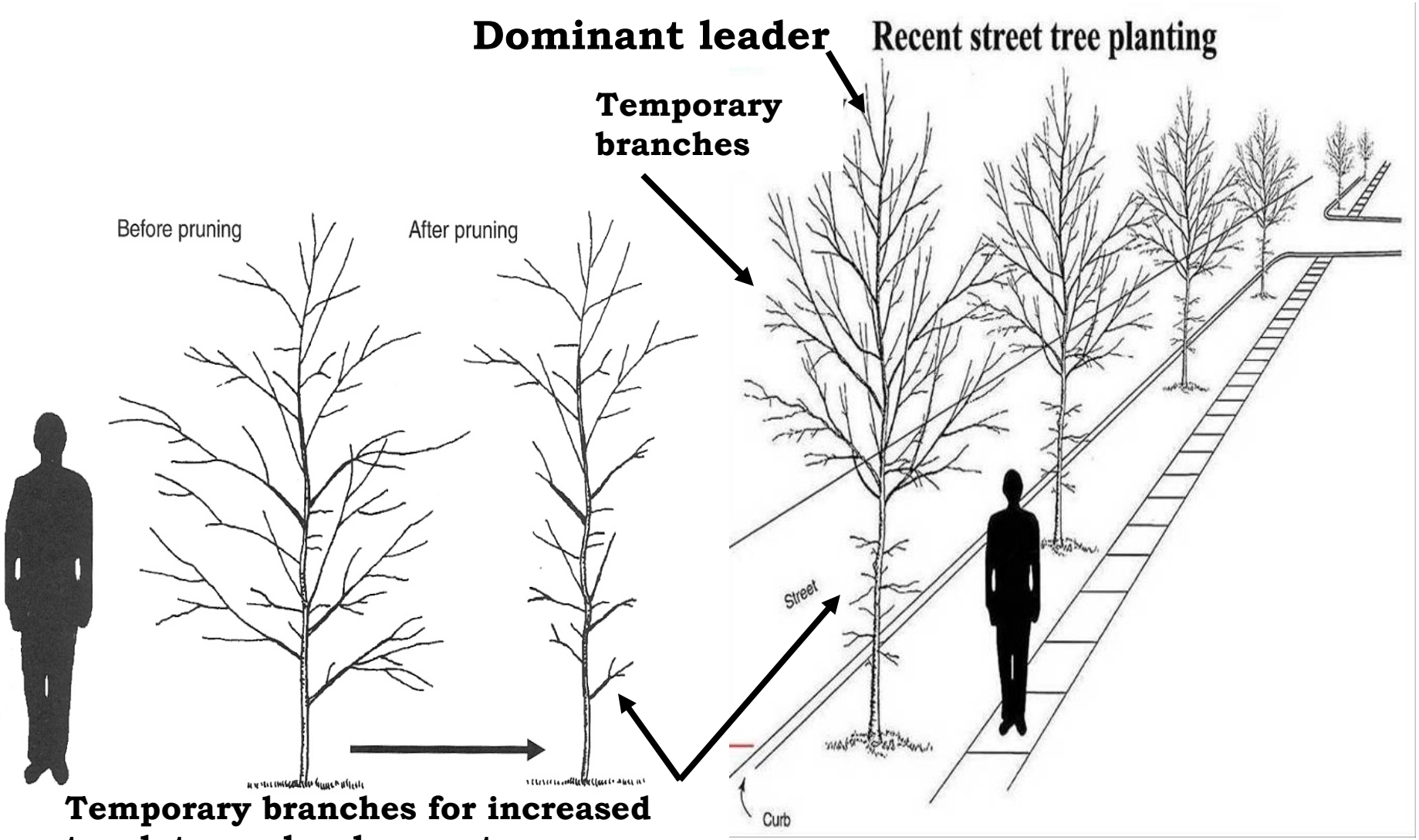
Young tree trunk development



Temporary branches for increased trunk taper development

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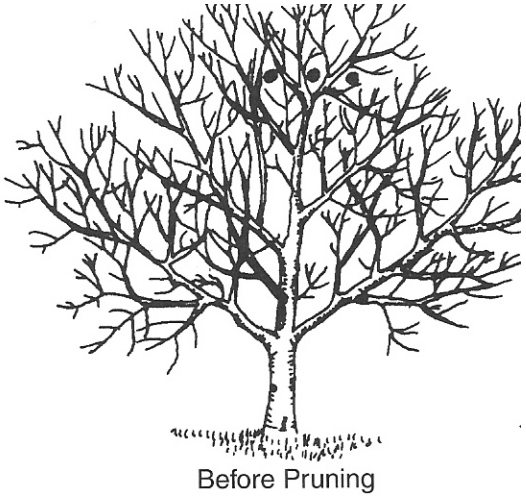
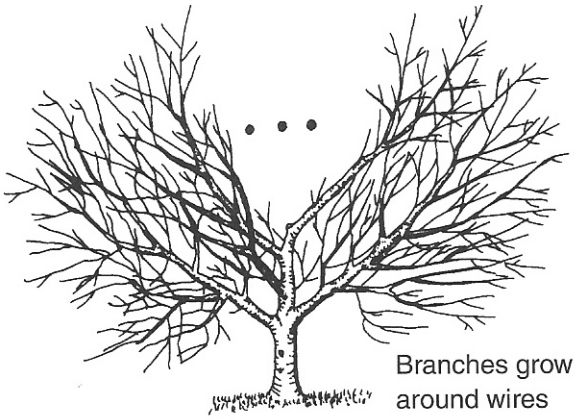
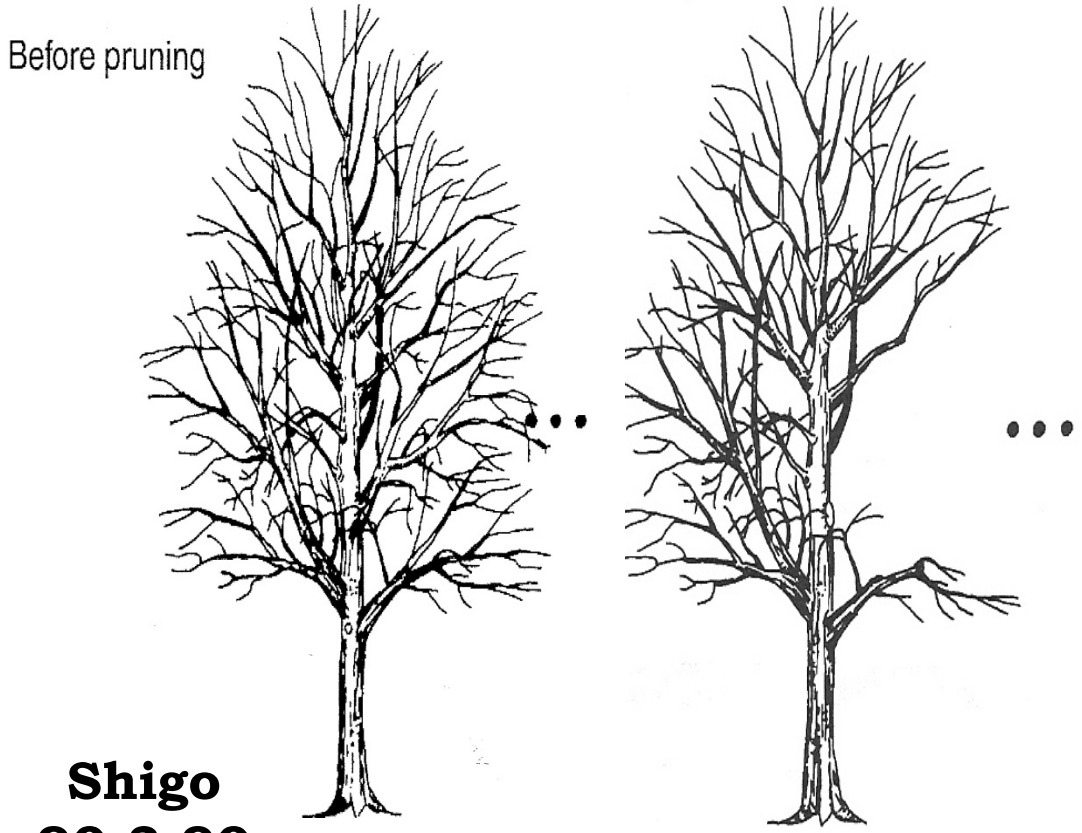
- **<u>Utility pruning:</u>** remove branches or stems to prevent loss of utility services.







Shigo
90-3-90

90- 90% of the time
3- 3 cuts
90- Remove 90% of the branch conflict

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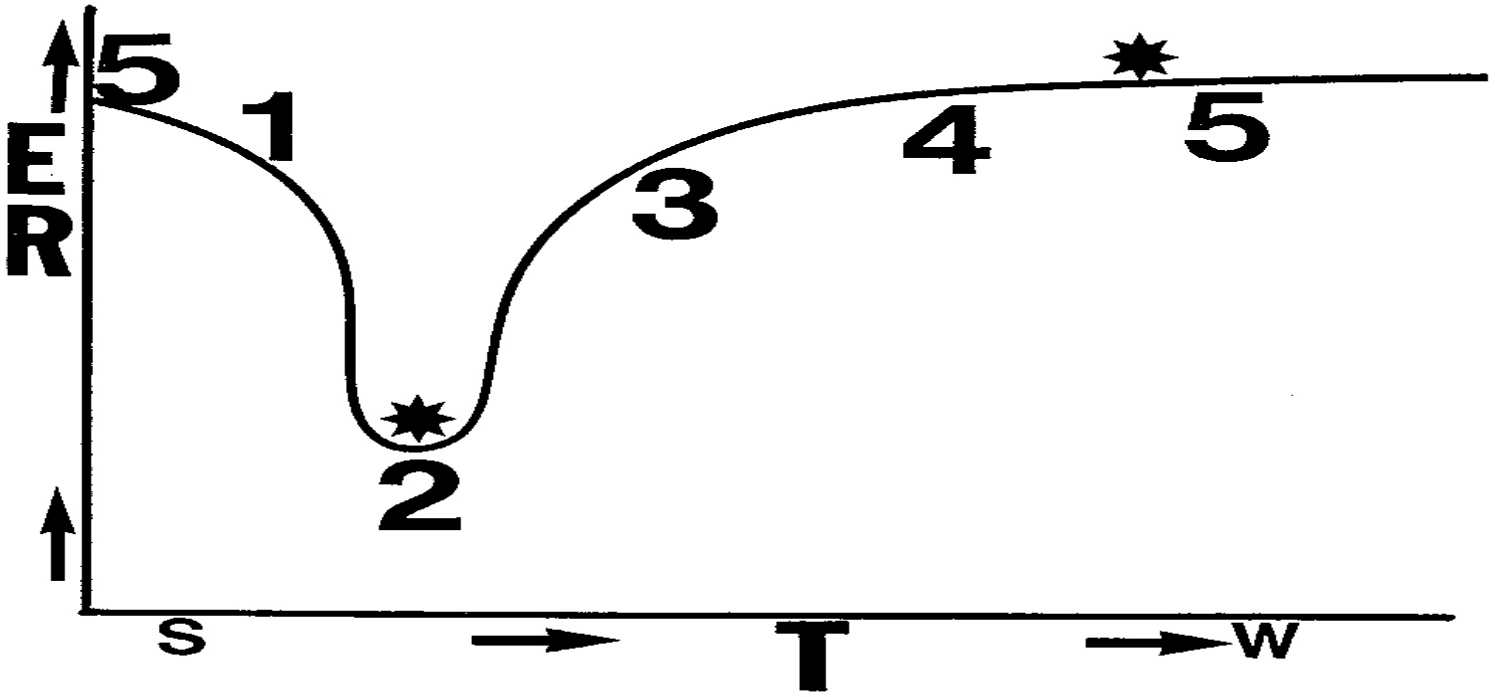
Phenology



1. **Onset of growth**
2. **Formation of new leaves and needles**
3. **High photosynthetic period**
4. **Formation of new bark and wood, and storage of energy**
5. **Dormancy**

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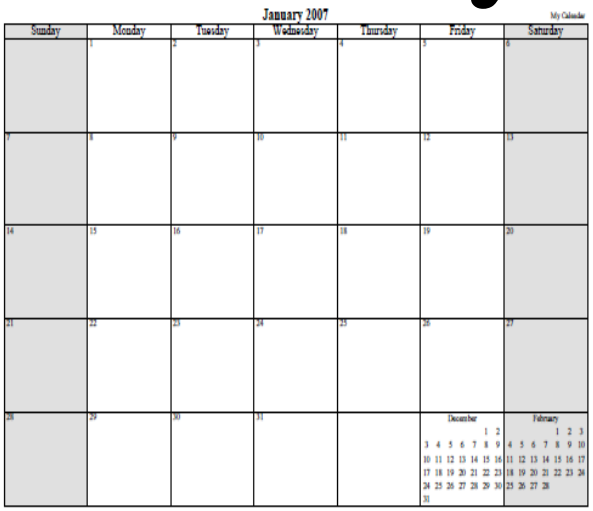
Timing, Dose, Limits

Timing (when and where)
Dose (how much)
Limits (plant and system limits)

January



Phenology

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- **<u>Pruning tools:</u>**

  - Hand pruners and loppers (bypass type)
  - Hand saws
  - Pole saw and clip
  - Power saws
  - Safety gear: helmet, safety glasses, ear plugs, etc.

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Steps to reduce pruning requirements

Proper tree selection is the Best Way to minimize pruning, this includes:

- Right tree species for the location and end desired results (5 to 50 years)
- Selecting the tree from a nursery, growing high quality material
- Proper planting procedures

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Landscape Architect

Nursery

Planting hole

This does not occur often enough

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Steps to follow

1. **Know your tree species, growth patterns of foliage and roots.**

2. **Understand the final goal and objective, what is the tree expected to fulfill for the owners and/or project**

3. **Determine if the tree species, location and final results make sense and are economically do-able**

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4. Step back and take a look at the tree from different angles. What function does the tree provide?

5. Will pruning maintain and enhance those functions?

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6. Determine the defects which should be removed no matter what the goals.

a) Included bark branches
b) Rubbing branches
c) Insect and diseased branches
d) Deadwood
e) Broken branches
f) Fast growing side branches overtaking leader
g) Multiple leaders/Co-dominant stems (determined by tree structure)

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7. Determine what pruning is necessary to accomplish the goal for the trees' structure in 5 to 20 years:
   a) Young tree structural pruning
   b) Crown cleaning
   c) Crown thinning
   d) Crown raising
   e) Crown reduction
   f) Heading cuts (re-structuring)
   g) Sub-ordinate pruning
   h) Utility pruning

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8. Proper branch removal
   a) Branch collars
   b) Branch bark ridge
   c) Included bark
   d) No visible collar
   e) Stem bark ridge

9. When to prune?
   a) Transplanting
   b) Flowering
   c) Fruiting
   d) Clearance

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Let's Go Touch Trees

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