

Chapter 8

PRUNING

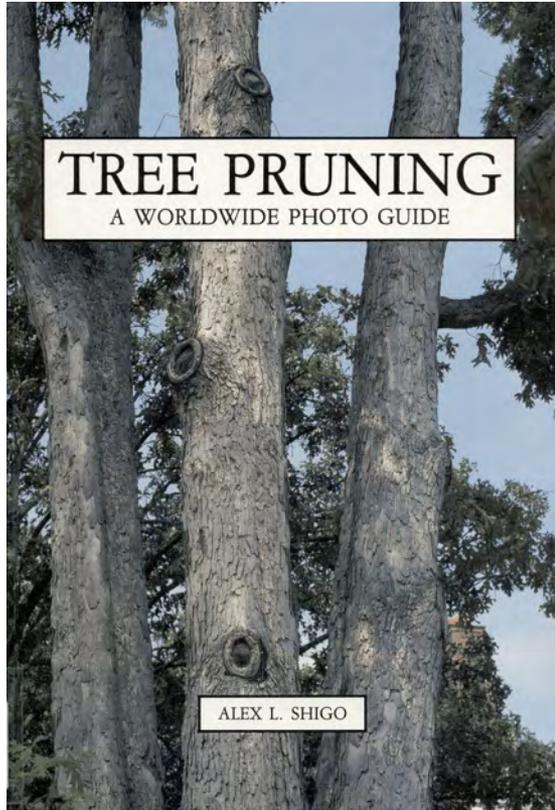
By Tony Dietz, Master Arborist





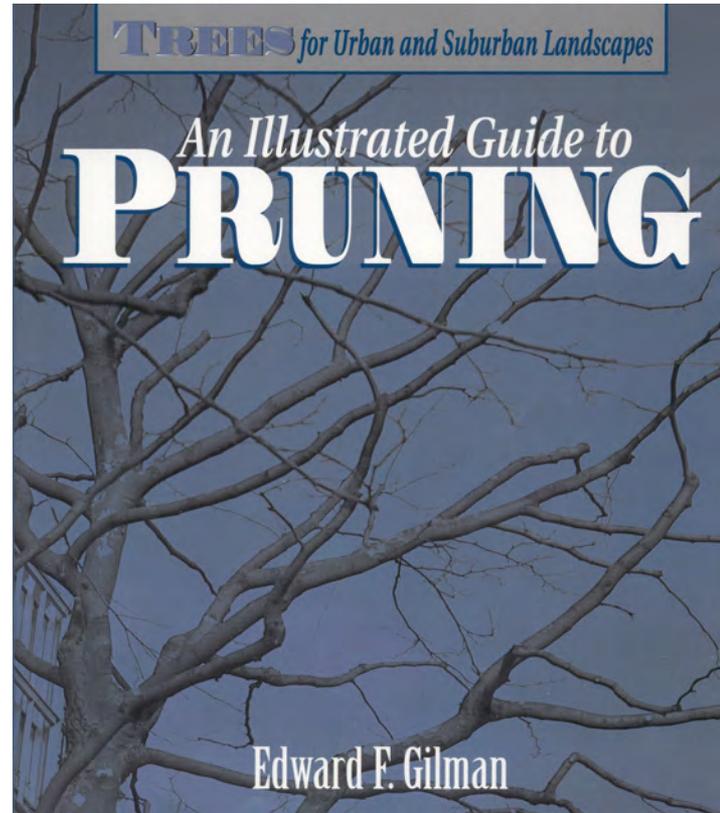






TREE PRUNING
A WORLDWIDE PHOTO GUIDE

ALEX L. SHIGO



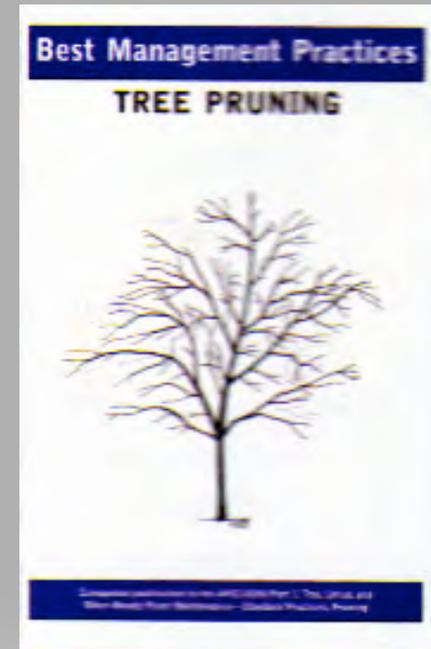
TREES for Urban and Suburban Landscapes

An Illustrated Guide to
PRUNING

Edward F. Gilman

Key Terms

32



ANSI A300 Pruning Standards and BMP's

5.3.2 A pruning cut that removes a branch at its point of origin shall be made close to the trunk or parent limb, without cutting into the branch bark ridge or collar, or leaving a stub (see Figure 5.3.2).

5.8.1 Palm pruning should be performed when fronds, fruit, or loose petioles may create a dangerous condition.

Shall or Should (A300)



Trees make their own food from the leaves and will grow branches and leaves as long as they can reach sunlight

Trees in the forest prune themselves



Trees in open areas will form full crowns



Trees in urban areas are pruned to coexist with people and infrastructure



- **Dead wood**
- **Sprouts**
- **Rubbing branches**
- **Broken branches**
- **Included bark**
- **Dense crown**
- **Vistas**
- **Utility clearance**
- **Vehicle clearance**
- **Pedestrian clearance**
- **Training young trees**
- **Structural structure**
- **Fruit production**
- **Insect infestation**
- **Disease**
- **Other reasons**

Reasons for Pruning

- **Proper pruning may be done any time of the year**
- **Not recommended during bud swell nor during leaf abscission**
- **Common time is in late winter or early spring when trees are dormant**
- **Fruit trees usually after flowering**

When to prune

Trees don't heal like animals

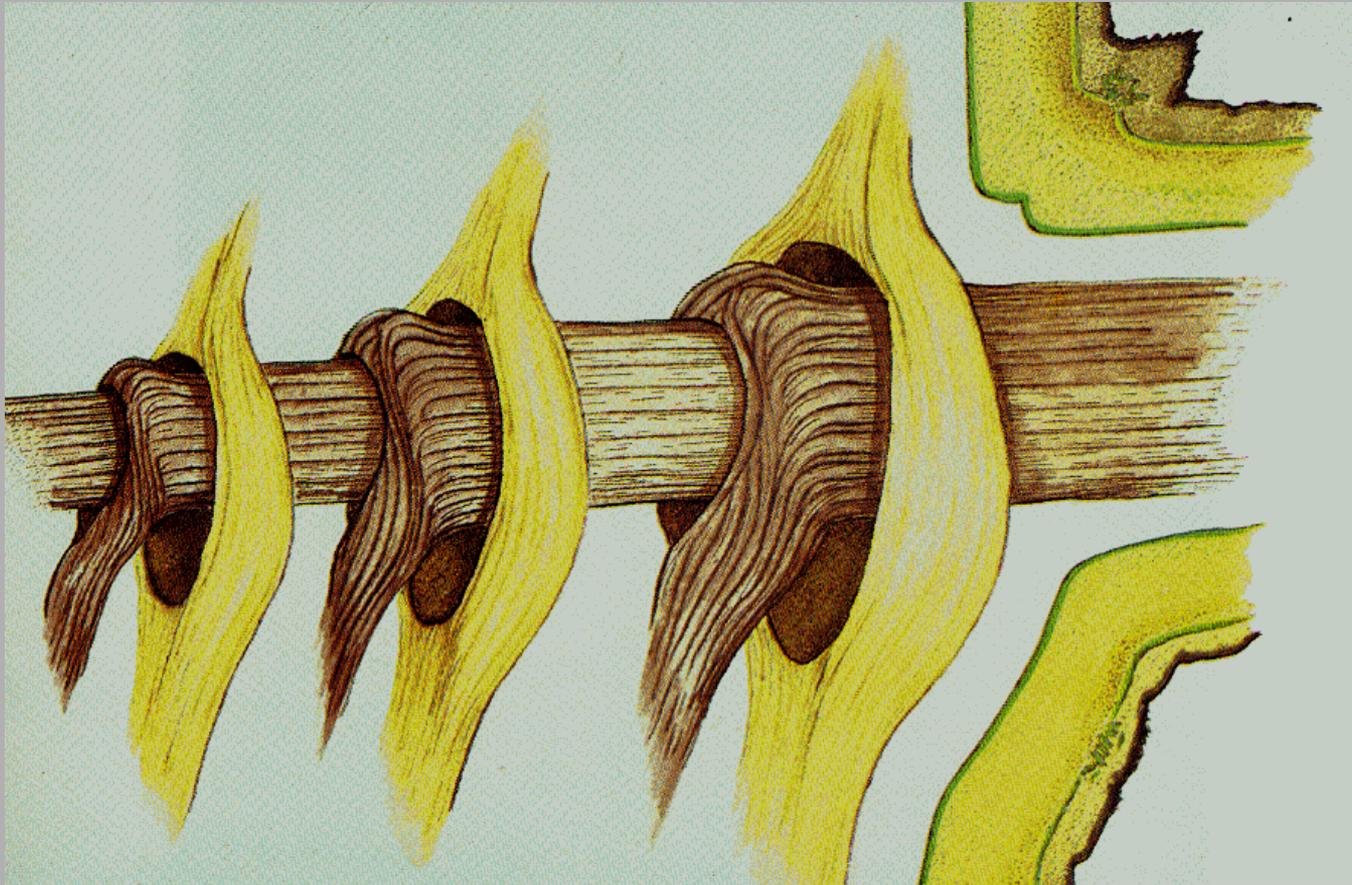
Animals form new cells in the same place while trees form new cells in new places

- **Branch collar**
- **Branch protection zone**
- **Branch bark ridge**
- **Compartmentalization**
 - **CODIT**
 - **Node**
 - **Laterals**

Proper pruning cuts



Branch Collar



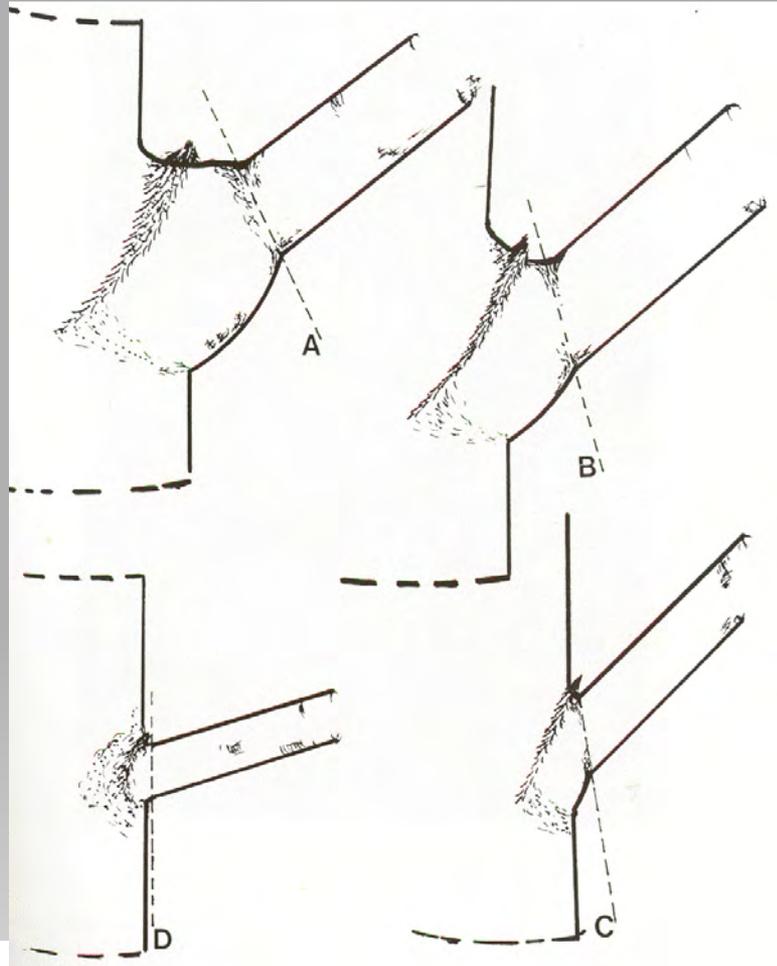
Trunk tissue and branch tissue interlock annually

Branch collar is made up of trunk tissue

Drawing by Sharon Ossenbruggen

Branch protection zone

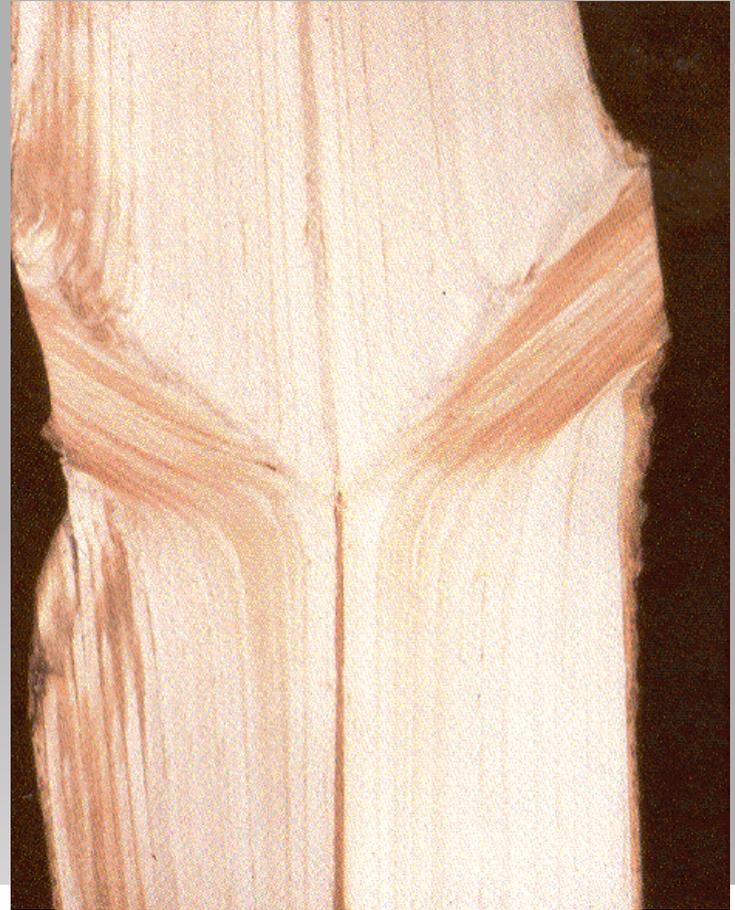
Prune from
outside branch
bark ridge to
outside of collar

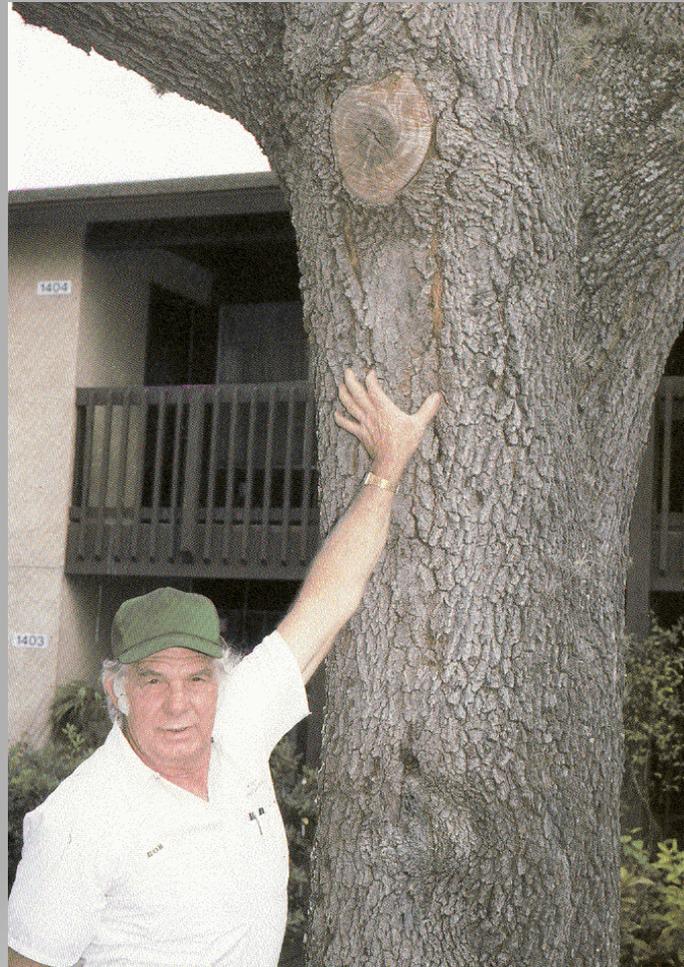


No set angle.
Varies from tree
to tree



Flush cuts allow decay to enter tree through trunk tissue





**Flush cuts can cause cambial dieback
in trunk**

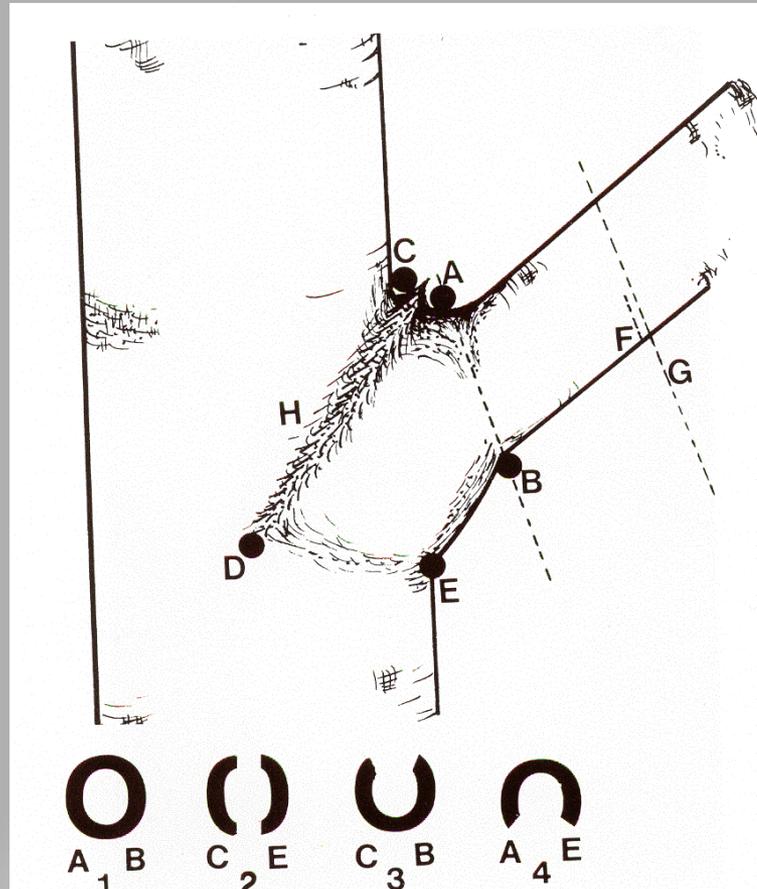
C.O.D.I.T.

Compartmentalization Of Decay In Trees

**Trees set up
phenol chemical
boundaries to
limit spread of
decay**

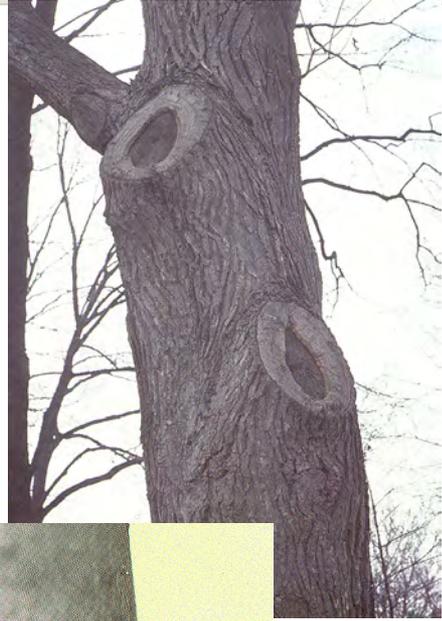
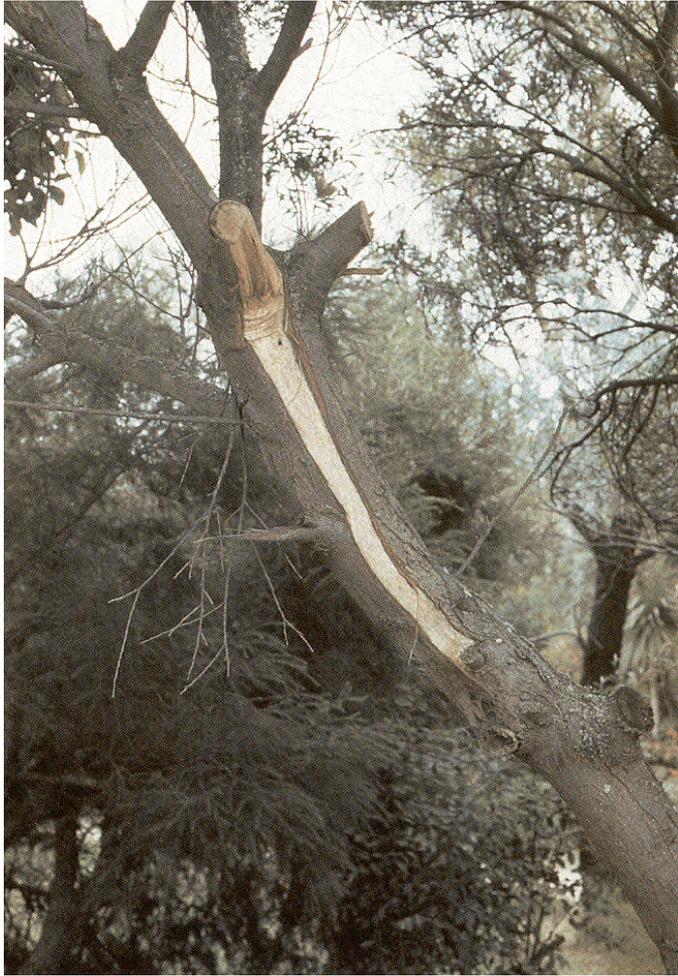


Reduces chance
of tearing bark
on remainng
trunk



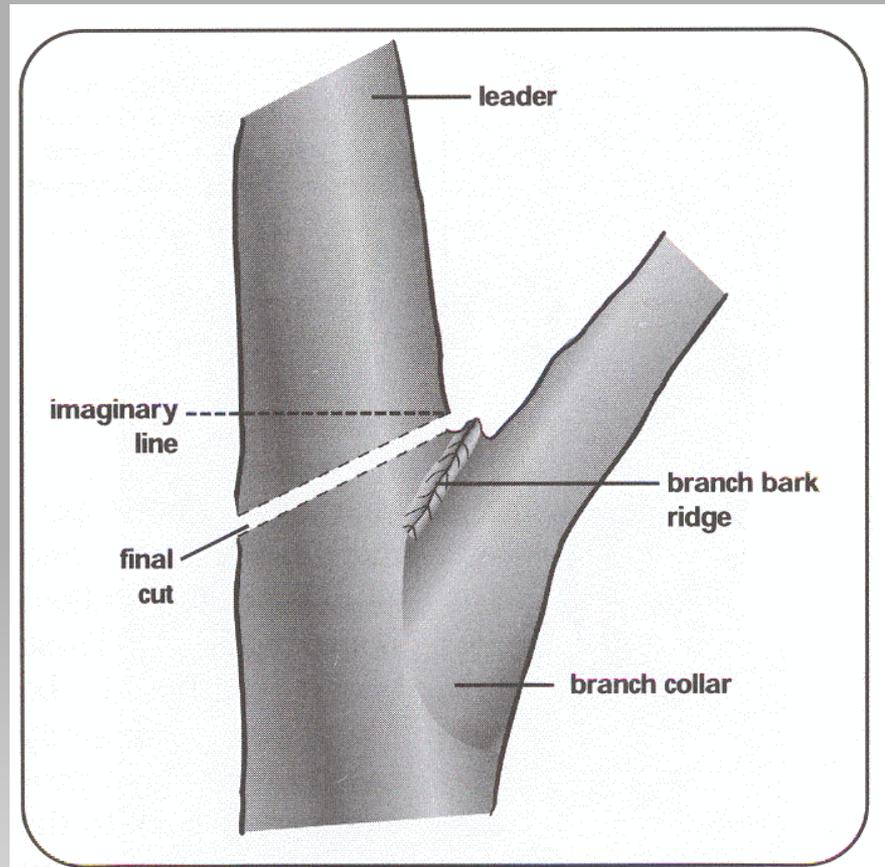
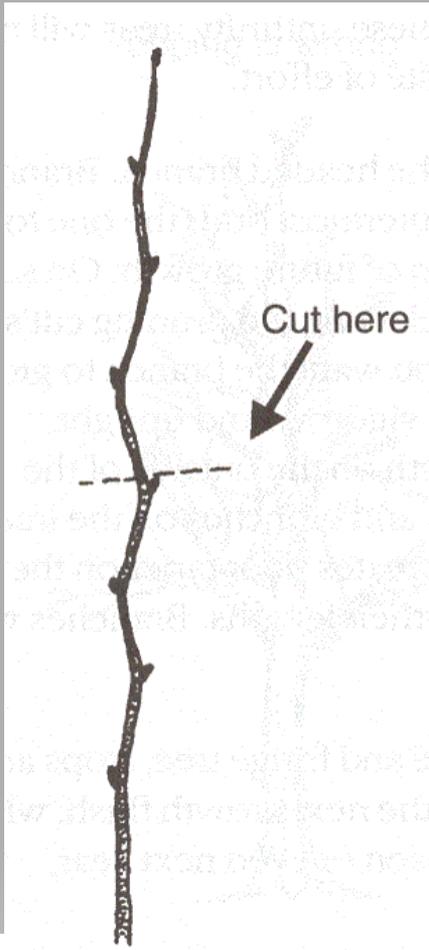
Final cut should
produce a
complete
"doughnut" of
callus

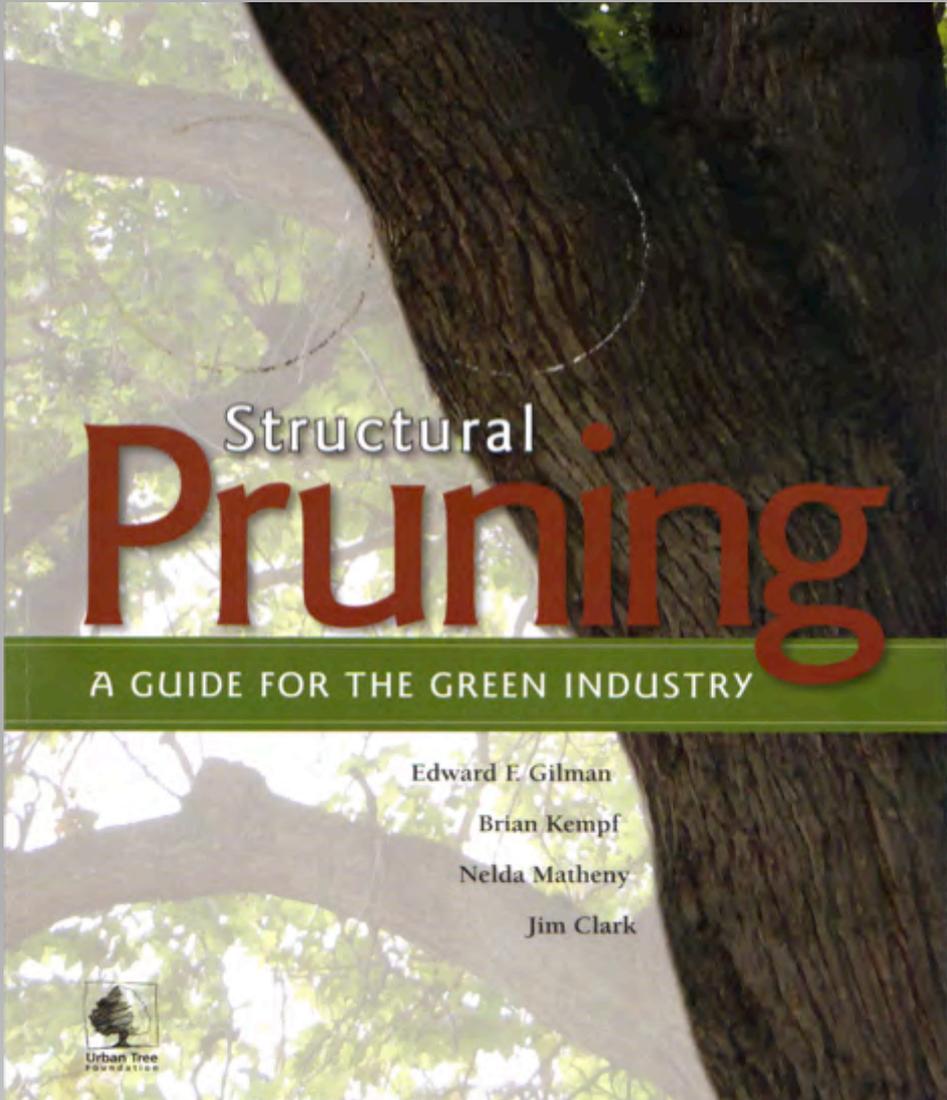
**On larger branches, remove weight
before final cut**





Prune at a node or to a lateral branch





Structural Pruning

A GUIDE FOR THE GREEN INDUSTRY

Edward F. Gilman

Brian Kempf

Nelda Matheny

Jim Clark



Structural pruning of young trees

- **Train young trees for form**
- **Establish a central leader**
- **Subordinate competing laterals**
- **Eliminate co-dominant stems**
- **Included bark**
- **Thin to permanent scaffold branches**

Prune a little each year for form









Start with quality stock



With a tree like this, better to start over

**Subordinate
competing side
branches**



**Cut just above a
node**

**Never remove
more than 25%
of live crown at
one time**

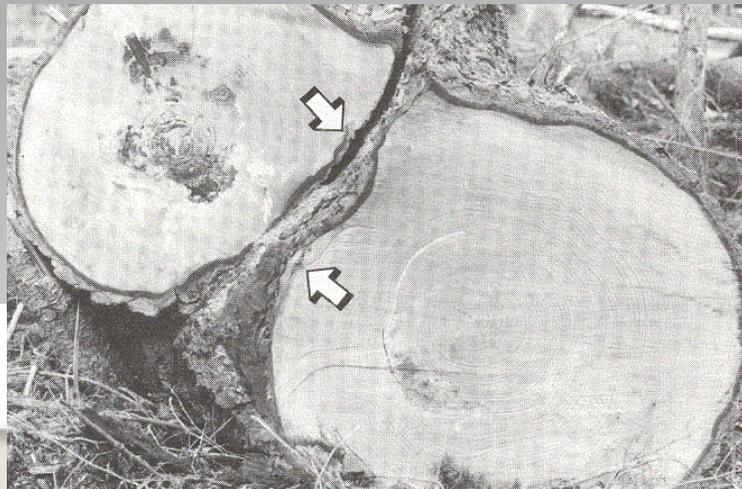
Work with young trees over several years



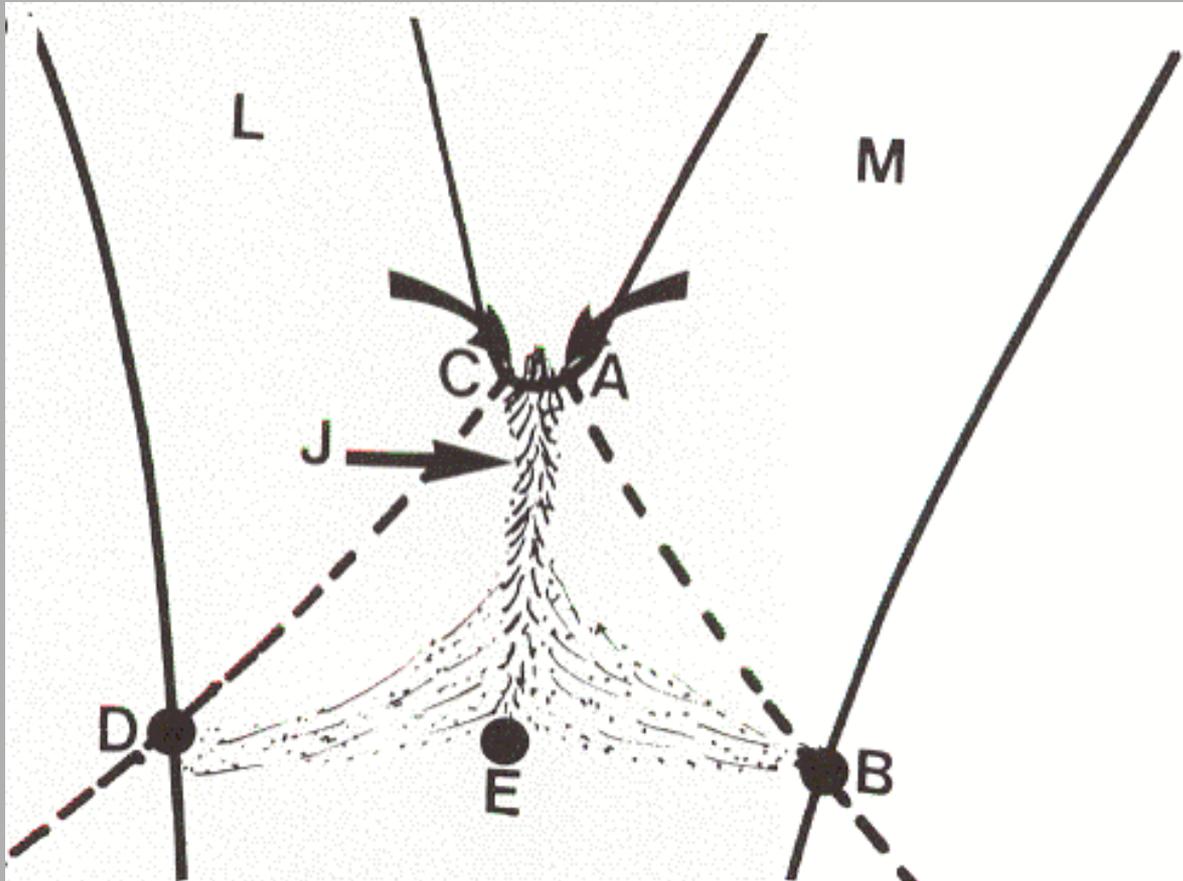
Co-dominant stems



May be able to
cable and brace



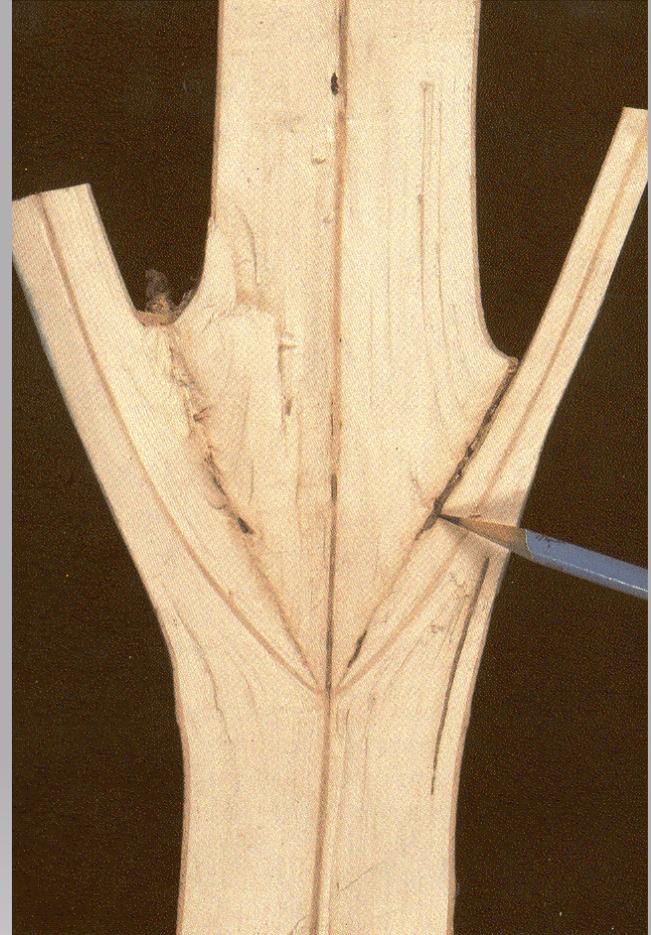




Cut weaker of
the two

No branch collar,
decay will enter
tree

Prune co-dominant stems when tree is young



Weakly attached
branches

Included bark

Form permanent scaffold branches when tree is young



Prune a few each year for several years to achieve right spacing

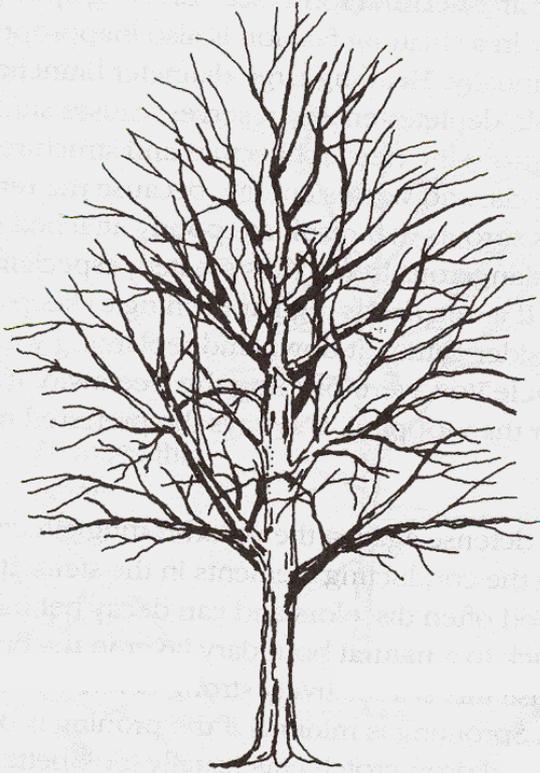
Scaffold branches should be about 18 inches apart for large trees

Builds taper between branches

- **Crown cleaning**
- **Thinning**
- **Water sprouts**
- **Lion tailing**
- **Crown raising**
- **Vista pruning**
- **Crown reduction**
- **Topping**
- **Crown restoration**
- **Utility pruning**

Pruning Techniques

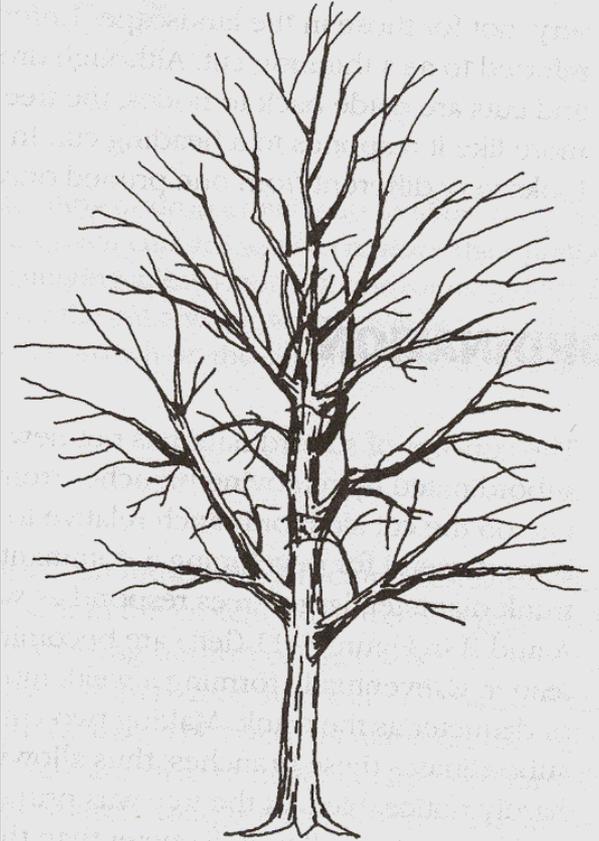
Before Pruning



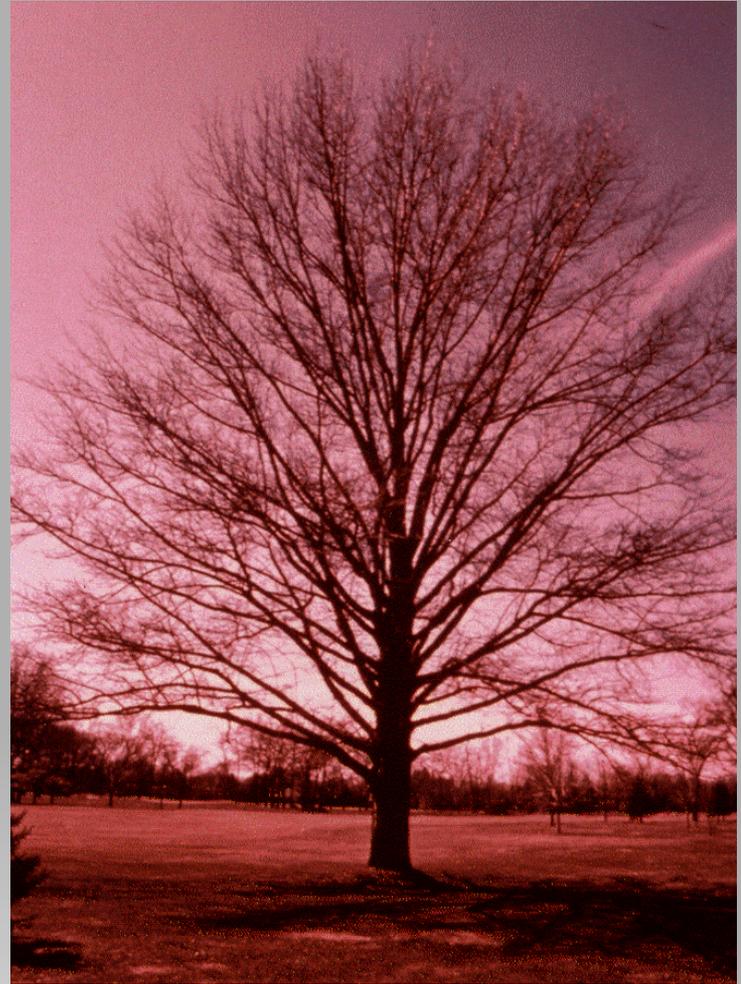
After



**A thinned tree
does not look
pruned**



Thinning



Before Thinning



During Thinning



After Thinning



Watersprouts

Basal sprouts



Adventitious sprouts



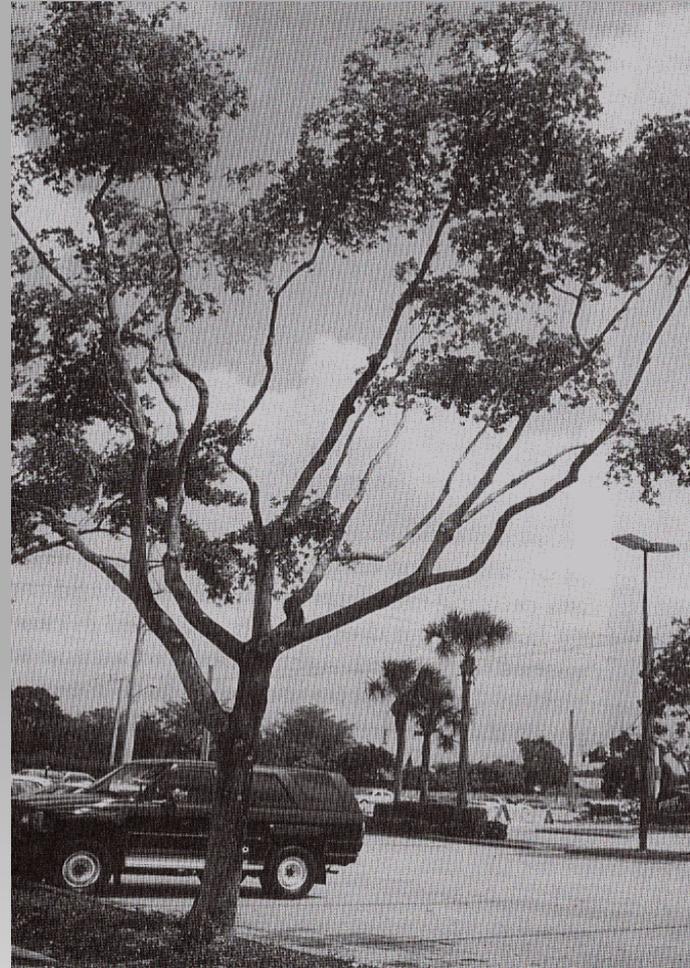




Lion-tailing

No longer
building taper
for strength

Heavy wind sail
on ends



Crossing Branches





Competing Branches



Building Taper

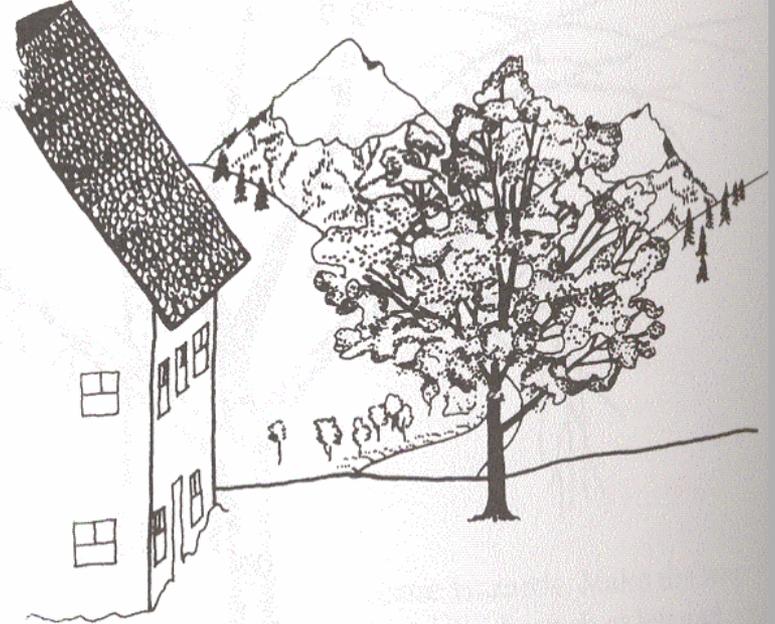


**Used to clear
sight distance
for signs and
traffic**

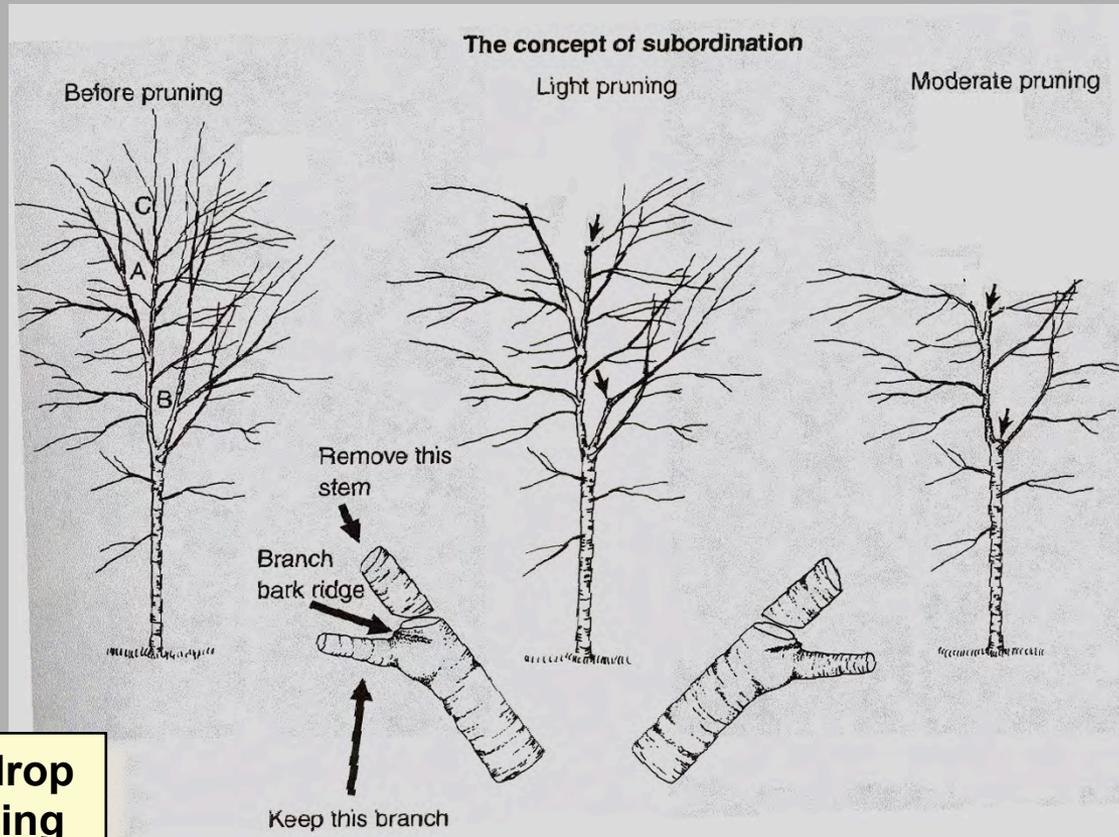
**Allows for
pedestrians and
vehicles**

**Parks will raise
crowns for
security reasons**

Crown Raising



Vista Pruning



Also called drop
crotch pruning

Used in
directional
pruning by
utilities

Crown Reduction

Topping

- ❖ **Stimulates adventitious sprouts**
- **Weak branch attachments**
- **Decay spreads easily to the roots**
- **Results in poor tree form making it hazardous**
- **Premature death**

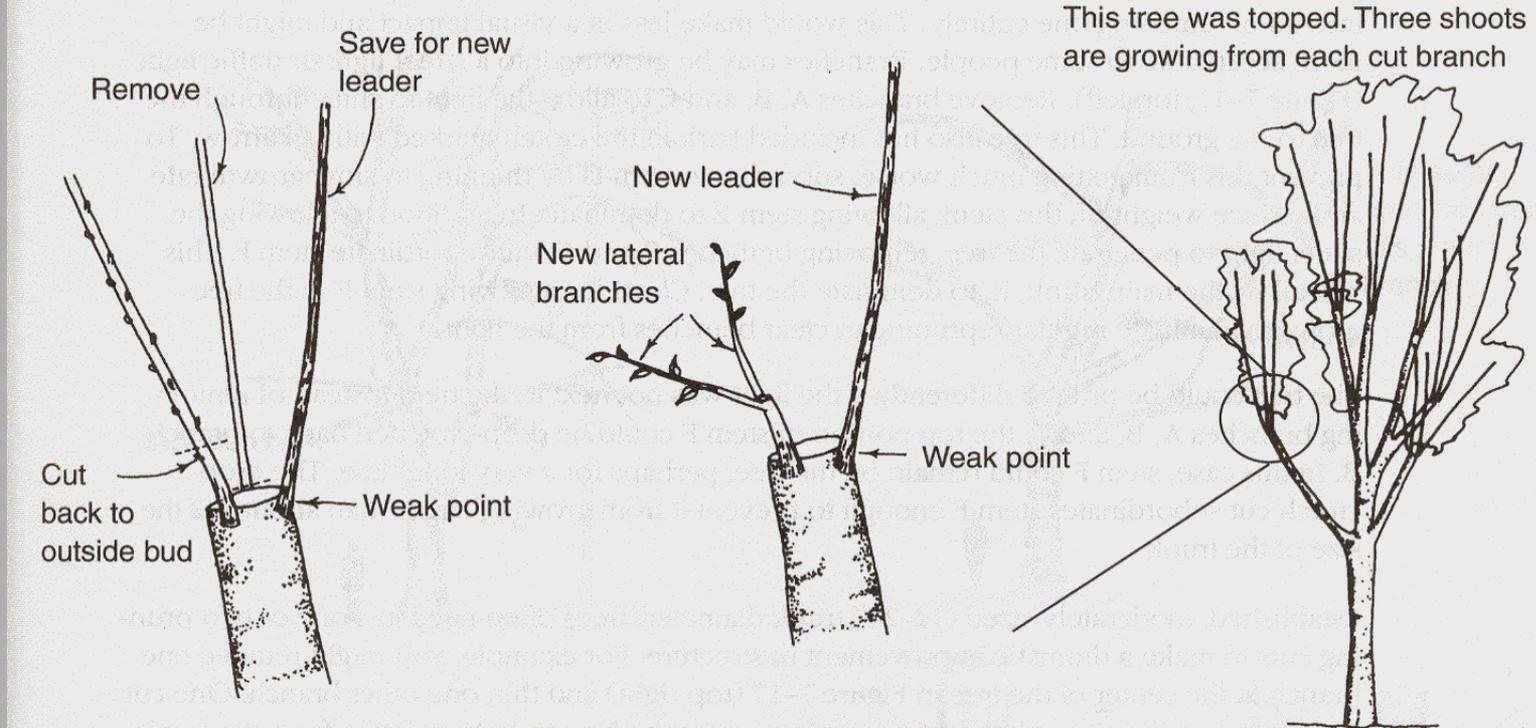
**And
its
ugly!**







Restoring a topped tree

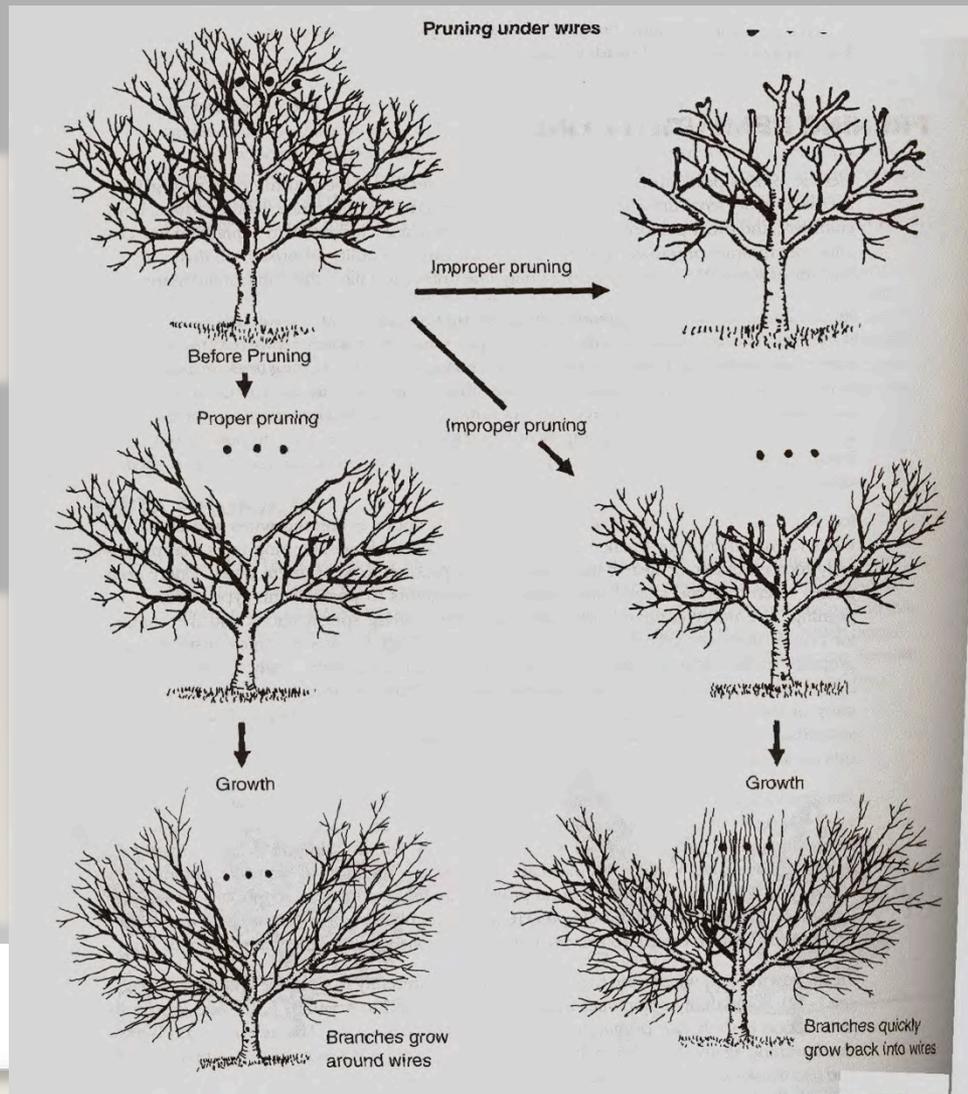


Crown restoration

Utility pruning

Directional pruning away from primary conductors

Prune back to a lateral that is at least one-third the diameter of the removed branch

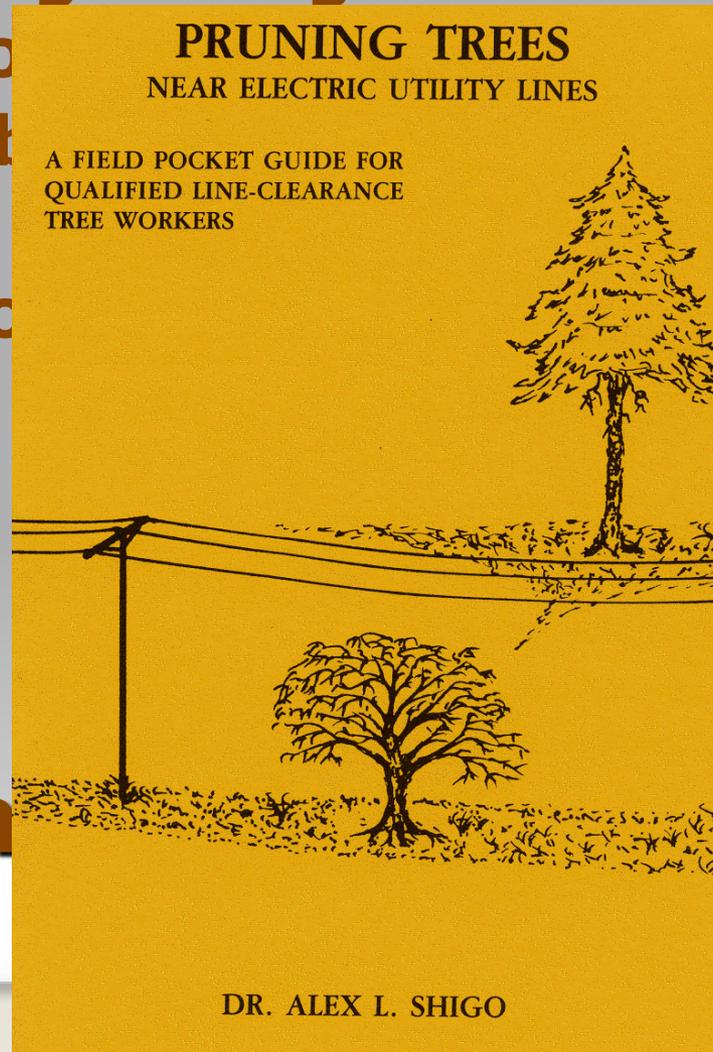


Most common form of shade tree pruning

Must be qualified line clearance pruners



- Utility pruning can be avoided by planting the right tree in the right place
- Plant low growing varieties under and near o
- Only cut b
- Use Shigo



Direction

Pruning Palms

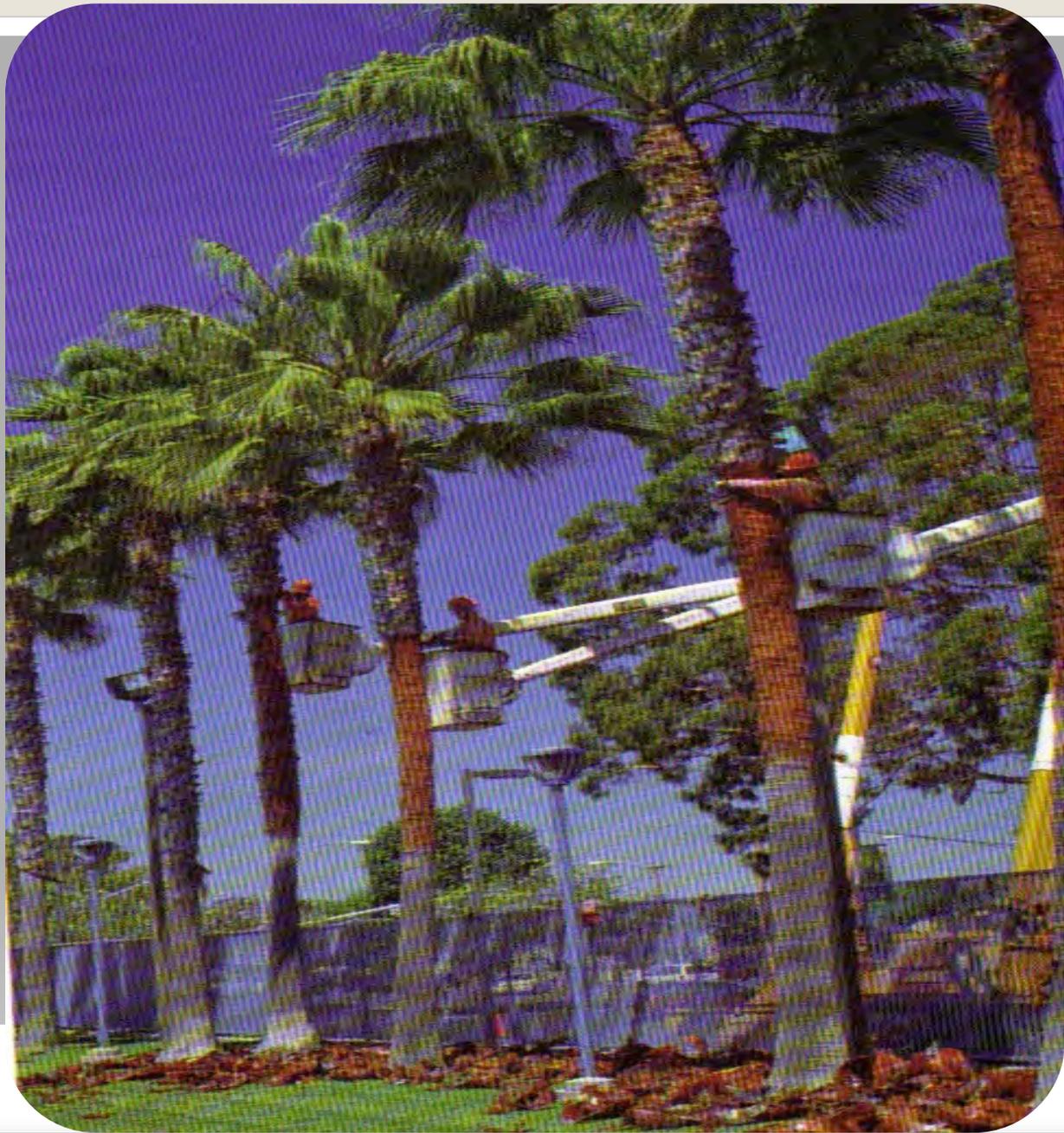


- **prune fronds, flowers, fruit and loose petioles when they pose a danger**
- **only prune petiole base, not the trunk tissue**
- **prune lower half of meristem only**
- **only use climbing spurs on removals and rescues**

**Use caution:
fronds are sharp**











- **Frond skirts
can be
dangerous**



- **Espalier**
- **Pollarding**
- **Topiary (Shaping)**

Specialty Pruning

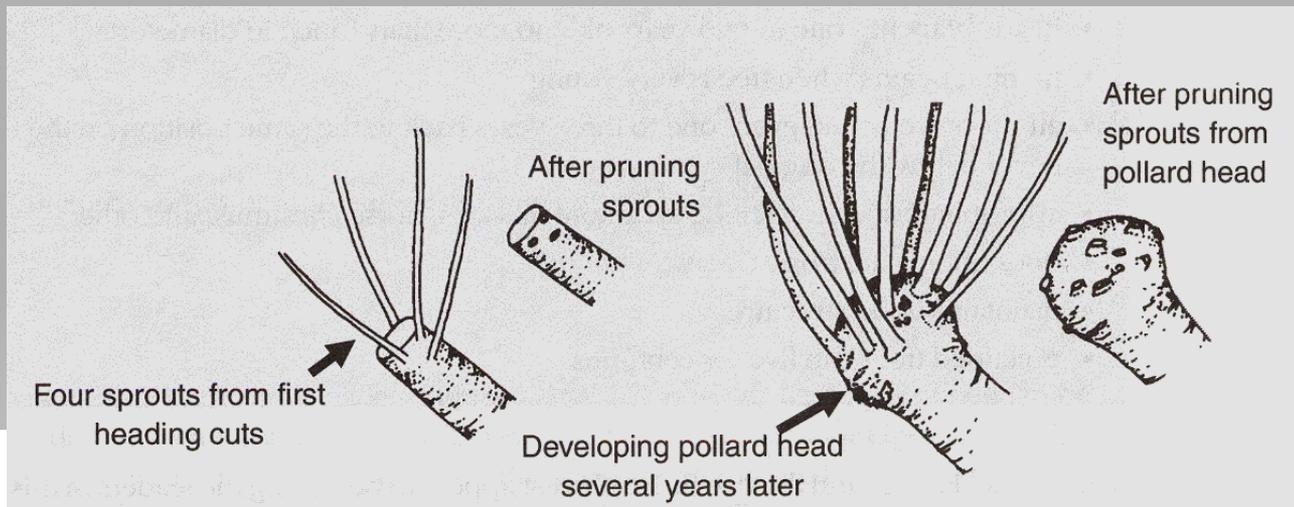


Espalier



Pollarding

Labor intensive



Topiary (Shaping/ Shearing)



- **Not recommended**
- **Do not prevent decay**
- **Actually promotes decay**
- **Cosmetic use of dyes are okay**
- **Some use against Sudden Oak Death, and other diseases**



Wound Dressings

Pruning Tools

- Avoid using loppers
- Use the right size
- Treat tools if you are suspicious



Pruning Tools

- **Use the right tool for the size of the job**



- **Used extensively in agriculture**
- **Use of chemicals; antigibberellins**
- **Reduces branch elongation**
- **Applied to soil, leaves, injected, or banded**
- **Used to reduce water sprouts**
- **Enhances photosynthesis; making for healthier trees**

Plant Growth Regulators (PGRs)

AVOID PRUNING POPLARS

- **Aspen, cottonwoods, hybrid poplars**
- **Easily infected w/ Cytospora canker**
- **Spores are in the air**
- **No cure**
- **Trees die within a few years**

Aspen in the mountains can live for many years after infection



AVOID

G SPRUCE

- Blue, Norway Spruce, Engelmann Spruce
- Spruce kept in shape by pruning crown to ground level
- Unnatural appearance, pruned



Sample Questions

1. The swollen area at the base of a branch where it arises from the trunk is called the branch collar

2. The presence of included
bark in a crotch weakens
branch attachment.

3. Avoid removing more than 25 percent of the canopy in a given year.

4. Three adverse effects of topping or heading back include

a. adventitious sprout production

b. extensive decay of branches

c. premature death

5. **Thinning** includes crown cleaning as well as selective removal of branches to increase light penetration and air movement into the crown of the tree.

Sample Test questions

1. When pruning young trees, it is important to train for a dominant leader and well-spaced scaffold branches so that
 - a. future pruning can be minimized
 - b. the tree will be structurally strong
 - c. co-dominant branching can be avoided
 - d. all of the above

2. To prune trees that flower on the previous year's growth and to maximize flowering, you should

- a. prune any time during the dormant season**
- b. prune shortly after flowering**
- c. prune in late summer after seed formation**
- d. prune in the fall, just after leaf drop**

3. When pruning a branch from a tree, the final cut should be

- a. flush with the parent stem**
- b. at a 45-degree angle to the parent stem**
- c. parallel to the branch bark ridge**
- d. just outside the branch collar**

4. When it comes to pruning, as a rule, mature trees are

- a. more tolerant of extremes than young trees**
- b. capable of tolerating heading**
- c. not tolerant of severe pruning**
- d. unlikely to produce water sprouts**

5. If the height of a tree must be reduced

- a.** branches should be removed at their point of origin or to a lateral large enough to assume apical dominance
- b.** all cuts should be made at internodes to avoid cutting through buds
- c.** the tree should be root pruned to compensate for foliage loss
- d.** all of the above

Questions?

Contact the U of U

Campus Tree

Committee for advice