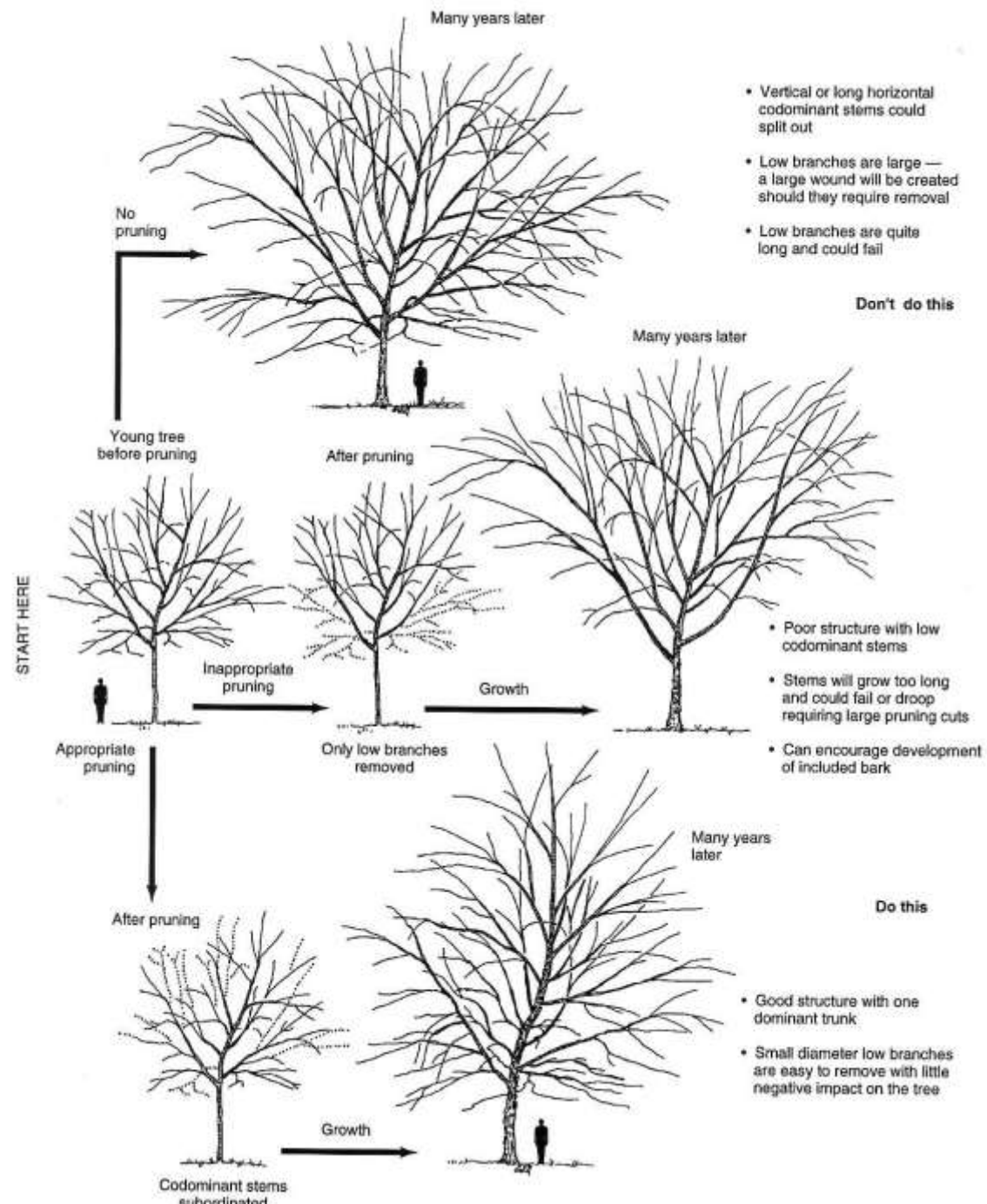


The following details can be found at ISA international web site and <http://hort.ufl.edu/woody>

Pruning is culture-based, not science-  
or experience-based, making it  
difficult to write specifications

Dr. Ed Gilman  
University of Florida

# Typical management world-wide



# Better management

Dominant leader

vs.

Several leaders



Photos Brian Kempf

Trees with several leader are difficult to raise. Sprouts will grow to block signs again



Dominant leader trees are easier to raise or lift the crown for clearance



# Specification outline – whether talking to crew or customer

---

- Objective: structure, clearance, aesthetics
- Cut location:
- Cut type:
- Cut number/diameter:

Been in ANSI A300, Part 1 for many years

# Definitions





leader



Whorl or  
branch  
cluster



Scaffold or  
main limb



Reduction  
cut:  
removes  
larger and  
retains  
smaller



Removal  
cut:  
removes  
small and  
retains  
larger



Interior  
branches:  
non-pruning  
zone



Peripheral  
(exterior)  
branches:  
pruning  
zone

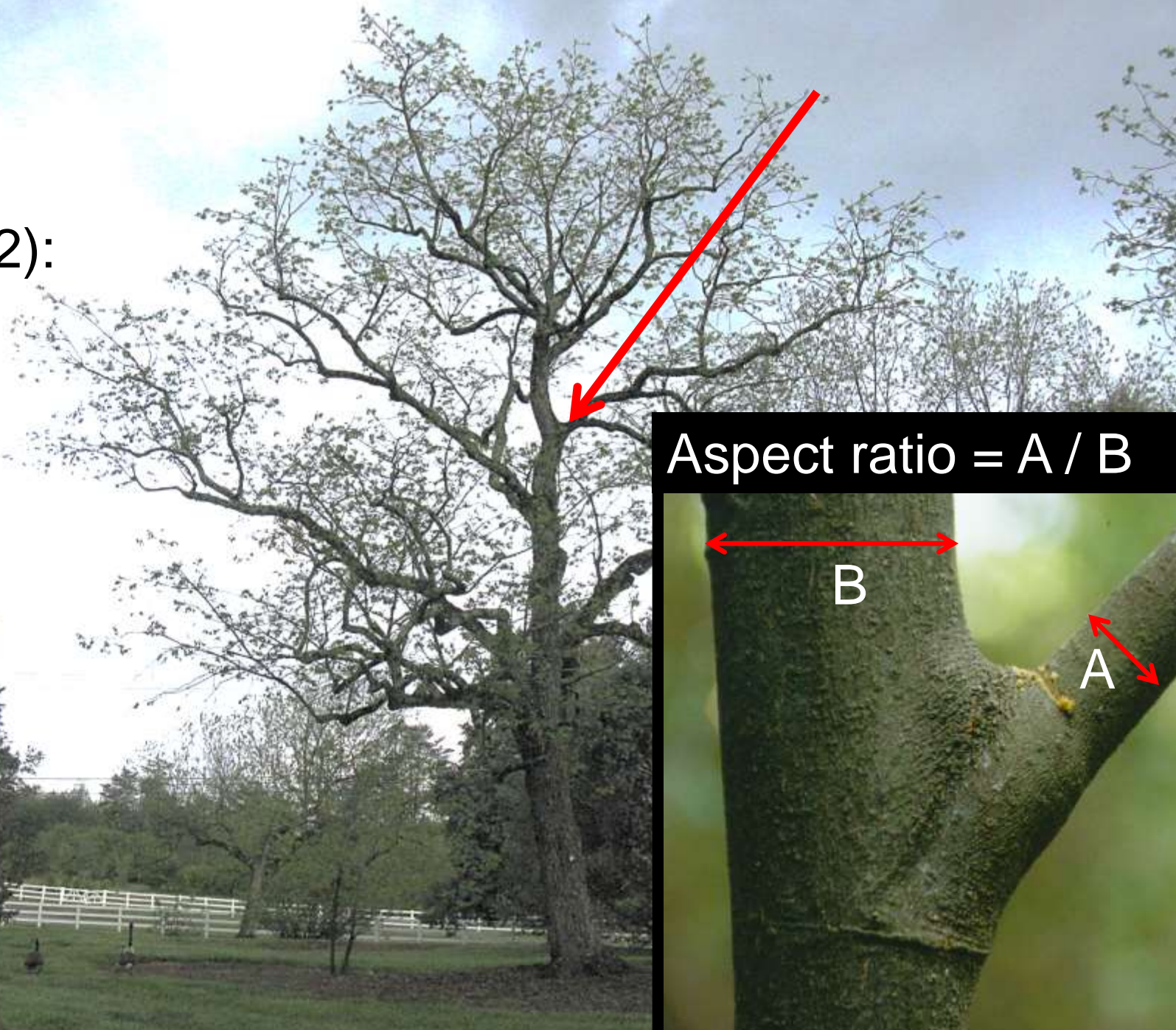


Small aspect ratio: strong union





Small aspect ratio (1/2): strong union

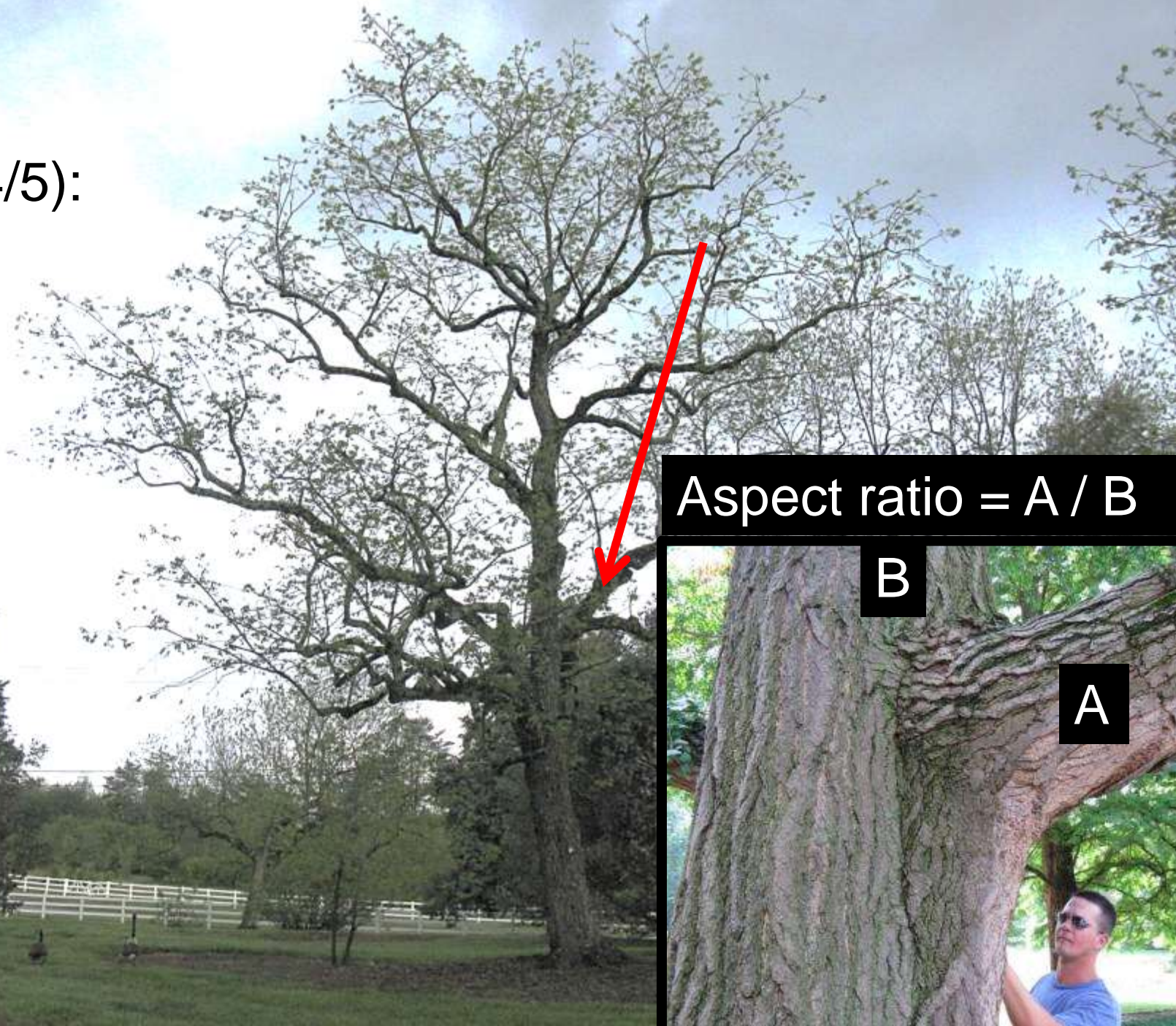


Aspect ratio =  $A / B$

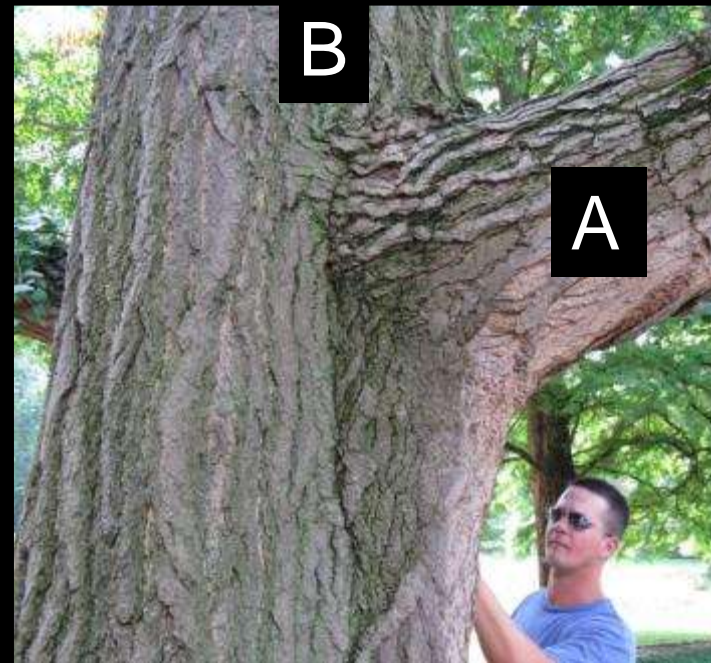
B

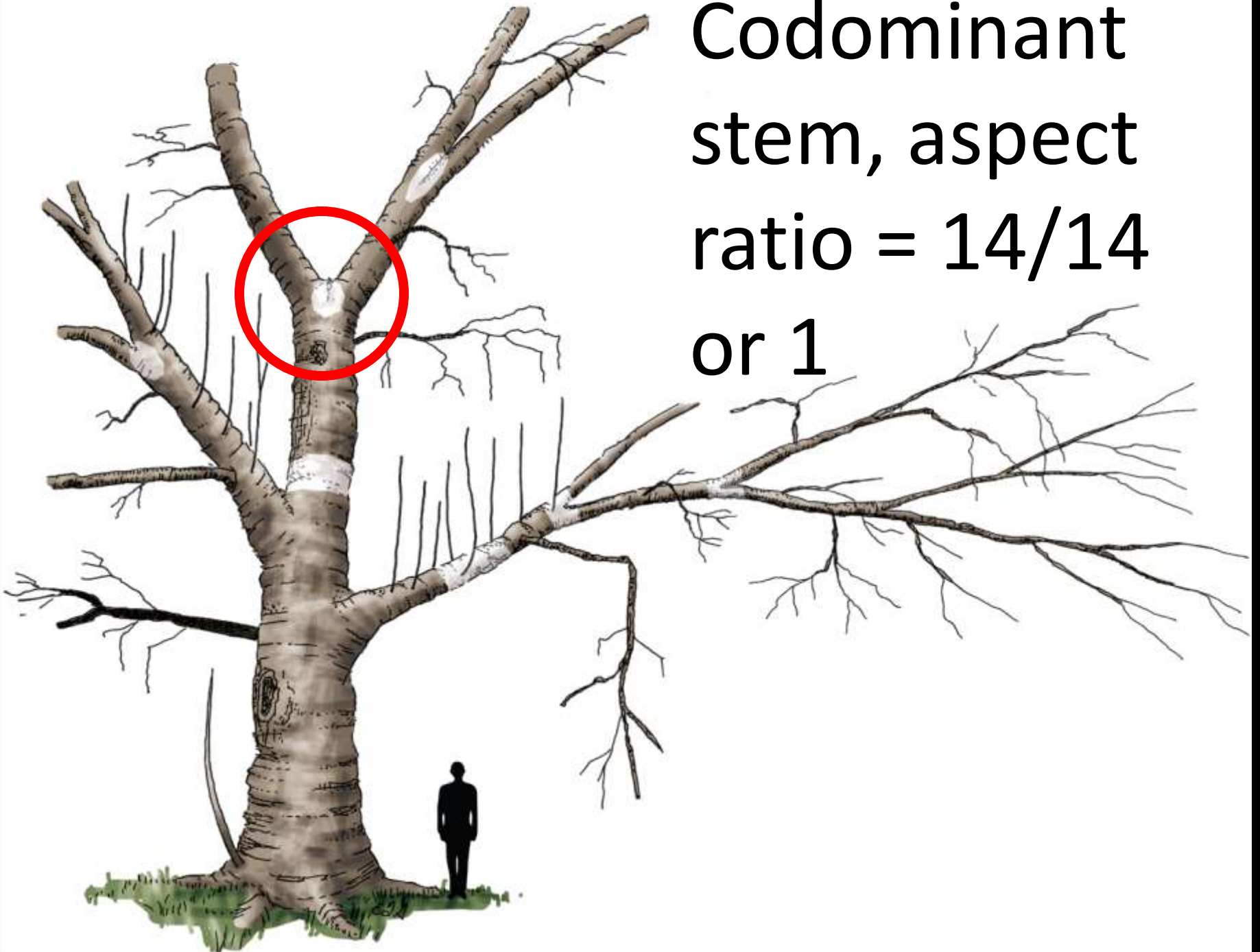
A

Large  
aspect  
ratio (4/5):  
not as  
strong





Aspect ratio =  $A / B$





Codominant  
stem, aspect  
ratio =  $14/14$   
or 1

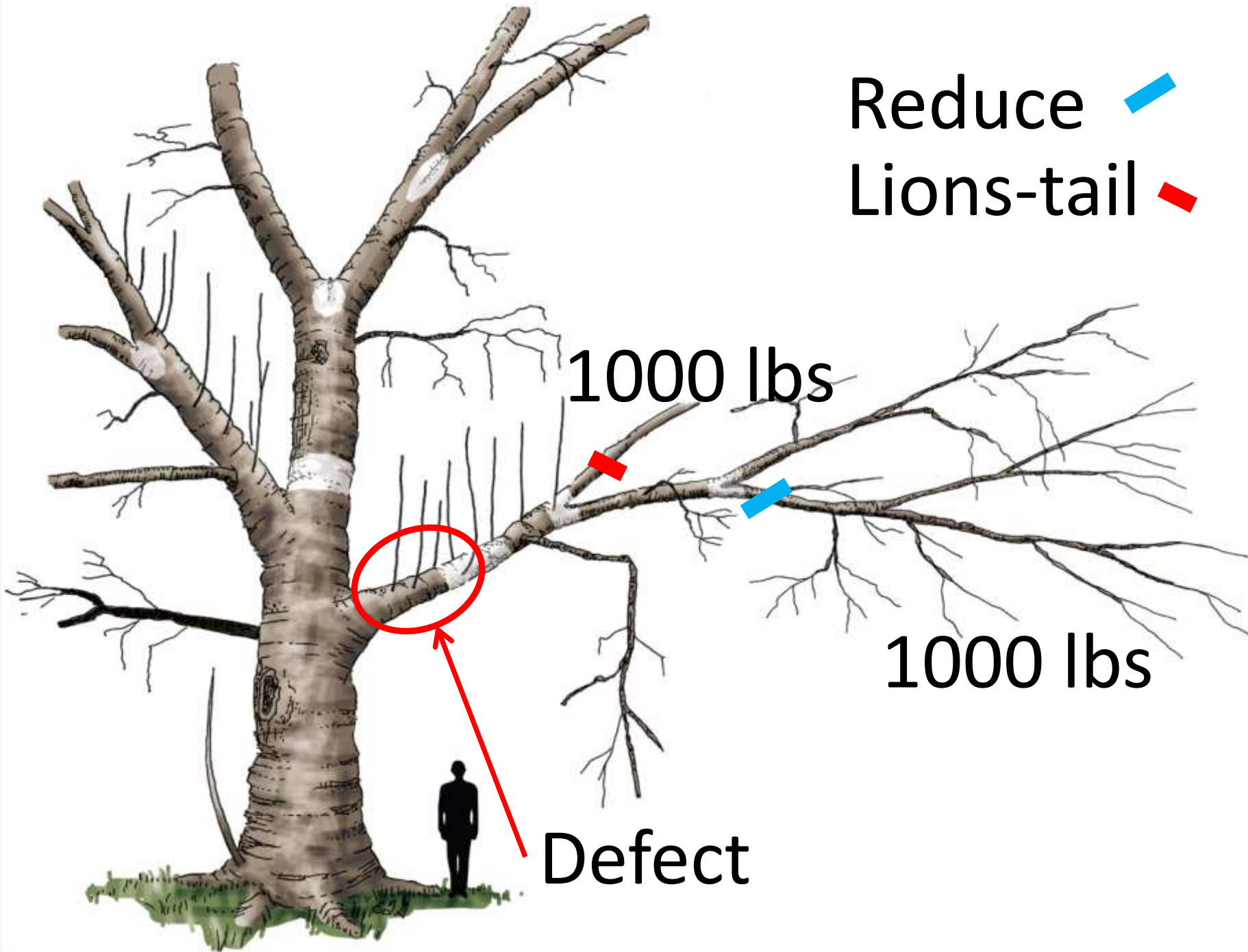
Reduce   
Lions-tail 



1000 lbs

1000 lbs



Defect



Reduce   
Lions-tail 

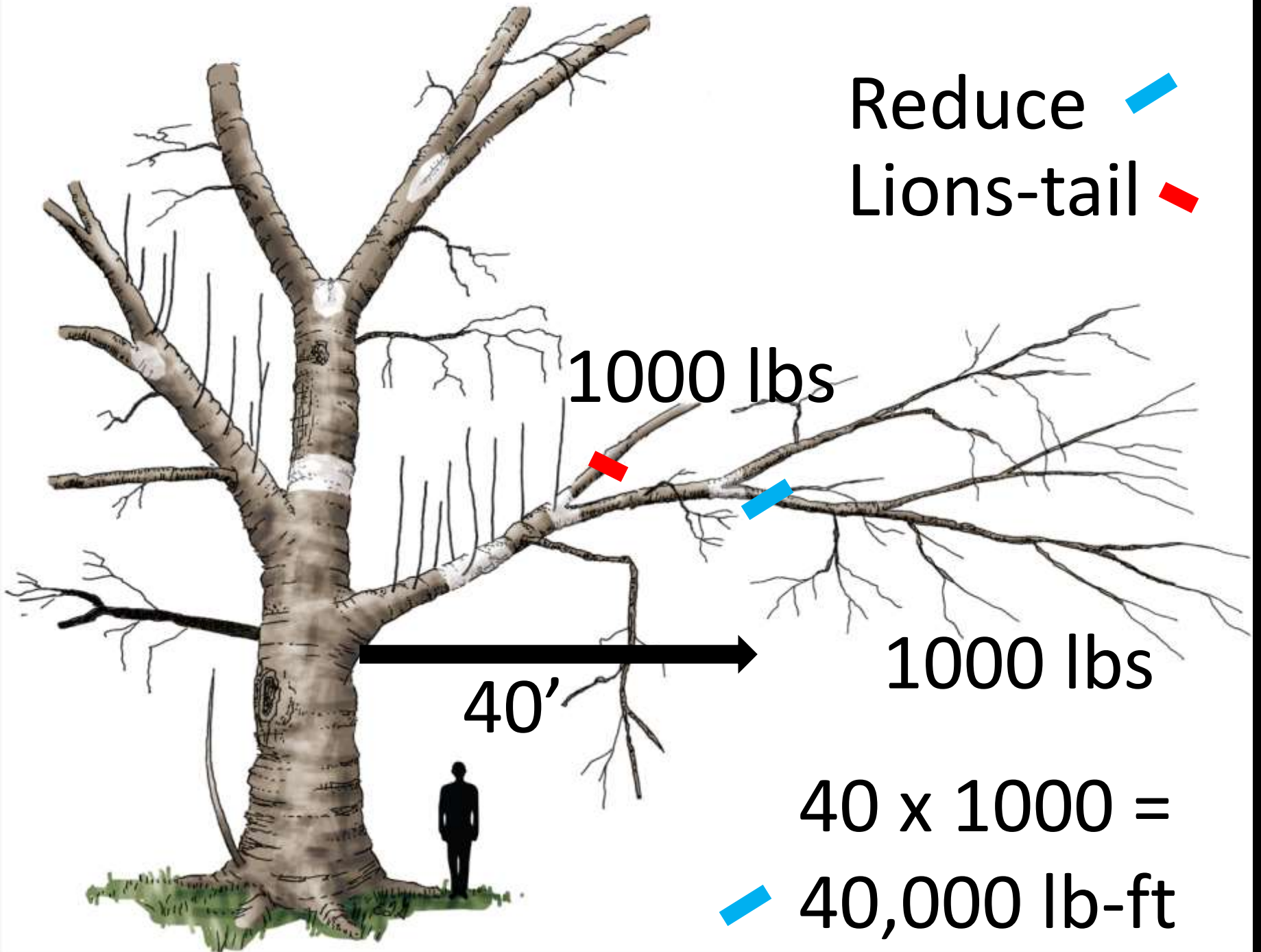
1000 lbs

1000 lbs

40'

40 x 1000 =

 40,000 lb-ft





$25 \times 1000 =$   
 $25,000 \text{ lb-ft}$  

1000 lbs

25'

1000 lbs

40'

$40 \times 1000 =$

  $40,000 \text{ lb-ft}$



$25 \times 1000 =$   
 $25,000 \text{ lb-ft}$  

1000 lbs

25'

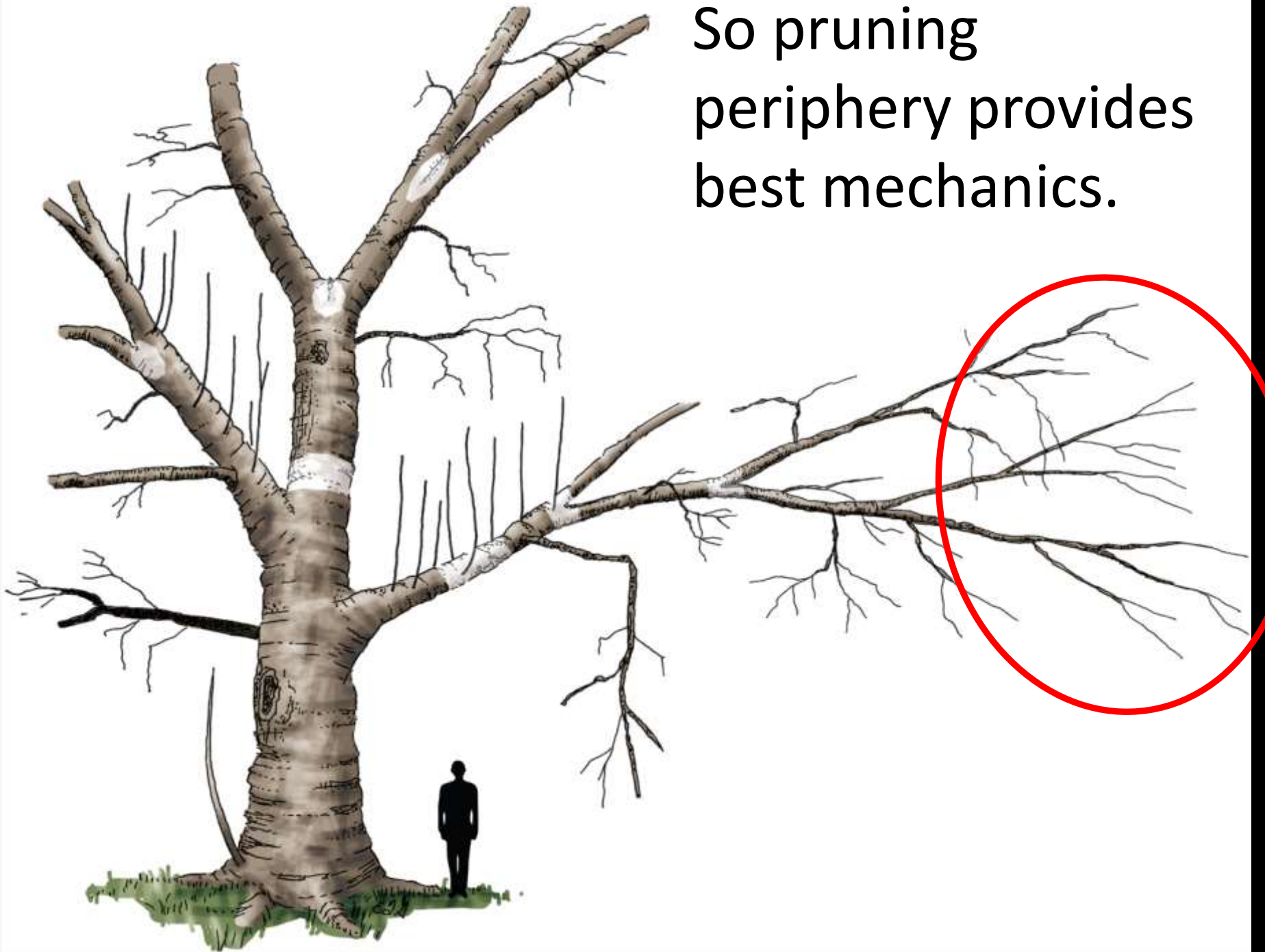
1000 lbs

40'

$40 \times 1000 =$

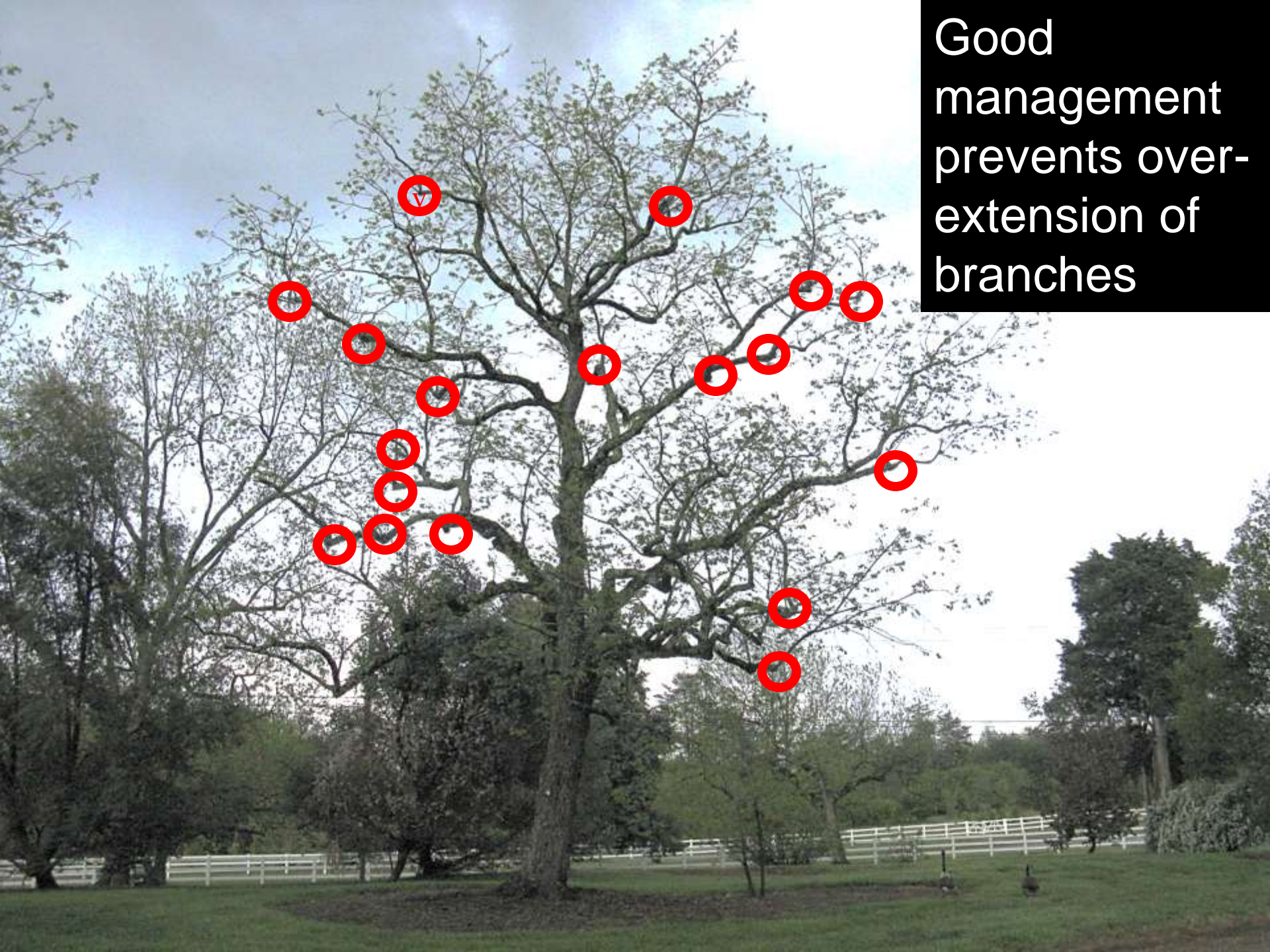
  $40,000 \text{ lb-ft}$

So pruning  
periphery provides  
best mechanics.





Good management prevents over-extension of branches



# Common objectives

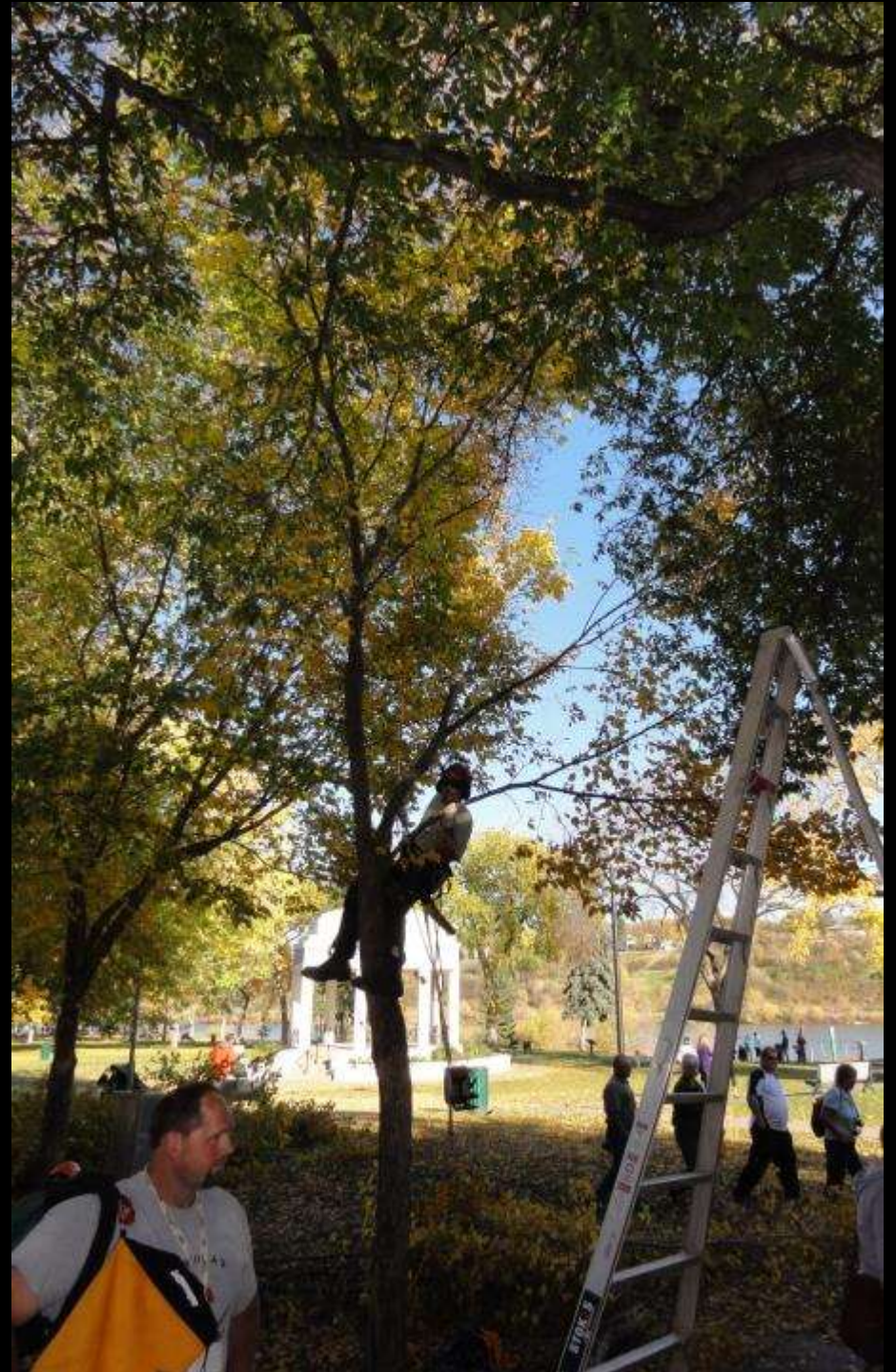
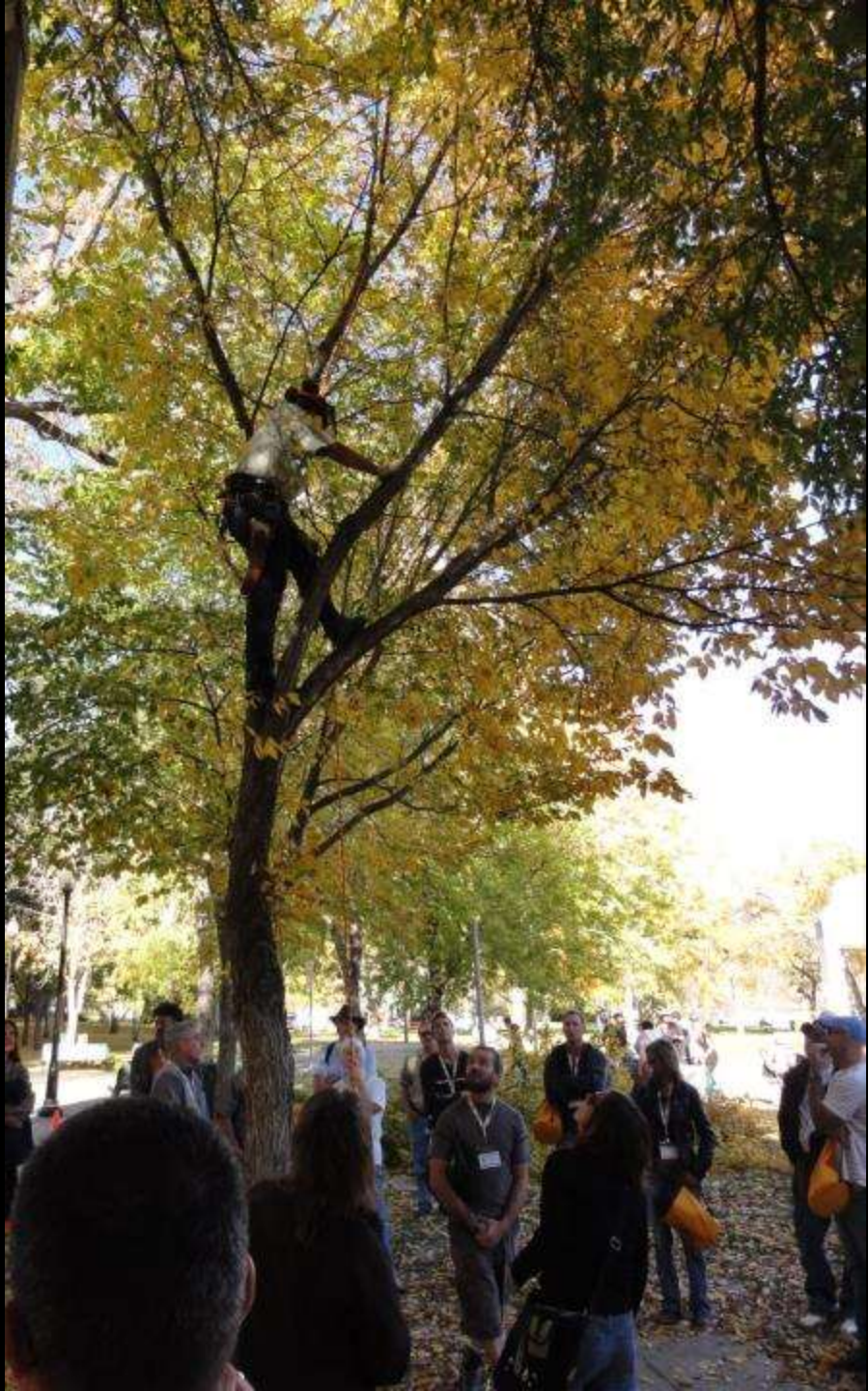
---

Improve structure

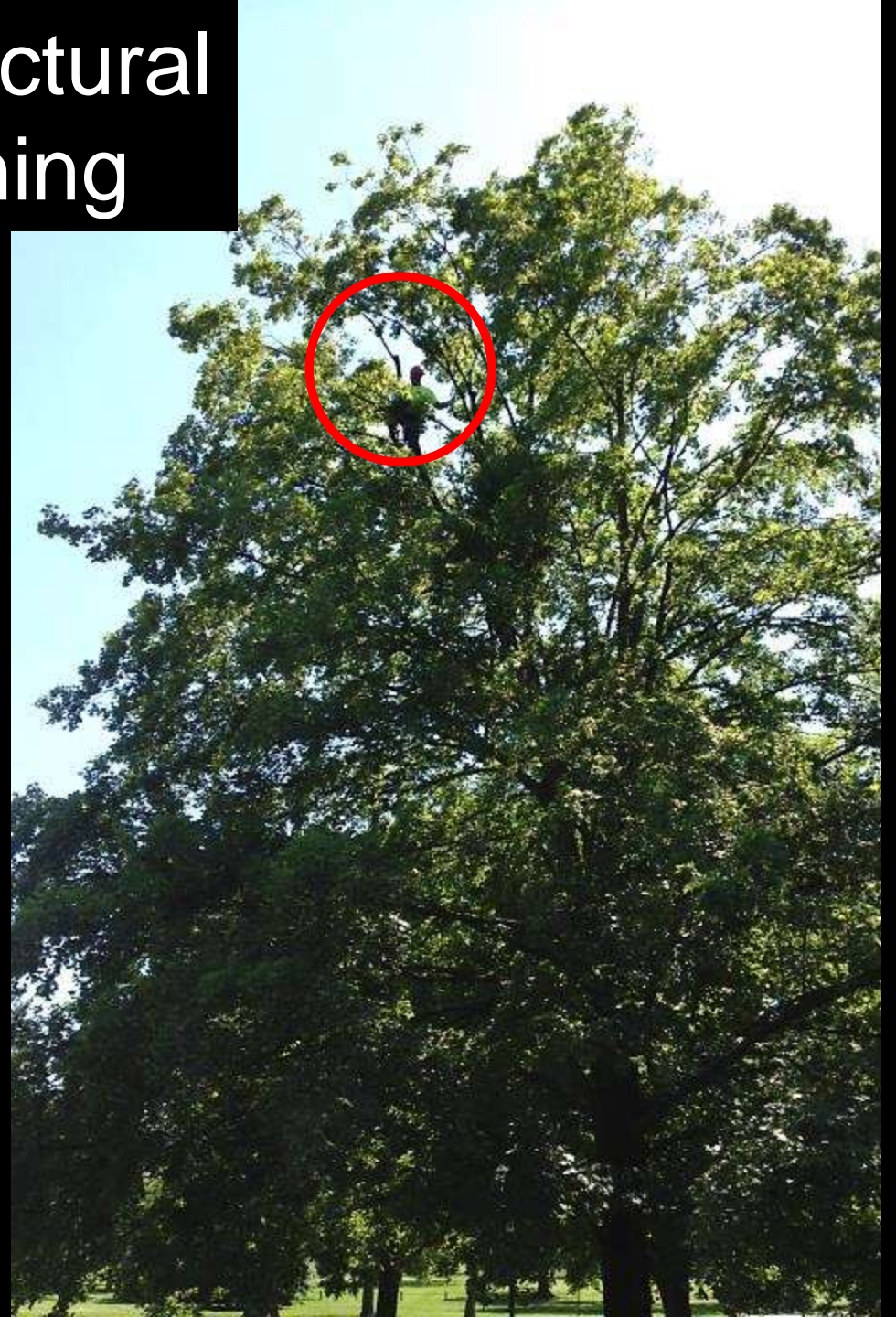
Provide clearance

Improve aesthetics

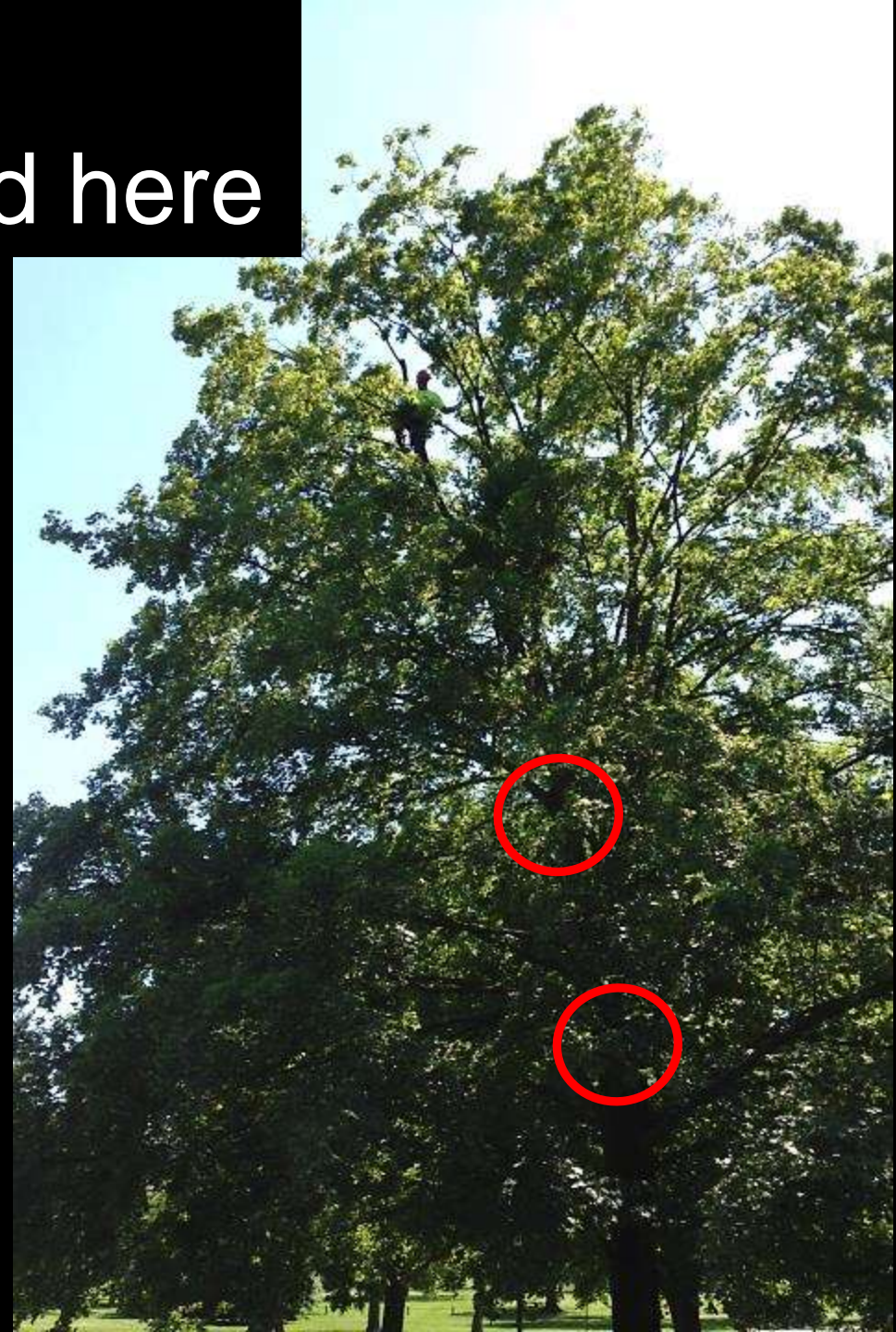
Manage size



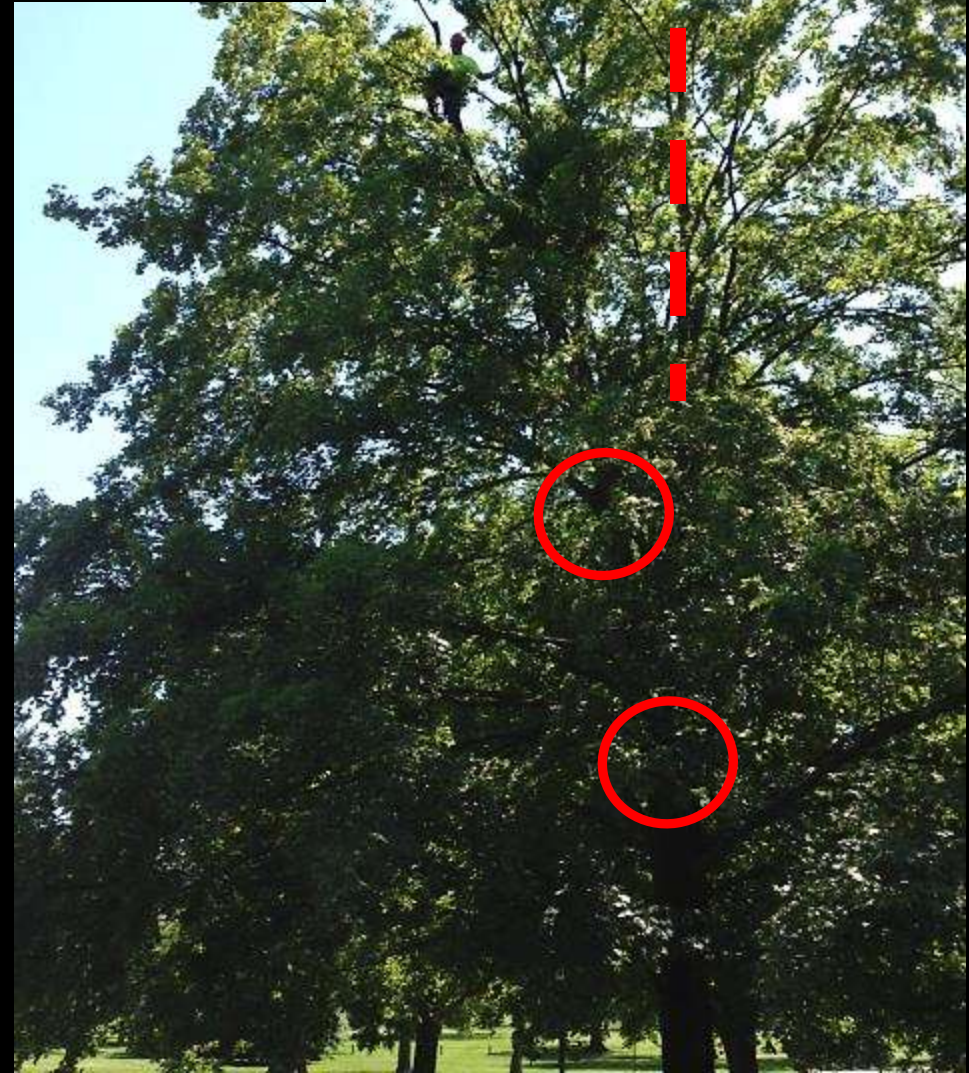
# Structural pruning



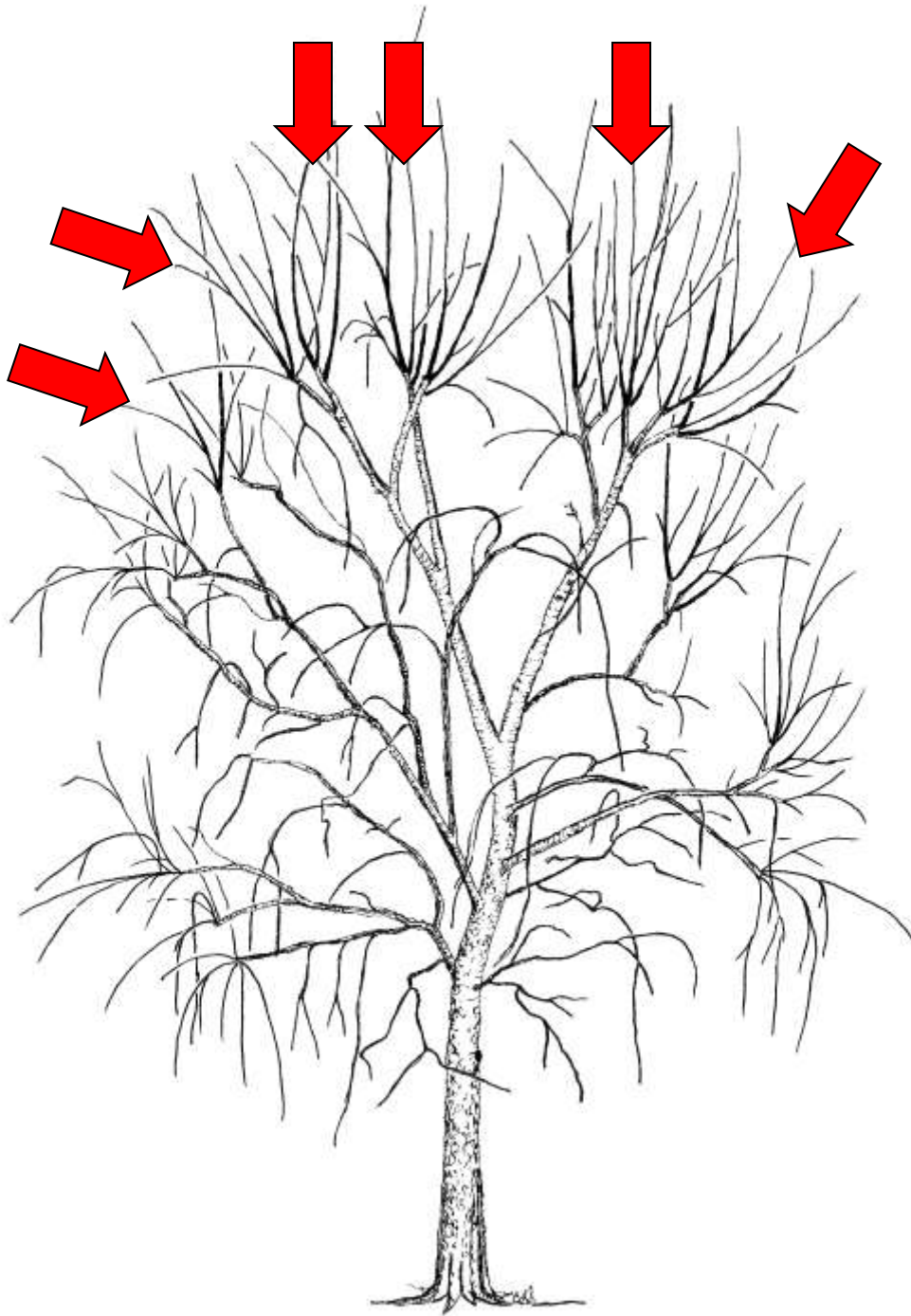
Stress  
reduced here



Without increasing  
bending stress on  
leader (Gilman et al. 2015)

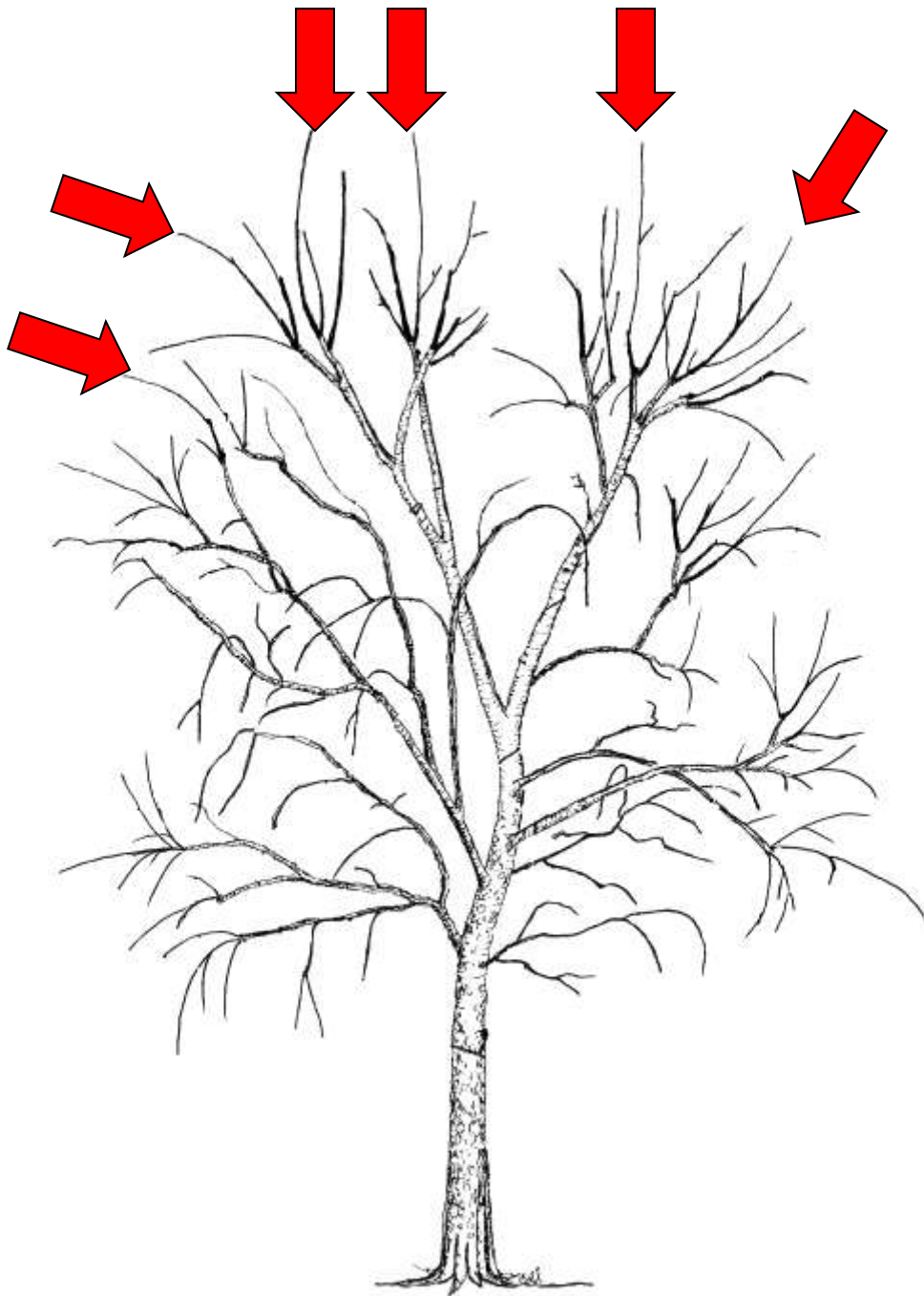


11:20



Choose several  
branch leaders





Cut back the  
competition

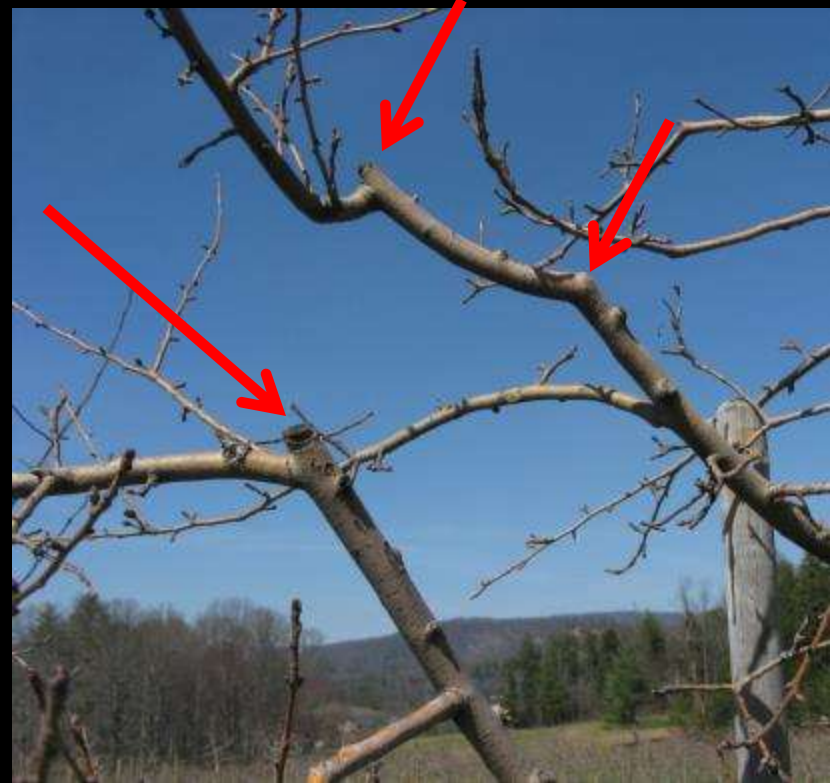
# Clearance



**If you don't want  
branches removed at  
the trunk, specify  
reduction instead**



Reduce size



*Malus*  
orchard



# Sub-standard

---

# Substandard raising: lions-tailing

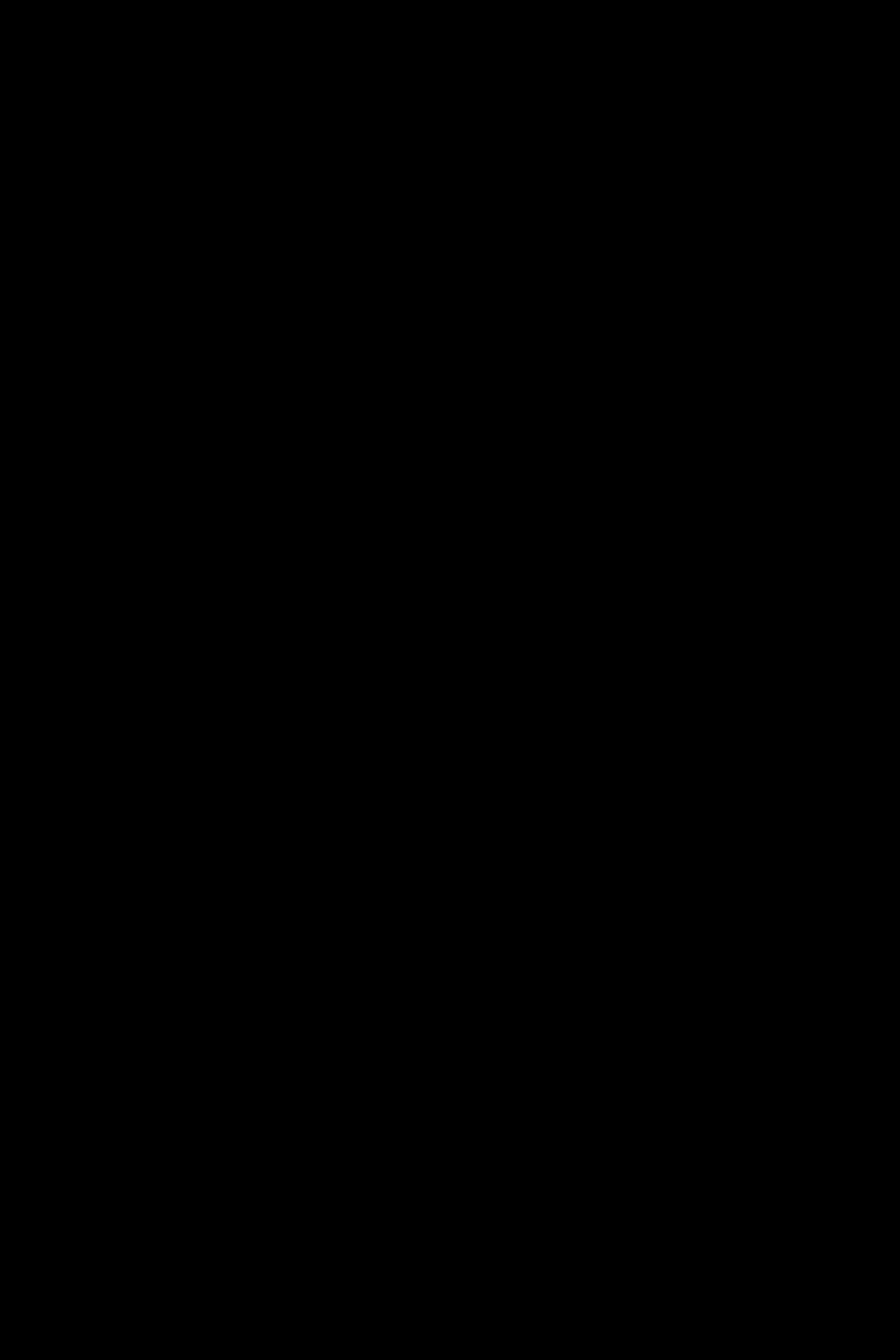


**Only removal cuts used**





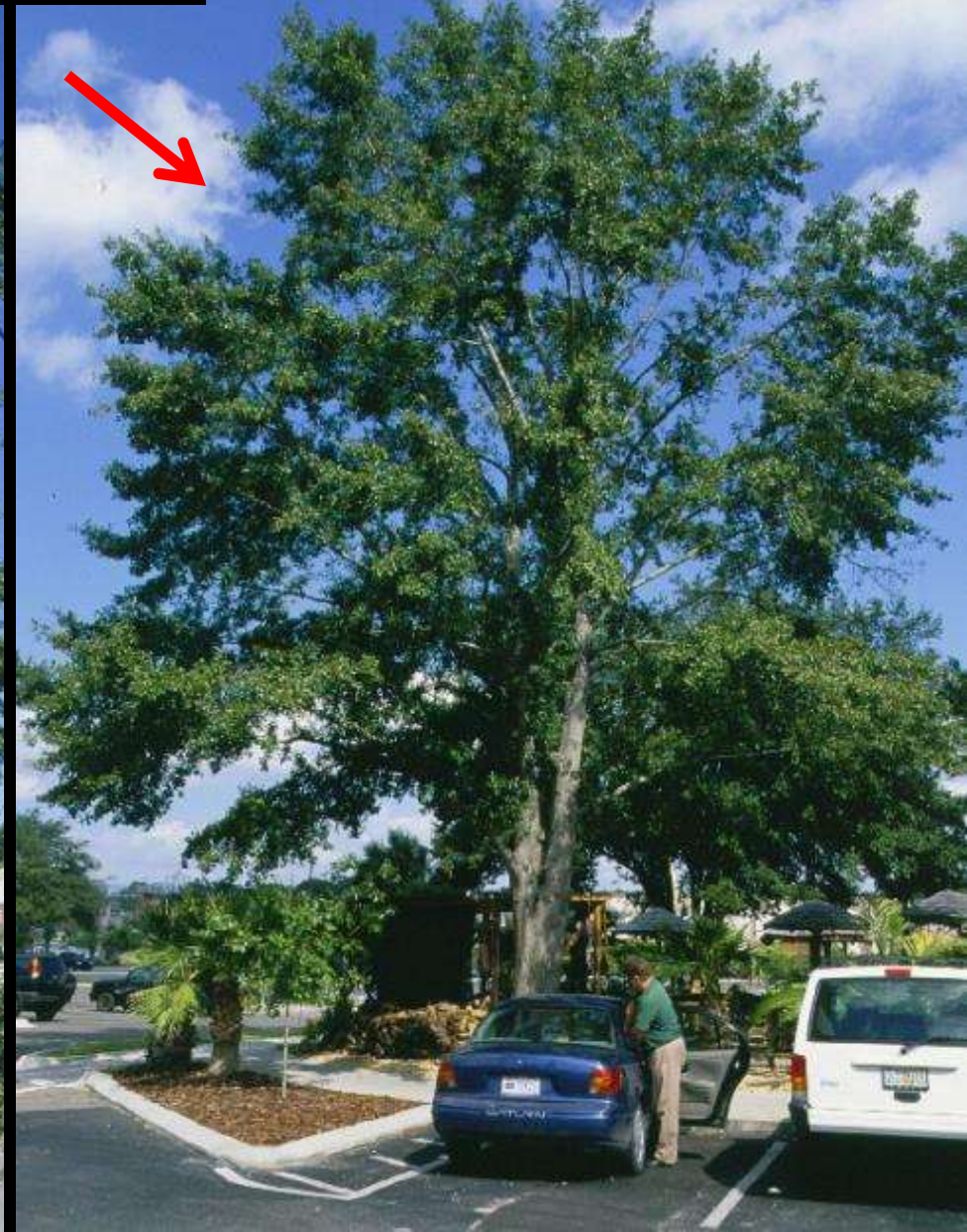
**After pruning**



**After pruning**



**Larger  
gap**



**2 years later**

# Pruning specifications (ANSI A300)

---

- Objective:
- Cut location:
- Cut type:
- Cut number/diameter:

Specify  
what you  
would do  
here

Five more slides  
of this tree











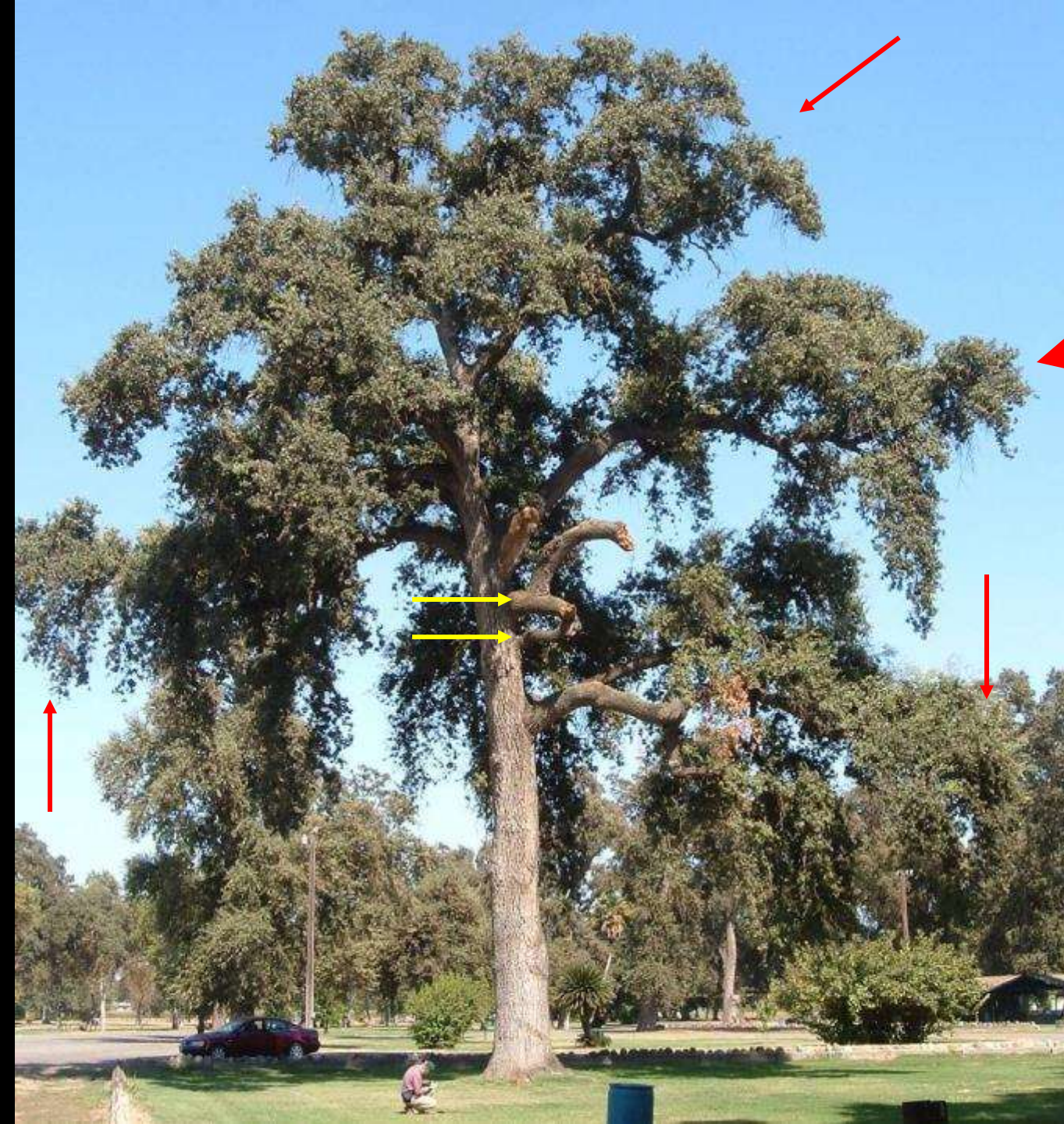


Please  
write  
pruning  
spec.





Remove,  
head, do  
nothing



Reduce

Remove,  
head, do  
nothing

# Pruning specifications

---

- Objective:
- Cut location:
- Cut type:
- Cut number/diameter:

# Pruning specifications

---

- Objective: reduce risk
- Cut location:
- Cut type:
- Cut number/diameter:

# Pruning specifications

---

- Objective: reduce risk
- Cut location: periphery of largest branches
- Cut type:
- Cut number/diameter:

# Pruning specifications

---

- Objective: reduce risk
- Cut location: periphery of largest branches
- Cut type: reduction; removal or heading
- Cut number/diameter:

# Pruning specifications

---

- Objective: reduce risk
- Cut location: periphery of largest branches
- Cut type: reduction; removal or heading
- Cut number/diameter: four 4-5" reduction;  
two 12-14" heading cuts



# Describe what was done here



# Specifying a group



# Lets practice writing specifications

---

Objective: Improve branch architecture by subordinating or removing all but one dominant stem

works on the largest and defective branches

# This pruning is being implemented



# Describe what was done here



Large aspect  
ratio

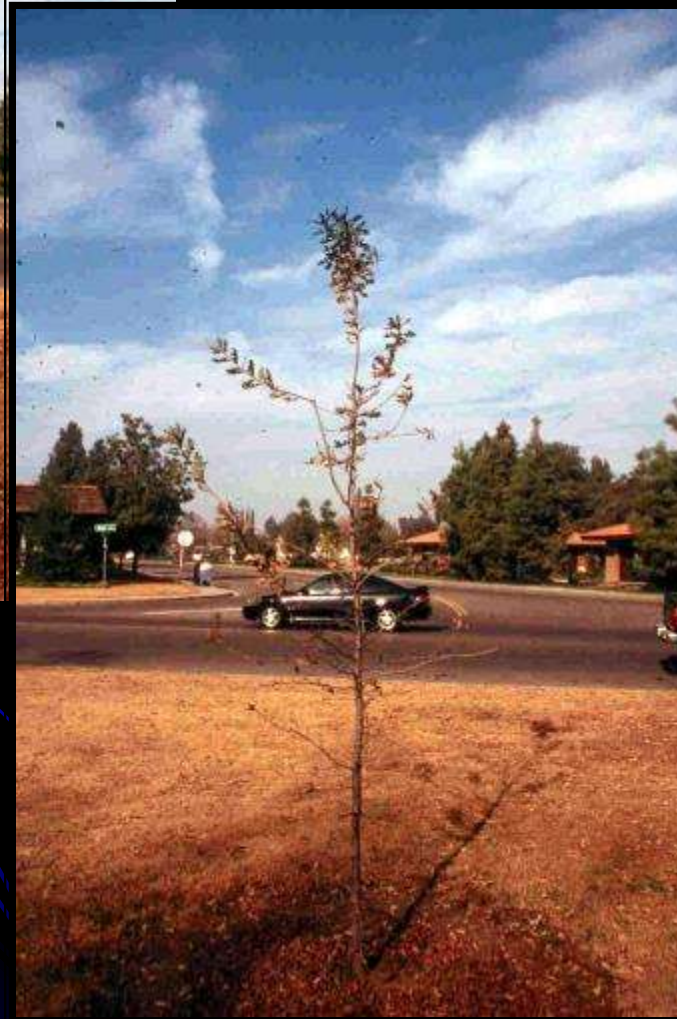


Photo series Brian Kempf  
and Ed Gilman

# One half-inch reduction cut



Large aspect ratio



2 years later

Photo series Brian Kempf and Ed Gilman



Large aspect ratio



2 years later

5 years after  
initial pruning

Small aspect  
ratio





5 years after  
initial pruning



Small aspect  
ratio



# 5 years after initial pruning





Write pruning  
specification  
See next slide before  
writing

One defect  
circled



Before  
pruning  
at  
planting



Before  
pruning  
at  
planting



After  
pruning

# Write pruning specification











11:35

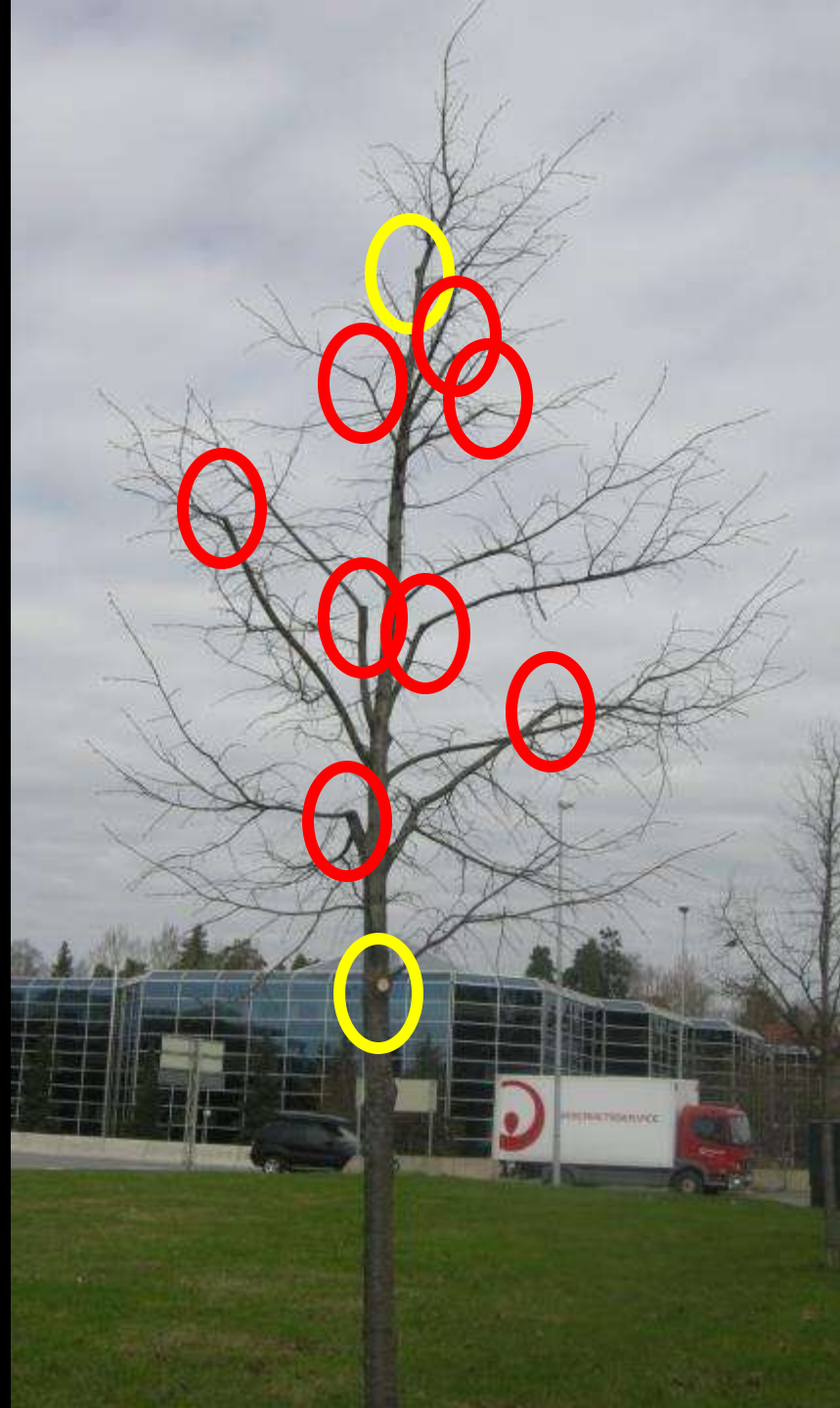
Describe what  
was done

*Acer*



Two **removal** cuts  
eight **reduction**  
cuts

1/2 to 2 inches  
diameter

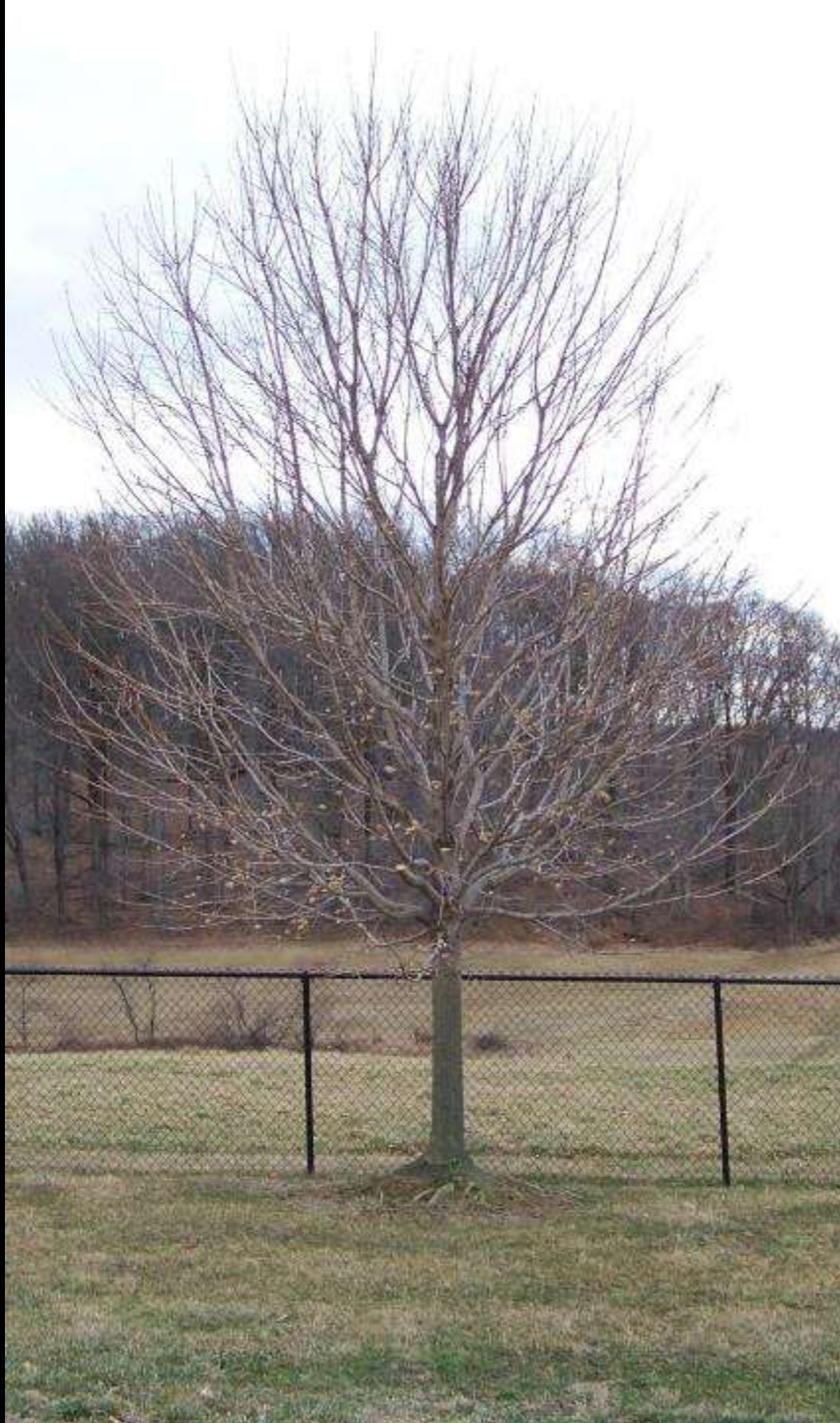


# Write pruning specification

*Pistacia*







Write pruning  
specification

*Acer*





Removed branches –  
35% buds removed



One year  
later



Second  
pruning



Removed branch mass was less than in first pruning



One year later



three years  
after first  
pruning



Another  
2 years



6 years  
later  
with 2  
prunings

