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2010 Western Canada Turfgrass Association conference @ Nanaimo, B.C.

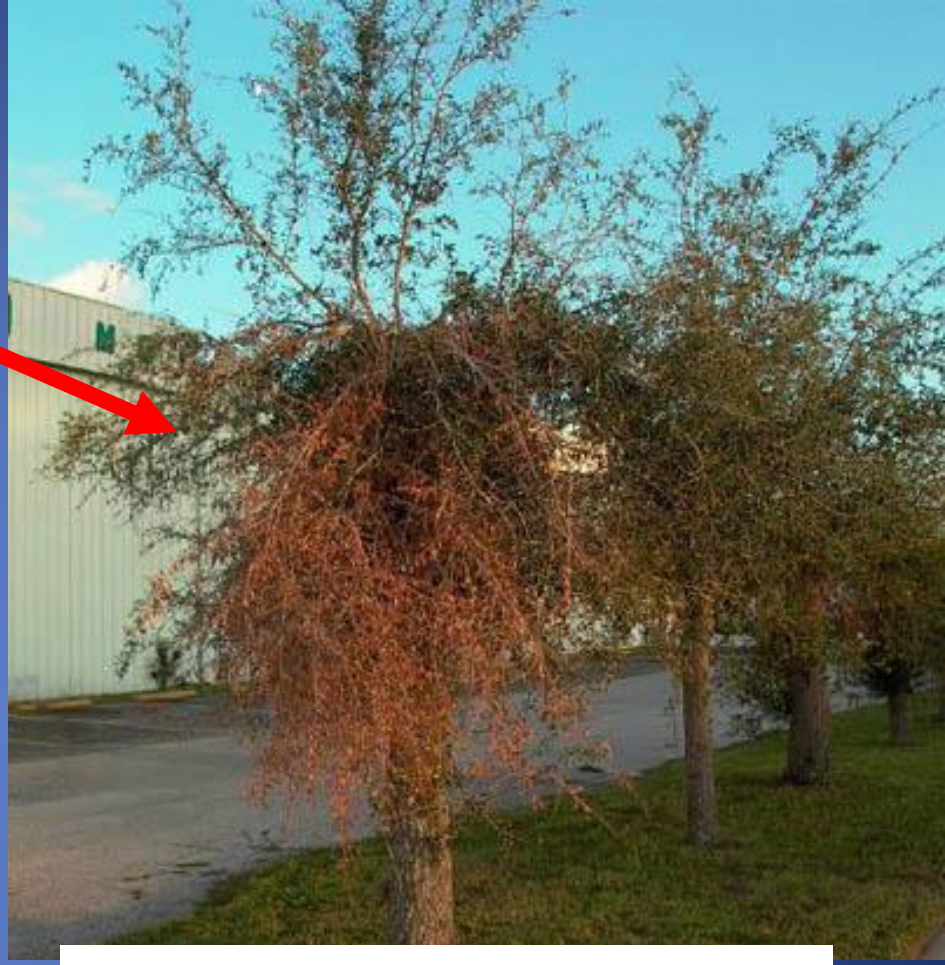
TREE MANAGEMENT ON GOLF COURSES

- PRUNING TECHNIQUES

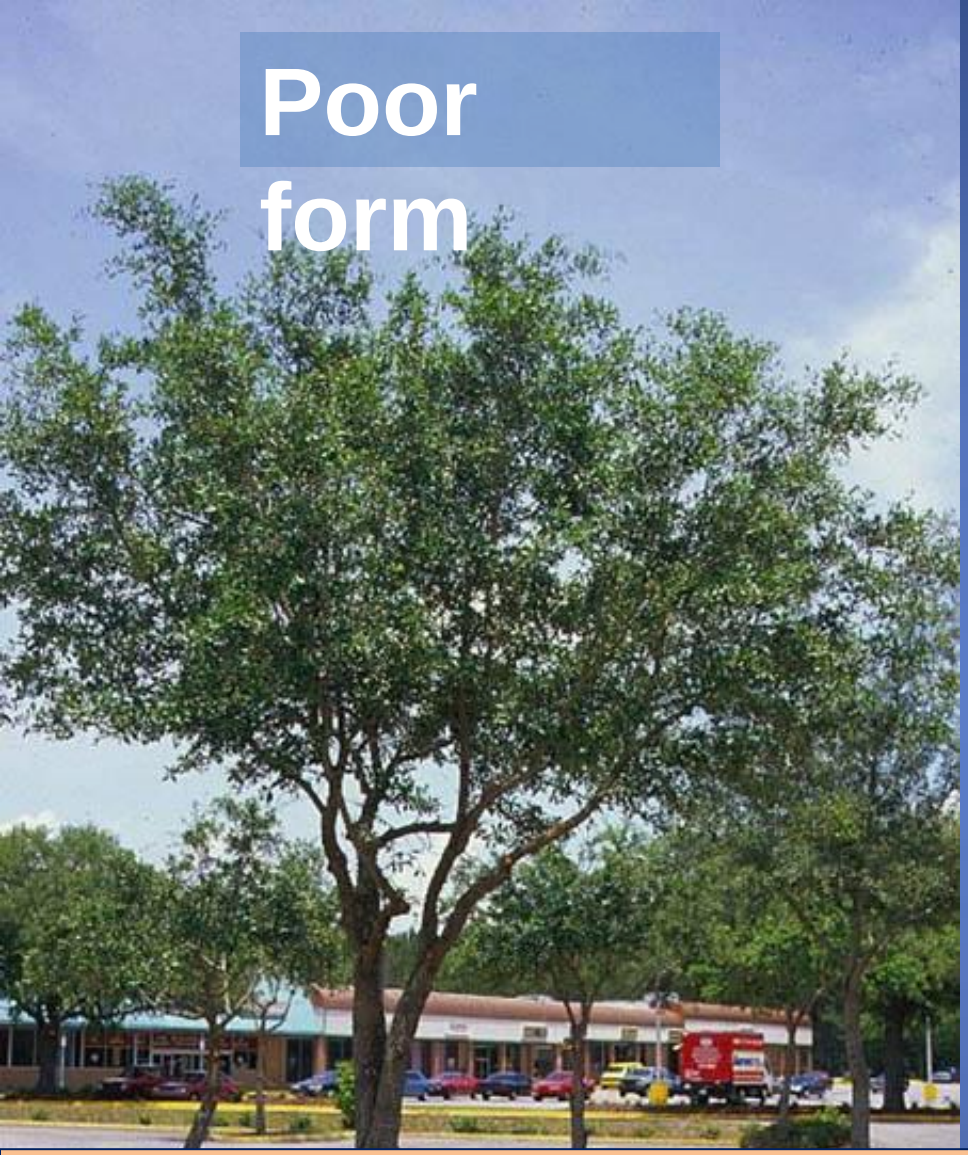
Topping is one of the fastest way to reduce the life span of a tree.

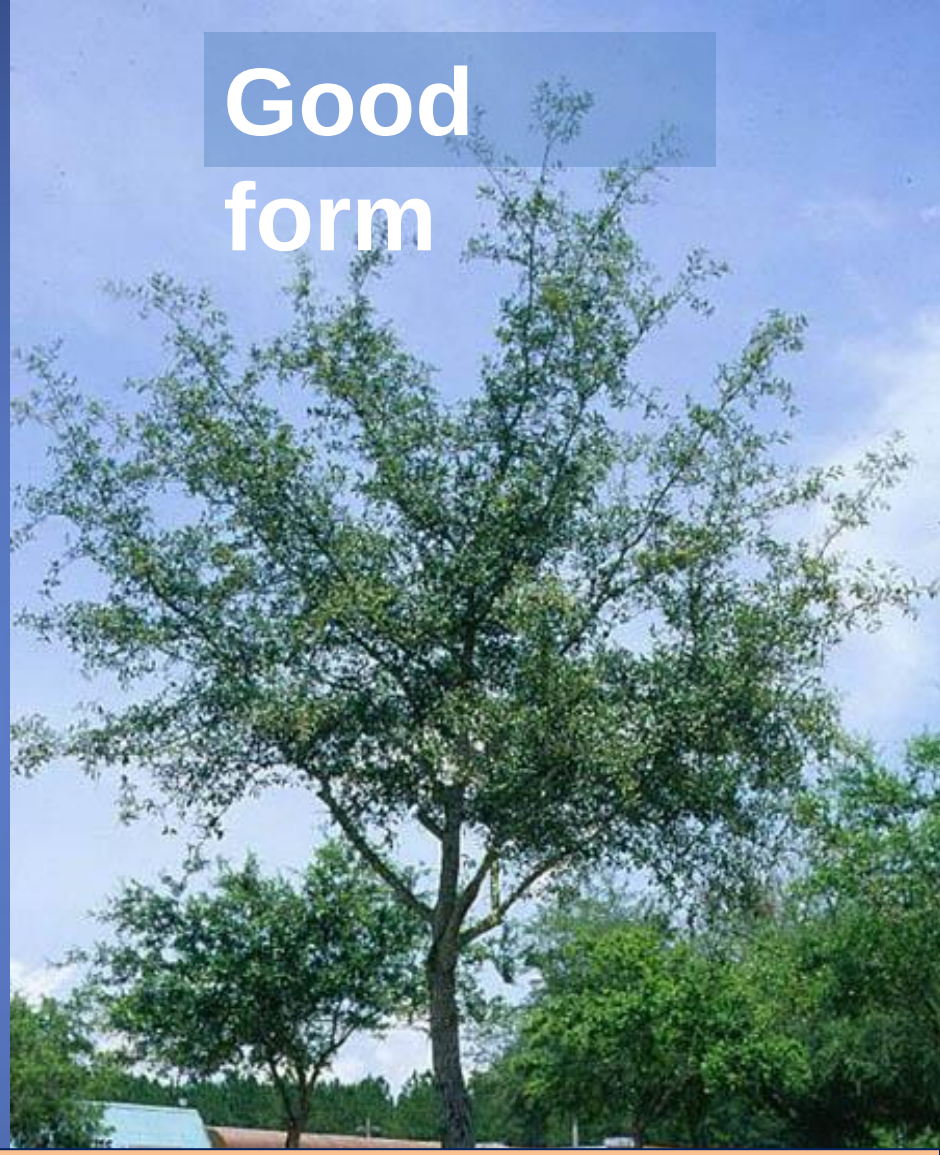
- Elms can live over 100 years, they average 50 after being topped.
- Ash mature at 80 years of age, topping reduces their life span in half.

Sprouts

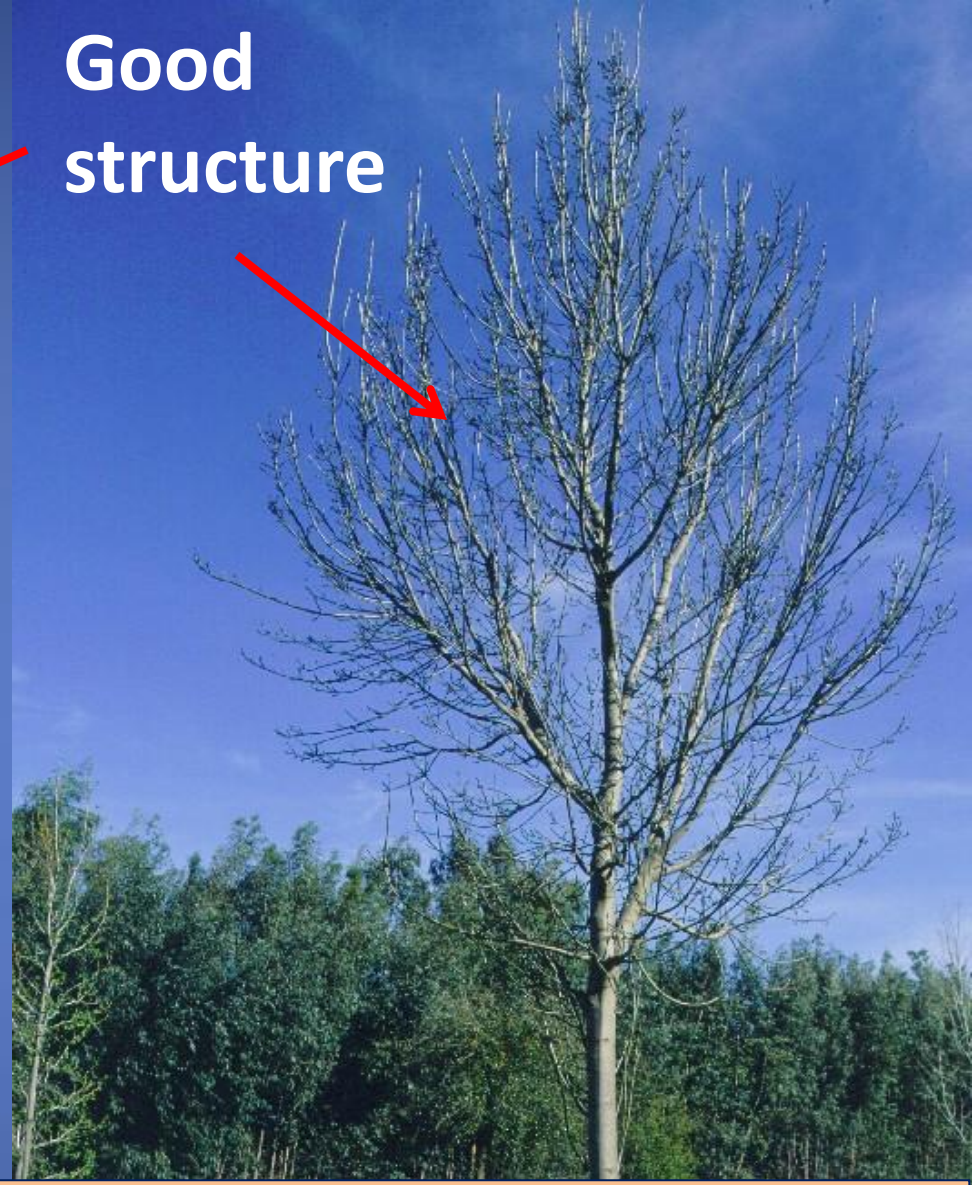


Topping trees promotes bad structure!





Principles of strong structure:
One dominant trunk // Strong branch unions
Balanced canopy



Principles of strong structure:

One dominant trunk // Strong branch unions

Balanced canopy

Pruning objectives:

- Reduce risk of failure – minimize storm damage
- Promote human safety
- Allow for safe passage
- Increase sun penetration to the ground
- Maintain health

Pruning cycle

- Pruning cycle is the time period between pruning episodes
- Pruning every 2 years results in trees better prepared for storms than longer cycles
- **The sooner you begin pruning the less you will need to remove at each pruning**

Objective: Reduce structural issues that cause tree failure

- **Co dominant stems:**
  stems of equal size originating from the same point on the tree

- **Included bark:**
  bark pinched between two stems, indicating a weak union

- **Unbalanced canopy:**
  one side much heavier, or most weight at the tips of branches

Objective: Reduce risk of failure

- Identify risks:
  - Bark inclusions
  - Cracks
  - Over-extended limbs
  - Leaning trees
  - Root decay
  - Girdling roots
- Reduce conditions that could lead to catastrophic branch or tree loss.

Weak structure:
co dominant stems and bark inclusions

Reduce this branch.

Poor structure such as co dominant stems often cause branch failure in storms

Inaction can cause structural problems

Appropriate Pruning Dose for Specific Applications

- ***Large Pruning Dose***
- Municipality
- Long pruning cycle
- Aesthetics of less concern
- ***Small Pruning Dose***
- Residences, commercial properties
- Short pruning cycle
- Aesthetics are a concern

- **Effects on the Tree from Applying Pruning Doses**

Large Pruning Dose

- Larger pruning wounds
- Larger void in canopy
- Greatly encourages growth in unpruned portions of tree

- **Effects on the Tree from Applying Pruning Doses**

Small Pruning Dose

- Smaller pruning wounds
- Smaller void in canopy
- Encourages some growth in unpruned portions of the tree

Large pruning cuts

Big cuts can result in decay and cracks.

Risks of removing too much tissue

- Forces use of energy by initiating defense mechanisms.
- Removes energy reserves.
- Can cause cracks.
- Can cause sprouting.
- Can cause branch death.
- Can cause tree mortality.
- Reduces energy storage space.

Pruning dose

- Old trees can decline as a result of removing too much live tissue.
- Try not to remove more than 10% of the live foliage on a mature tree.
- Remove more than 10% only for a good reason such as a cracked live branch over a house.

Cleaning takes care of these

THINNING

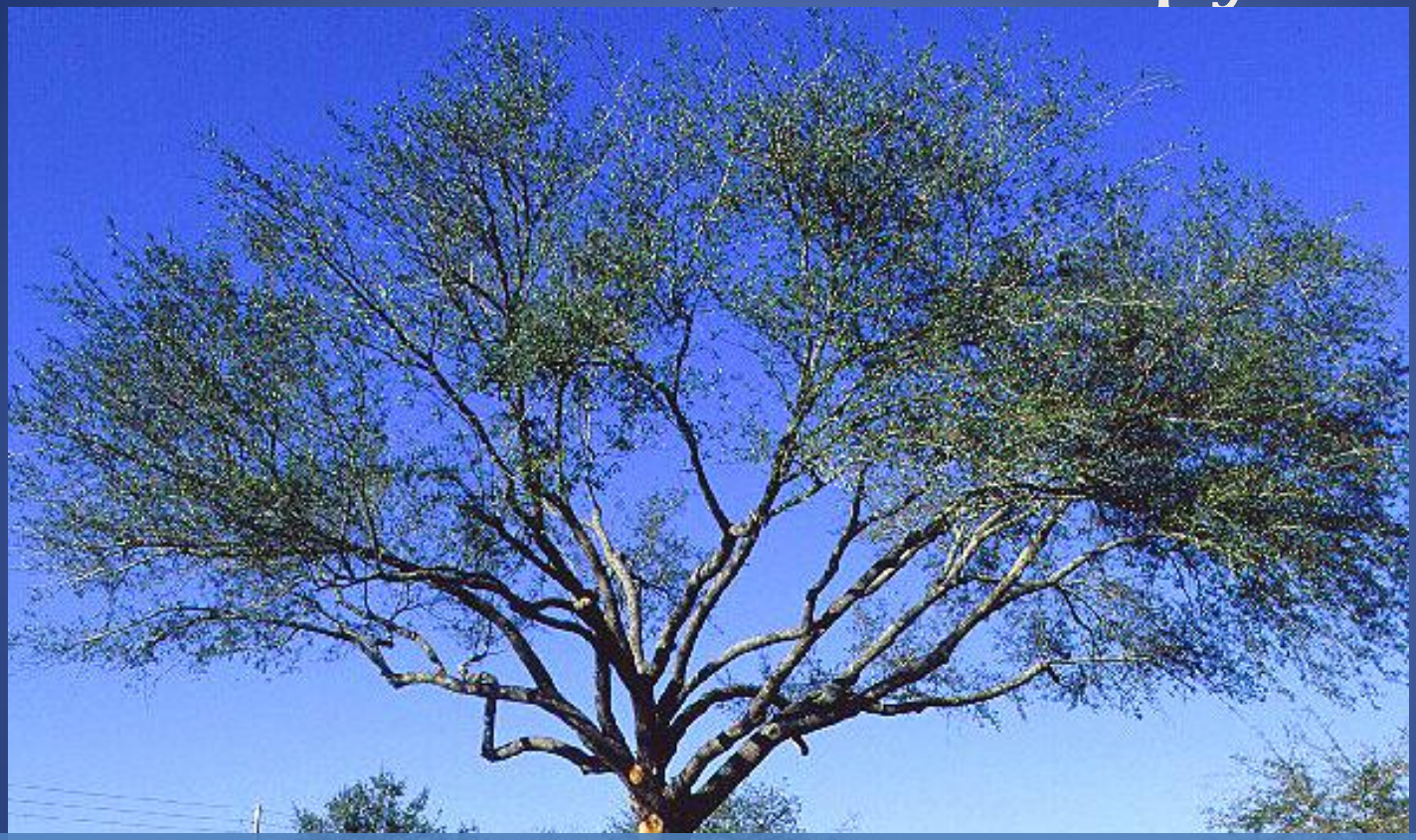
- The selective removal of small live branches to reduce crown density .
- Increases light and air penetration.
- Reduces the risk of storm damage.

Before thinning

After inappropriate thinning

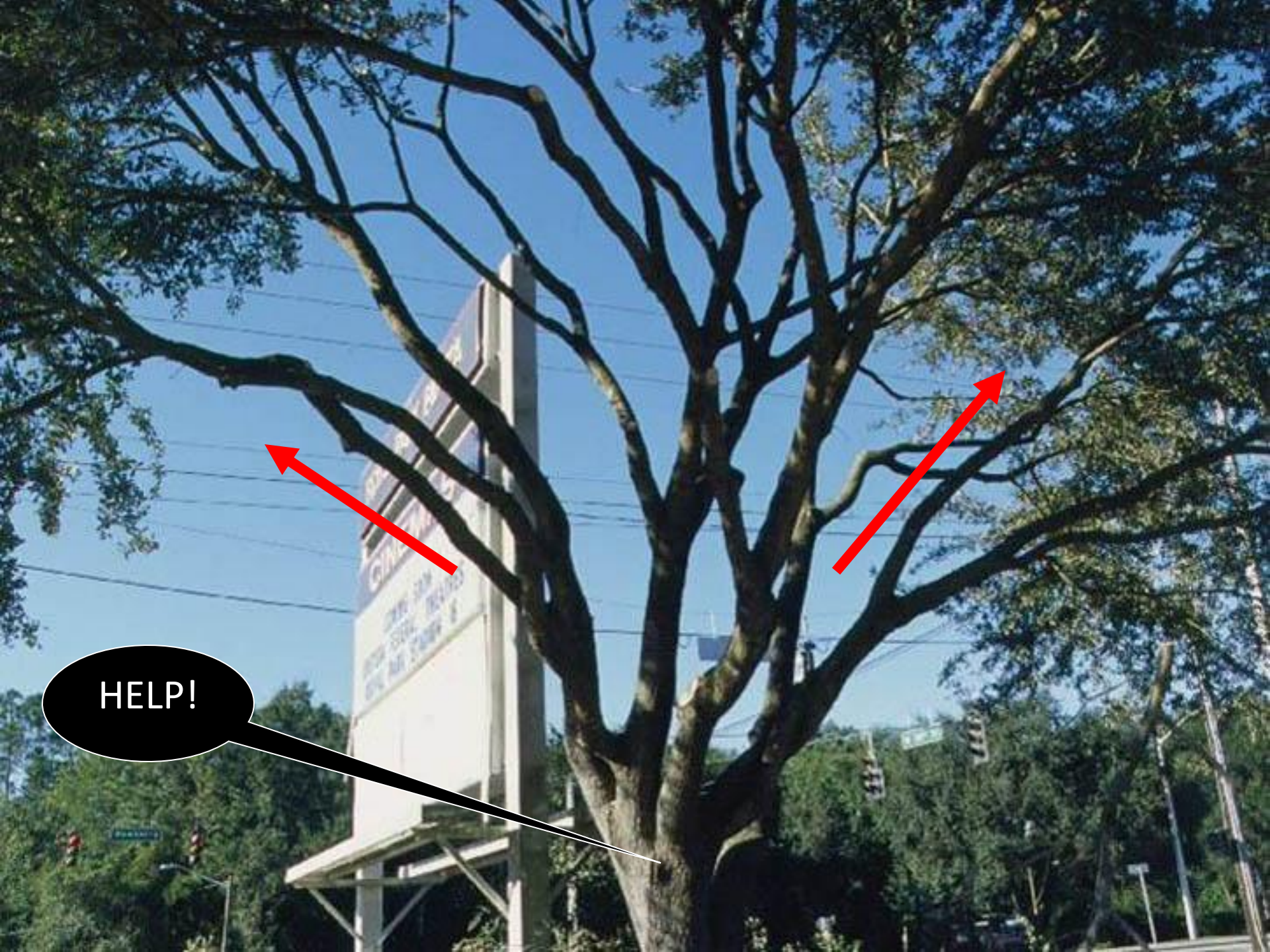
After appropriate thinning

Unbalanced canopy



Lions-tailing: trees with foliage concentrated at the tips of branches because inner branches were removed.

- More susceptible to wind damage and difficult to restore.


HELP!

Lions-tailed trees failed

How to thin a canopy

Before thinning

After inappropriate thinning

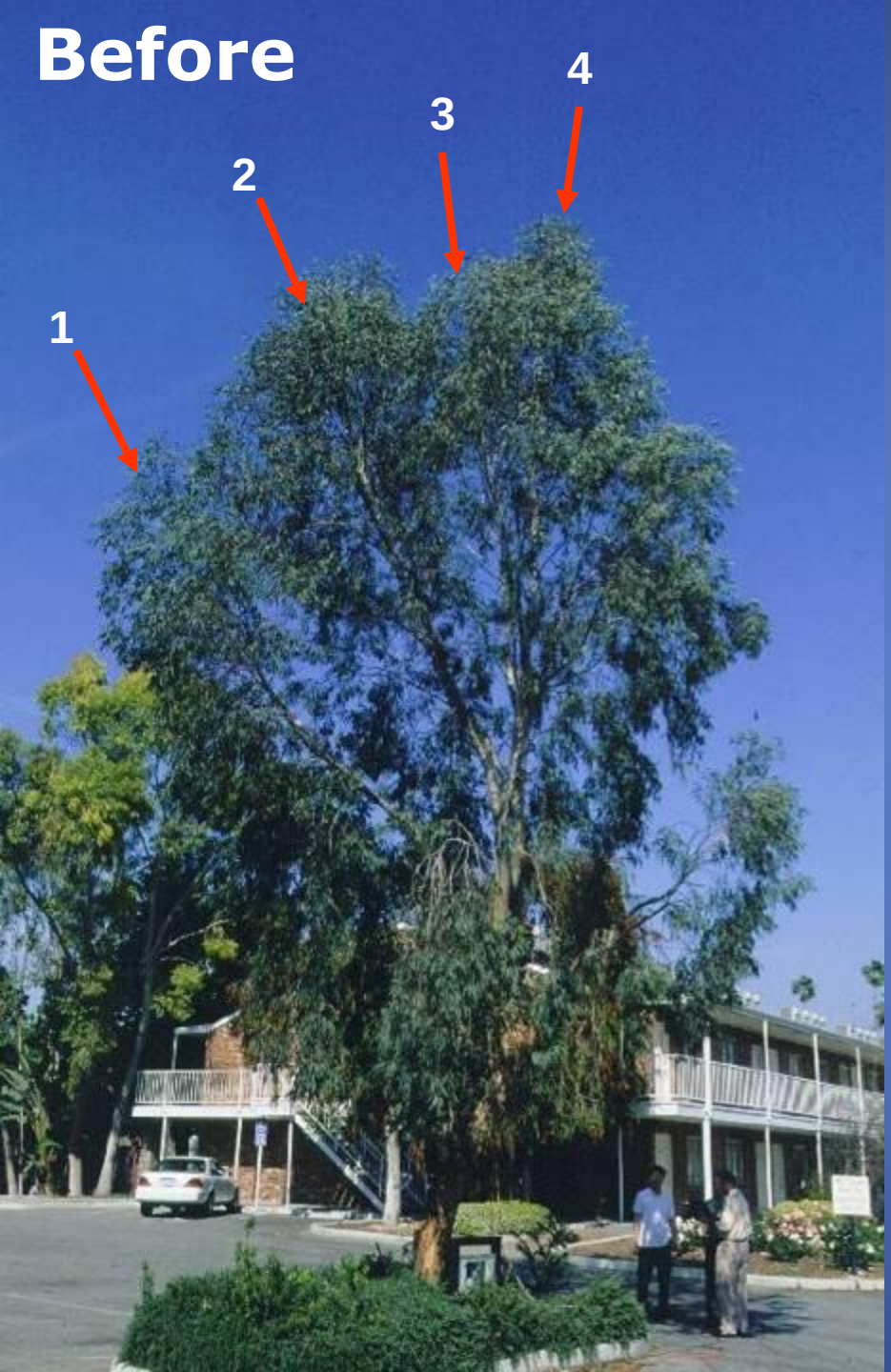
After appropriate thinning

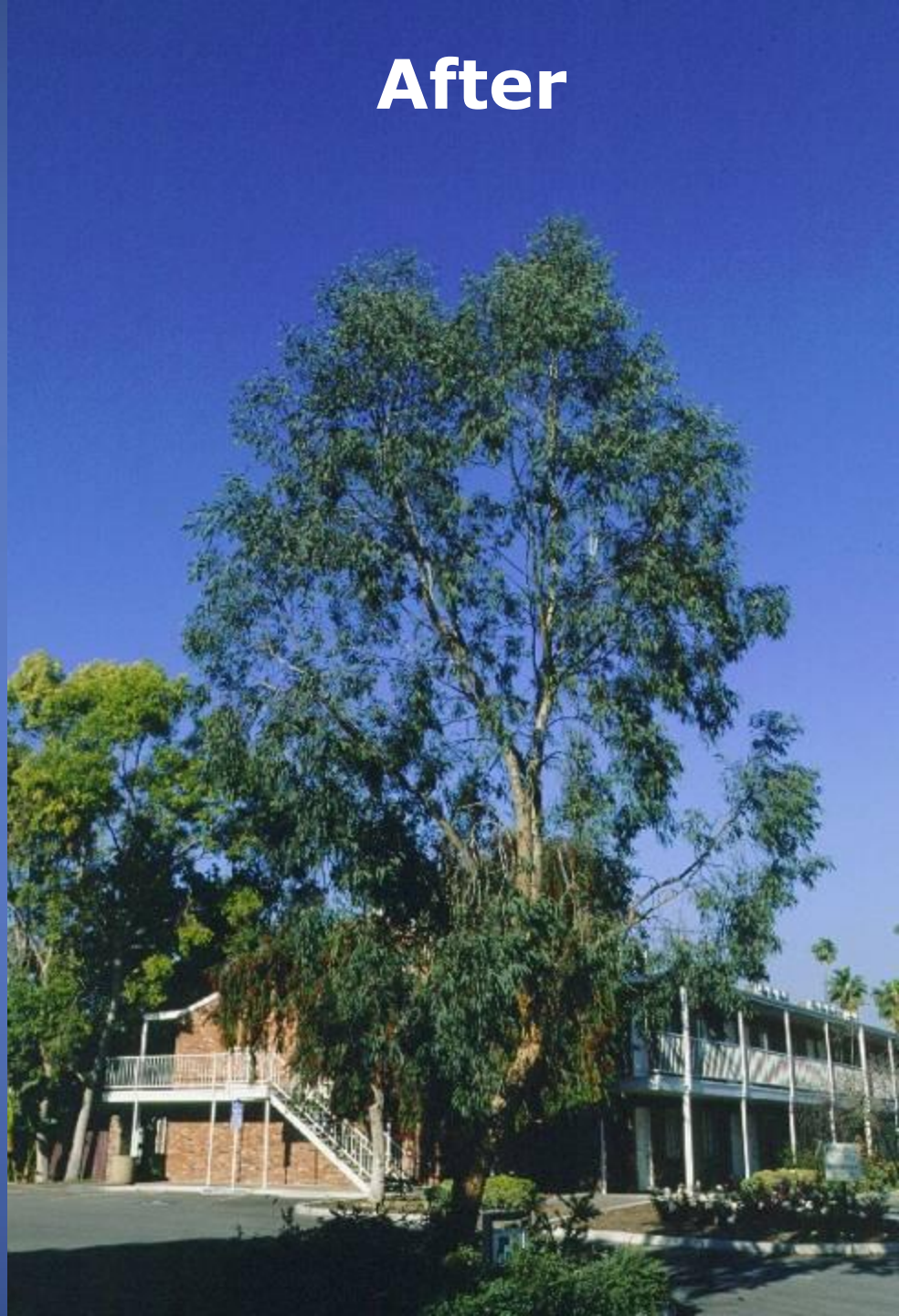
Thinning removes entire branches back well into the canopy

Pruning to: Raise

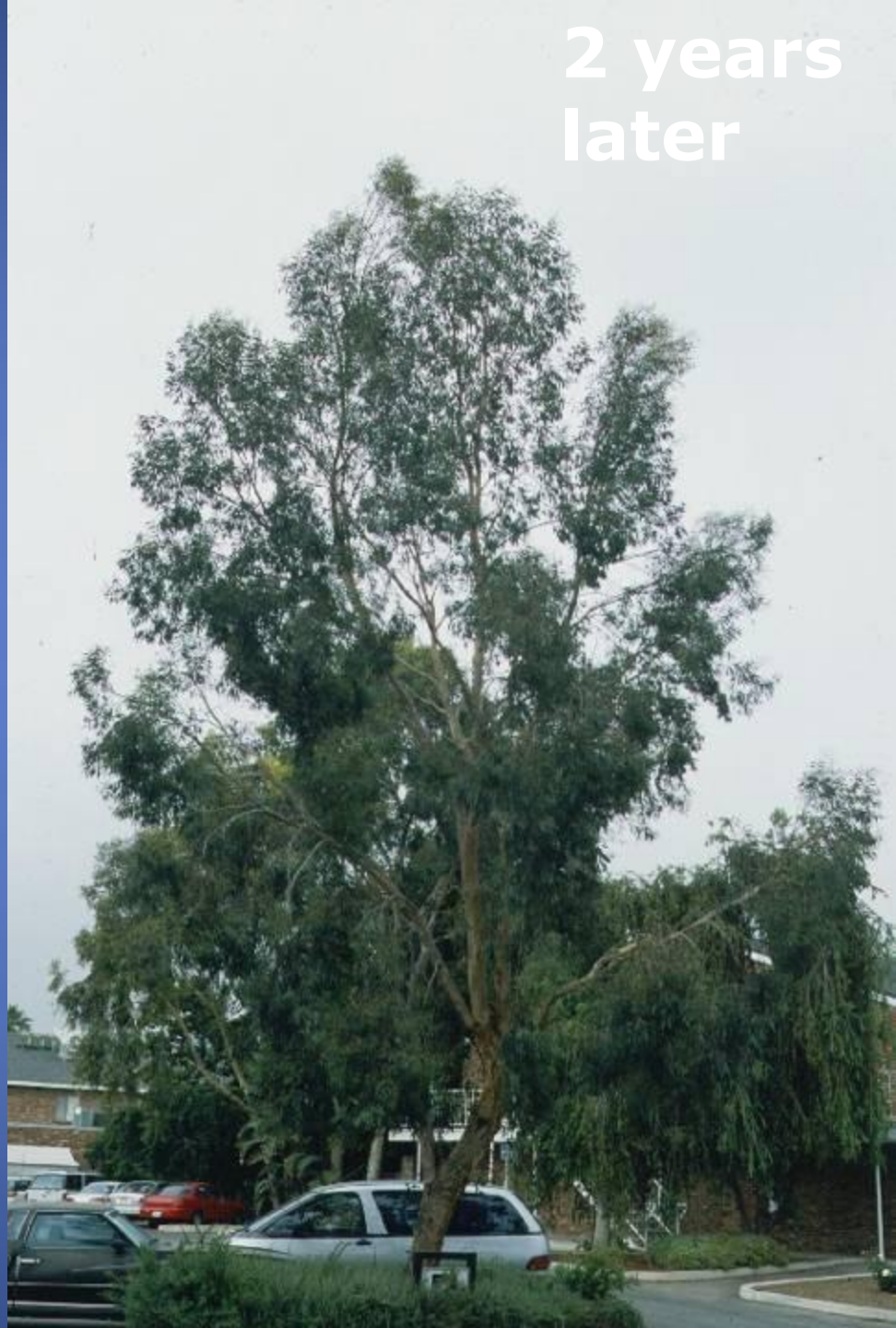
- The selective removal of branches to provide vertical clearance
- Best done over a period of years, not all at once

Structural pruning shortens or thins certain stems and branches


Before
1
2
3
4


After


1 year
later


2 years
later


STOP


STOP

Here is a tree that was damaged in a storm. As a result, many stems are growing upright

Remove two upright, interior stems

Before

After removing right co dominant stem


Before -
year 8


After
Debris


One year
after pruning


After
Debris

One year
after pruning

Preventive Pruning: mature trees

- **Set objectives**
- Determine pruning cycle and dose
- Execute pruning plan
  - make good cuts
  - prioritize trees with high risk structural issues
  - choose appropriate pruning type

Your goal

Single trunk

Poor management

Better management

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Some of the slides in this presentation are from Dr. Kim D. Coder; professor School of Forest Resources University of Georgia (Athens, Ga.) and Ed Gilman, University Florida