Tree Care: From Roots to Shoots

Sam Adams, Arborist
Facilities Services Department
Landscape Services Subunit
Roots To Shoots

- **Properly Plant High Quality Trees in the Right Places**
- Maintain Newly Planted Trees
- Maintain Mature Trees
Properly Plant high quality trees in the right places…

• What role is the tree going to play in the landscape?
• How big will the tree get?

• What are the site conditions?

• Select and buy a high quality tree.
What role is the tree going to play in the landscape?
How big will the tree get?
These examples represent typical mature heights in city conditions. Check the Arborday.org Tree Guide for expected mature height and crown spread of trees you are considering.

<table>
<thead>
<tr>
<th>Shrubs</th>
<th>Dogwood</th>
<th>Sassafras</th>
<th>Pin Oak</th>
<th>White Oak</th>
<th>Ponderosa Pine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flowering Plums, Hawthorn, Sumac, Hornbeam, Redbud</td>
<td>Flowering Plums, Quaking Aspen, Eastern Redcedar, Flowering Pear</td>
<td>Post Oak, Arborvitae, Green Ash, Hemlock, Blue Spruce</td>
<td>Linden, Red Oak, Tuliptree, Walnut, Many Pines</td>
<td>Redwood, Planetree</td>
<td></td>
</tr>
</tbody>
</table>

*Individual specimens may grow larger in natural settings.
What are your site conditions?

Dig a Hole
Reach in, take a handful of soil and assess the quality…
Reach into that hole again and take a Soil Sample

Determine the preferred pH range of the tree you’ve selected.
Send a soil sample to the Soil, Plant and Pest Center at the UT Institute for Agriculture or test it yourself with a kit.
Welcome to...

SPP your one stop service and education place!

Is your hay adequate in energy and protein? Take out the guesswork with a forage test.

Soil Testing
Forage Analysis
Plant & Pest Diagnosis
Plant Tissue Analysis
Fill that hole with water and watch how it drains
High Quality a Tree Has…

• Healthy roots to support growth to establishment

• Healthy trunk with good taper free of injury and excessive pruning wounds

• Strong form with good branch spacing and single straight trunk
Objective: Healthy Roots

- **Balled and Burlapped:**
  Hand dug
  Wrapped in burlap
  Tied and bound by hand

- **Wire Basket:**
  Machine dug
  Set into a burlap lined wire basket
  Bound and tied by hand

- **Containerized:**
  Grown in soil media in plastic pots

- **Bare Root:**
  Field grown
  Soil washed away from the roots
Steps for proper planting

1. Look up for wires/lights
2. Dig shallow/wide hole
3. Find the top-most root and treat root defects
4. Place tree in hole
5. Position top root 1-2 inches above landscape soil
6. Straighten tree
7. Remove synthetic materials
8. Add backfill soil and firm the root ball
9. Add mulch
10. Stake and prune if needed
Treating root defects

- Cut or spread out any circling or kinked roots growing up above the top-most root.
Roots To Shoots

• Properly Plant High Quality Trees in the Right Places

• **Maintain Newly Planted Trees**

• Maintain Mature Trees
Maintain Newly Planted Trees

1. Water frequently (5-10 gallons per 1” of caliper per week)
2. Prune as needed to develop a strong, healthy form
3. Remove stakes when no longer needed
Develop a Healthy Trunk
It’s the foundation for the future tree

Much of the following courtesy of Dr. Ed Gilman, Professor, University of Florida, retired.
Developmental Pruning

- Set objectives
- Identify structural issues
- Execute pruning plan
  - make good cuts
  - prioritize trees with structural issues
  - temporary vs. permanent branch management
Objective: Reduce structural issues early for improved mature form

- **Codominant 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
- **Large low branches:** could come in conflict with vehicles, structures or people
Recent street tree planting

All are temporary branches

Temporary vs. permanent branch management
Make good pruning cuts

Step 1
Make an undercut about 12 inches from the trunk.

Step 2
Make a topcut farther out on the limb.

Step 3
Remove the stub with final cut, being careful not to cut flush against the trunk. Leave the collar intact.
Types of pruning cuts:

**Reduction cut** shortens the length of a stem by pruning back to a smaller limb.

**Removal cut** prunes a branch back to the trunk or parent branch.
Pruning Plan: First 5 years

Most branches are temporary.

Do not remove more than 35% of live foliage at a pruning visit.

*Reduce* all branches greater than ½ trunk diameter.

*Reduce and/or remove* all branches or stems competing with the one selected to be the leader.

*Reduce and/or remove* large, low vigorous branches.

*Remove* broken, cracked or severely damaged branches.
Developing the permanent canopy

- Shorten competing stems
- Third scaffold
- Second scaffold
- Fourth scaffold
- Lowest scaffold
- All branches temporary
- Newly planted tree
- 30-40 years later
- 5-10 years later
- Permanent canopy
Roots To Shoots

• Properly Plant High Quality Trees in the Right Places

• Maintain Newly Planted Trees

• Maintain Mature Trees
Pruning Plan: 20 – 30 years

Identify 5 to 10 permanent scaffold limbs and **reduce** branches within 18-36” to avoid clustered branches.

Space permanent scaffold limbs to reduce wind resistance.

**Remove** many or all of the branches below the first permanent limb.

**Reduce** branches with included bark.

**Reduce and/or remove** competing leaders.
ANSI A 300 Pruning Standards

- Crown Clean: prune out dead branches of a specified minimum size.
- Crown Thin: prune out crossing and crowded branches.
- Crown Raise: prune for minimum clearance of buildings, walks, roads and other structures.
- Crown Reduce: prune for lateral clearance of structures and/or height/weight reduction.
Trees are super survivors: They are the largest organisms on our planet, yet they can’t run away from their attackers. Trees have developed complex associations with other organisms to ensure their survival. Be a tree associate and Save Trees! Thank You!