



Getting of to a good start: Pruning and training young trees

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Why prune young trees ?



Why prune young trees

- Remove defective branches
 - Broken, crossing/rubbing branches
 - Dead, dying, diseased branches
- Improve structure
 - Branch spacing, co-dominant stems, aggressive and competing branches
- Clearance
 - sidewalks, roads, traffic signs, etc.



Attributes of good structure

- **Branches diameter small compared to trunk (aspect ratio)**



Swamp white oak
Hoyt Arboretum, Portland, OR



Aspect ratio

Branch diameter/Trunk diameter

Small



Branch 0.5"
Trunk 1.5"
A. ratio = 0.33

Branch 1.5"
Trunk 1.5"
A. ratio = 1.0

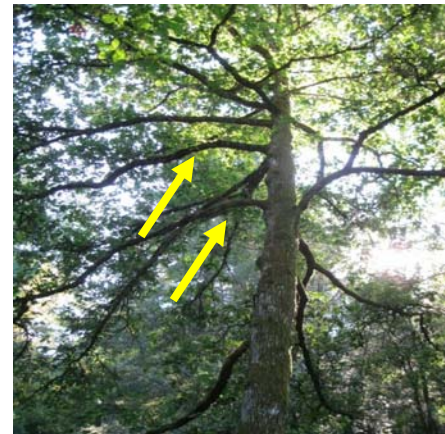
Branch unions are usually stronger when aspect ratio is small.

Large



Attributes of good structure

- Branches diameter small compared to trunk (aspect ratio)
- **Branches horizontal, especially shade tolerant species (in the forest)**

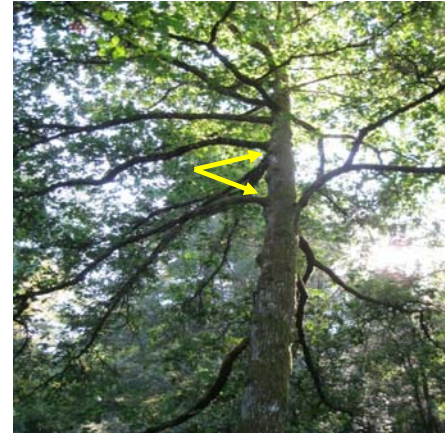


Swamp white oak
Hoyt Arboretum, Portland, OR
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Attributes of good structure

- Branches diameter small compared to trunk (aspect ratio)
- Branches horizontal, especially shade tolerant species
- **Spaced out along the trunk**

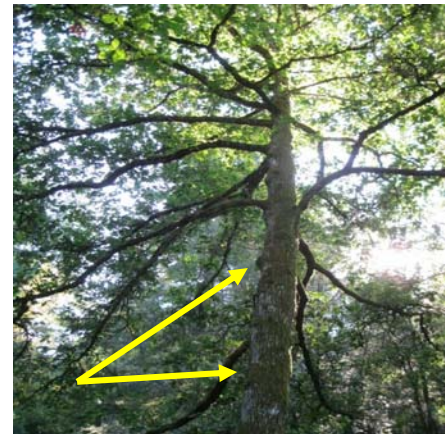


Swamp white oak
Hoyt Arboretum, Portland, OR



Attributes of good structure

- Branches diameter small compared to trunk (aspect ratio)
- Branches horizontal, especially shade tolerant species
- Spaced out along the trunk
- **Low branches often shed (in the forest)**



Swamp white oak
Hoyt Arboretum, Portland, OR

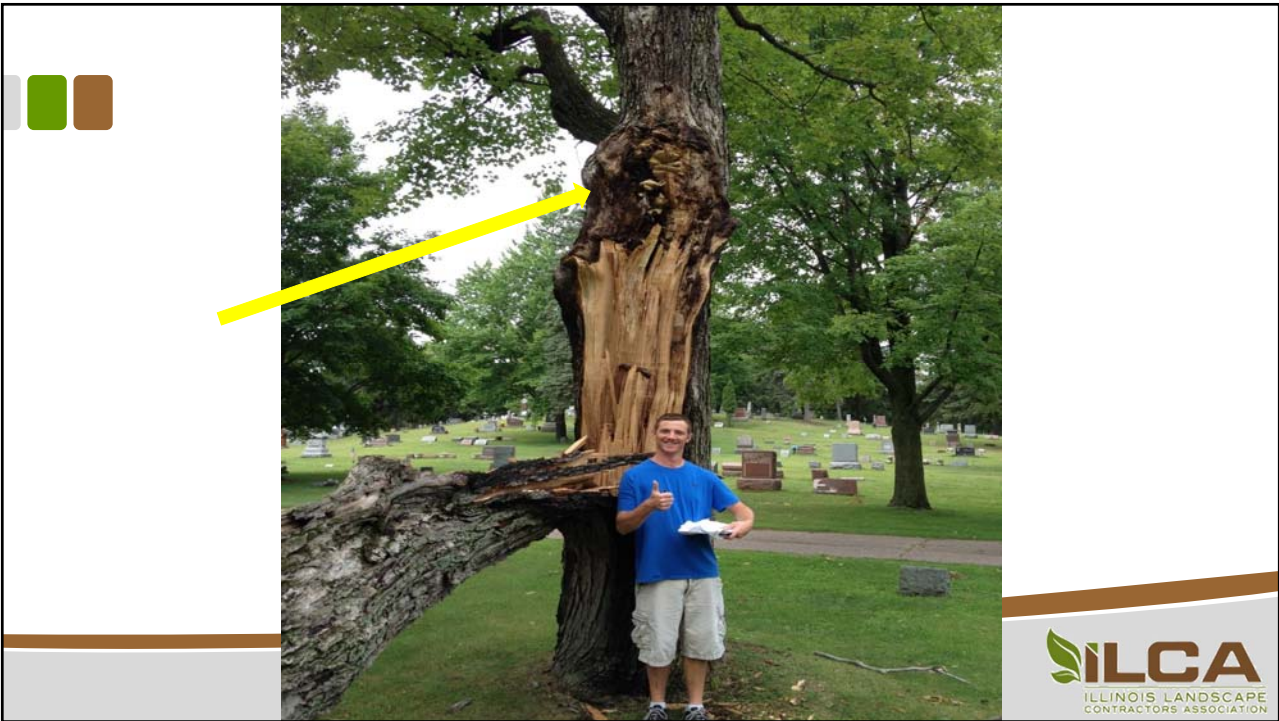
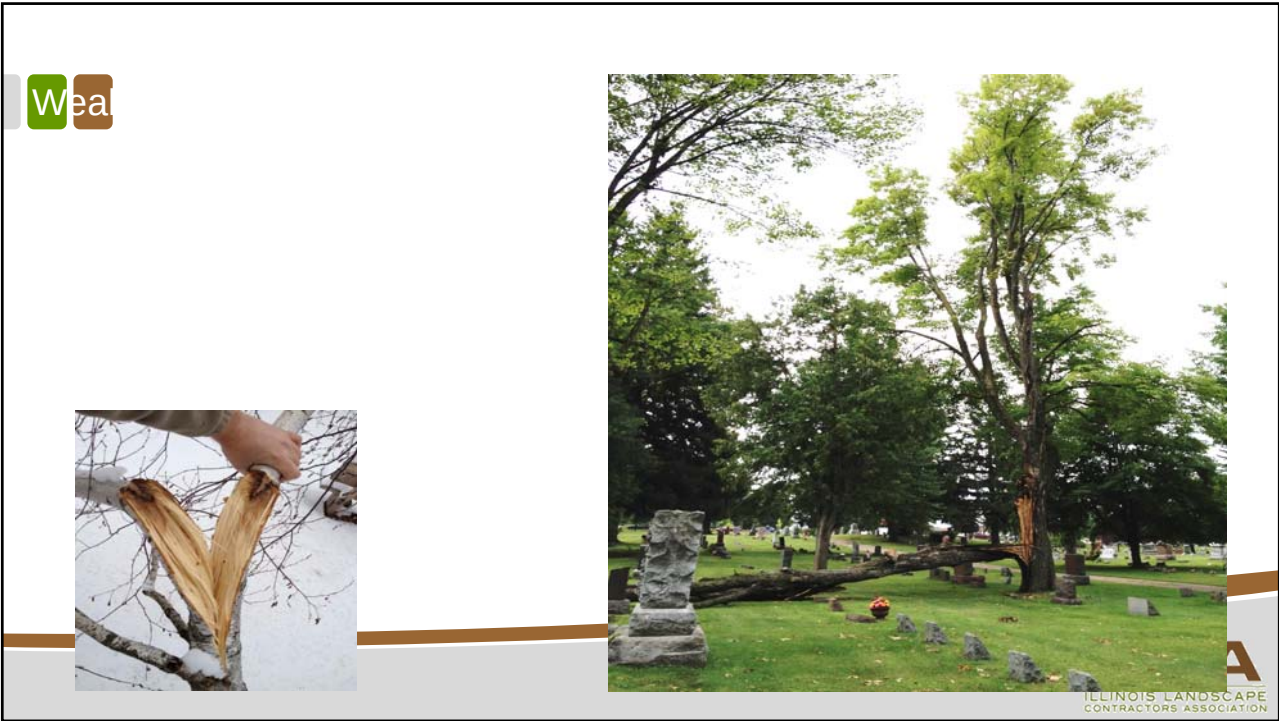




Many defects in mature trees started when tree was young...

- Codominant stems and branches





Co-dominant stems

Often more weakly attached

- Trunk wood and branch wood often do not overlap
- Included bark





Many defects in mature trees started when tree was young...

- Codominant stems
- Included bark





Many defects in mature trees started when tree was young...

- Codominant stems
- Included bark
- **Low clustered branches**



Low clustered branches



■ ■ Low clustered branches



■ ■ Structural Pruning on **young** trees

- Many problems we see with mature trees are the result of not properly pruning and training trees when they were young.
- The goal of structural pruning young trees is to develop a trunk with a strong central leader and proper branching pattern.



Structural pruning: young trees

1. Identify the leader
 - Usually central and tall



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Structural pruning: young trees

1. Identify the leader
 - Usually central and tall
2. Identify branches competing with leader



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Structural pruning: young trees

1. Identify the leader
 - Usually central and tall
2. Identify branches competing with leader
3. **Subordinate or remove competing branches**



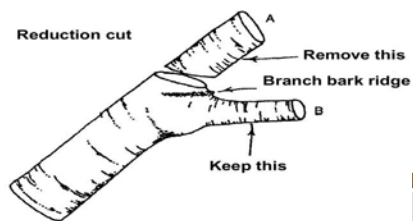
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Types of Pruning Cuts

• Reduction Cut

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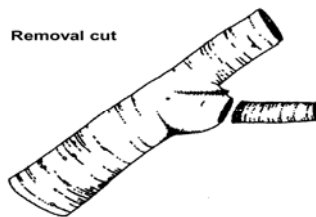


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Types of Pruning Cuts

• Removal Cut

- Cutting whole branch off tree or lateral branch off of parent branch
- Should be done beyond branch collar, if one is present

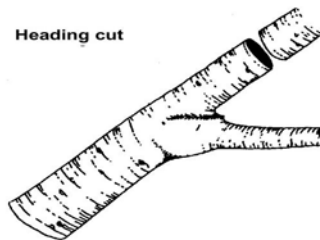


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Types of Pruning Cuts

• Heading Cut

- Made back to a bud or node
- Often used when trees have been damaged in storms



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Structural pruning: young trees

1. Identify the trunk
 - Usually central and tall
2. Identify branches competing with leader
3. Subordinate or remove competing branches
4. **Keep branches well spaced with small aspect ratio**



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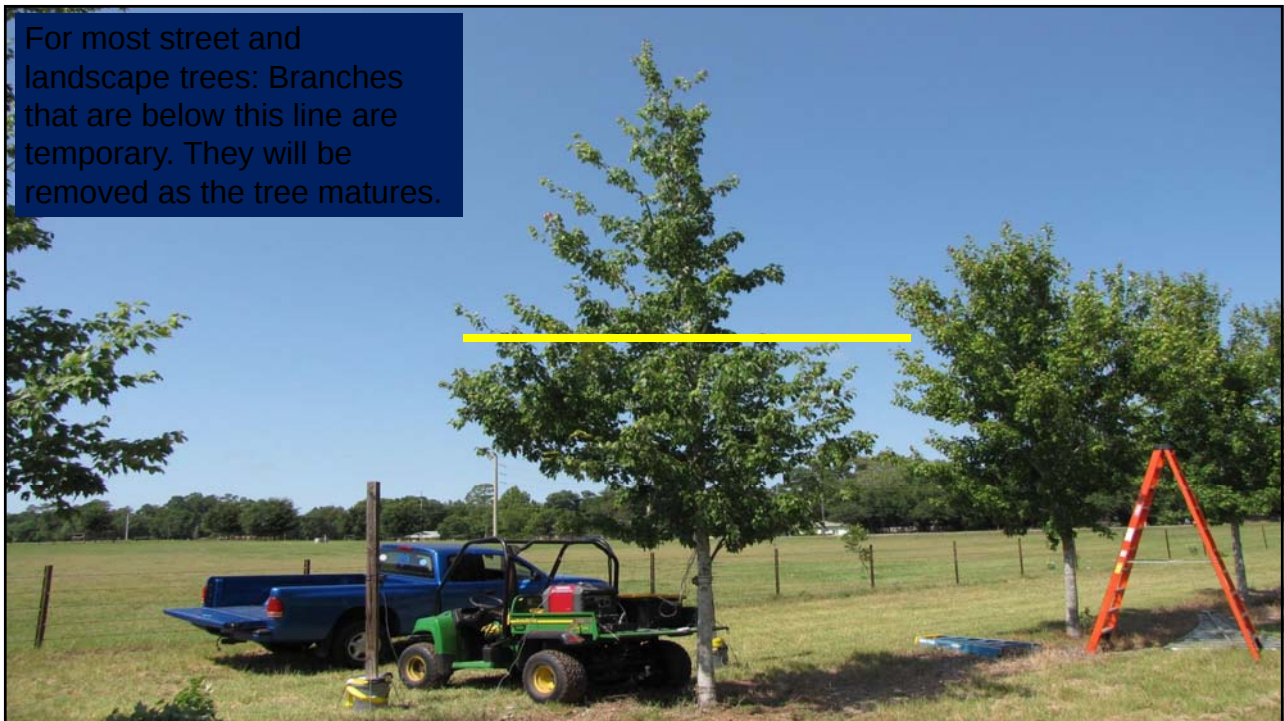






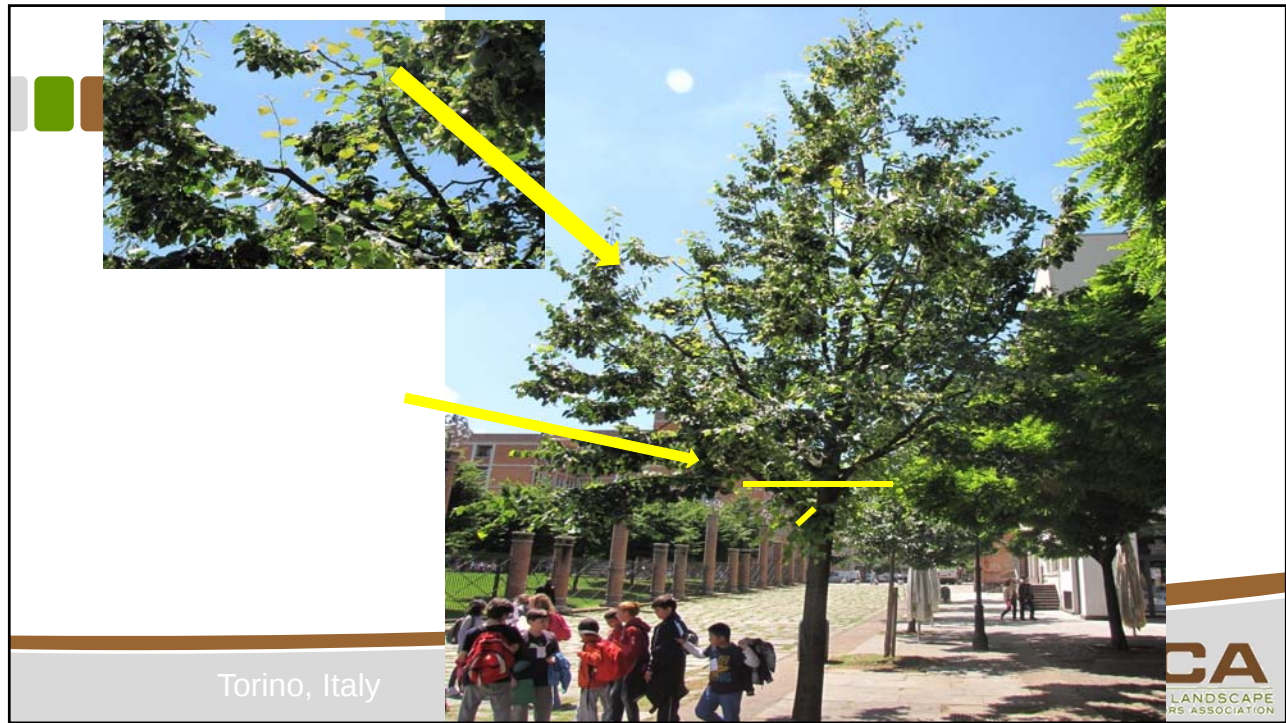


For most street and landscape trees: Branches that are below this line are temporary. They will be removed as the tree matures.









Identify the leader



Identify the competing branches



Prune tree on left more aggressively due to co-dominant stem



Key points to improve structure

- Maintain central leader
- Small aspect ratio
- Branches well spaced along the trunk
- Horizontal branch orientation
- Keep reduction pruning cuts small
 - Less than 4" diameter cuts preferable
 - Start early when tree is young