

Landscape Tree Selection, Planting, and Establishment

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Goal:
Right Tree for the Right Place



Long, Stable Healthy Life

How?

Informed selection
and
Properly Planted

Characteristics of a *properly selected* landscape tree

A properly selected tree will:

- Match the local climate zone
- Be able to grow in available soils and moisture
- Have minimal disease and insect concerns
- Have acceptable root and branch structure
- Exhibit vigorous condition
- Have species characteristics that compliment the site
- Be a growing asset to the landscape



Characteristics of a *properly* planted landscape tree

- A properly planted tree will be:
- Transported and handled properly
- Planted in the best available location
- Planted at the correct depth (root flare)
- Installed properly 😊 ☹️
- Cared for a minimum of 3-5 years after planting (water, mulch & stakes)
- Monitored and properly pruned



Characteristics of an improperly selected and planted landscape tree

An improperly planted tree will be:

- Installed without adequate soil preparation
- Planted without regard to surrounding conditions
- Selected for species characteristics, rather than site characteristics
- Planted too deep or too high
- Provided no immediate or after care
- Becomes a future hazardous tree, if it lives that long!



The First Principle of Tree Planting

- Evaluate the site *first*.....
- *Then* select the species



Site characteristics to consider

- Soil conditions
- Compaction
- Nutrients, Organic Matter and pH
- Soil moisture and drainage
- Space constraints
- Exposure
- Human activity
- Views



Deep ripping to relieve soil compaction over a large planting area

2006.12.03

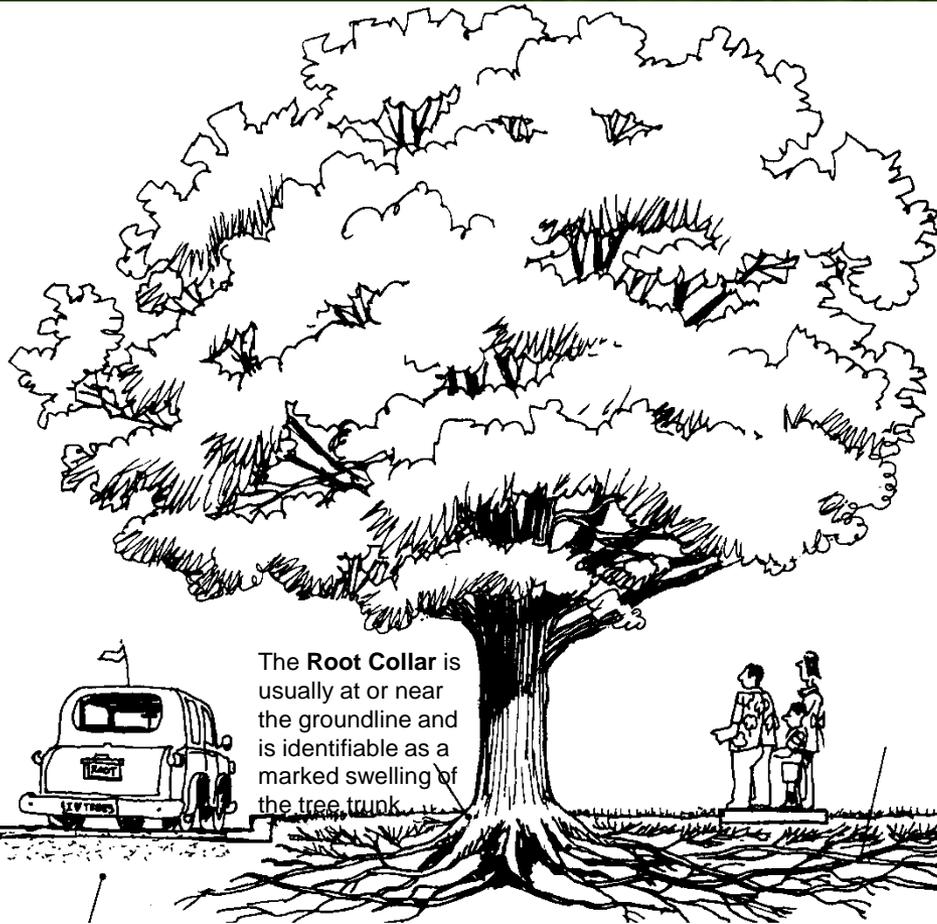
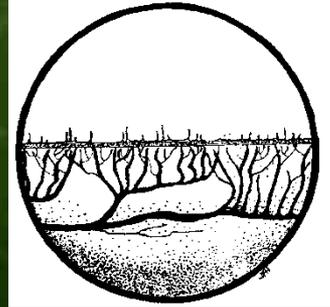
Site Limitations:

How much space is available for the roots of this tree?

- Underground
 - Minimum soil volume -
400cuft= 20'x5'x4'
 - Root crown space-
4'x10'
 - Confirm drainage?
 - Avoid Utilities



Root System Model



The **Root Collar** is usually at or near the groundline and is identifiable as a marked swelling of the tree trunk.

The **Framework** of major roots usually lies less than eight to twelve inches below the surface and often grows outward to a diameter one to two times the height of the tree.

A complex network of smaller non-woody **Feeder Roots** grows outward and upward from the framework roots. These smaller roots branch four or more times to form fans or mats of thousands of fine, short, non-woody roots. These slender roots, with their tiny root hairs, provide the major portion of the absorption surface of a tree's root system. They compete directly with the roots of grass and other groundcovers.

Because **Roots Need Oxygen** in order to grow, they don't normally grow in the compacted, oxygen-poor soils under paved streets.

Note: A few species have a **Taproot** that grows straight down three to seven feet or more until it encounters impenetrable soil or rock layers, or reaches layers with insufficient supplies of oxygen.

Site Limitations:

How much space is available for the crown of this tree?

- Structures
- Infrastructure
- Signs
- View
- Lights
- Traffic clearance
- Safety clearance
- Native?

NOTE: Urban settings are generally *not* native settings!



Desirable Species Attributes

- Mature size
- Form
- Ornamental traits
- Longevity
- Growth rate
- Canopy density
- Deciduous vs. evergreen
- Wood strength
- Availability



Expand your Species Knowledge

- Existing species
- New cultivars
- Discuss pros and cons with peers
- Use the internet
- Try new varieties



The Site/ Species Marriage

- Match the site conditions with species characteristics and desirable attributes



Tree Selection: Must meet Minimum Standards?

- American Standard for Nursery Stock as a minimum.
- See Ed Gilman's website:
<http://hort.ifas.ufl.edu/woody/samplespecs.shtml>
- Improve with experience



When Approving Trees Focus on:

- True cultivars or species
- Caliper
- Vigorous growth
- Root ball size, spread and condition
- Structure of tree-branching height and distribution around stem
- Minimal torn/wounded areas on bark
- Roots: alive, balanced, moist and enough



Be Selective- Choose Wisely



Remember: You must live with what you approve.

Avoid Root Defects



Circling Roots



'J' Roots



Girdling Roots

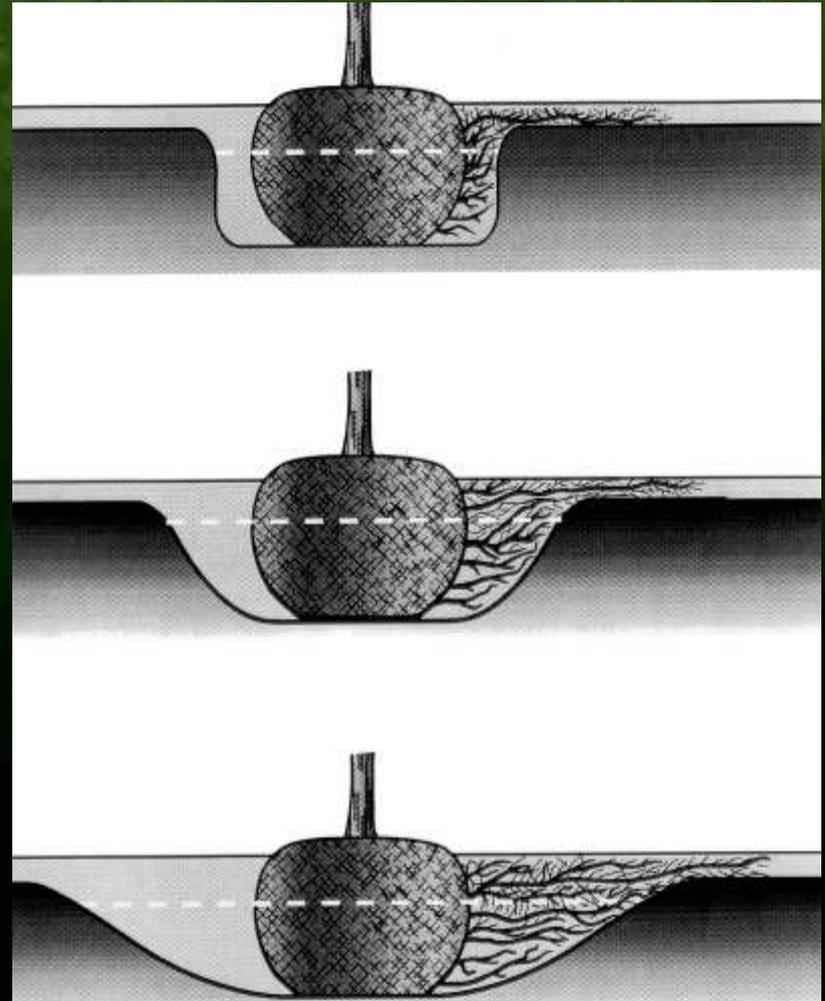
Proper Tree Planting

- Evaluate the potential root growth area.
- Is soil compacted or loose?
- Remove turf from the site
- Broadly amend planting area - as soil tests recommend
- Do not amend backfill of hole



A \$200 hole is more valuable than a \$200 tree

- Proper planting technique contributes to the future health of the tree
- Dig hole *at least* twice as wide as root ball/container.



Proper Tree Planting Diagram

Remove transit guard

Remove wire baskets:
or cut top and fold down in the pit after positioned and backfilled halfway. Cut and fold down burlap from upper 1/2 of ball. Cut and remove all poly ties.

2 - 4" of woody mulch: Aged wood chips, shredded bark, or similar mulch. Keep mulch 6" back from trunk.

Branching: Low Branches are temporary, but help promote strong trunks. Remove only dead or broken branches or double leaders at planting time.

Bud graft

Root collar shall be level or up to 1 - 2" above finished grade.

Remove excess soil from top of ball if needed.

Grade

Backfill:
Use existing soil. Water thoroughly to eliminate air pockets. Do not tamp!

Soil under ball undisturbed
to support root ball and reduce settling

Break down sides of the hole when backfilling

3 times ball diameter

David J. Stephenson

Stake only if you have to. Use 2-3"-wide webbing straps and secure to stakes with heavy gauge wire. The wire should be able to stick straight out from the stake and hold the webbing strap up, preventing it from sliding down the tree. Do not stake tightly - trees gain strength from movement. Remove all stakes after one year.

Use of tree wrap is not recommended, as it causes a number of problems for the tree.

Proper Tree Planting

- Dig hole only as deep as the roots
 - Measure from first structural root (root flare) to bottom
- Rootball rests on a solid pedestal
- Backfill and firm soil around rootball
- Water-in to avoid air pockets



Prepare container stock for planting

- Remove all “packaging” materials
 - Wire baskets (cut bottom off before placing in the hole, then remove the rest)
 - Burlap
 - Twine and tags
 - Tree protectors



Photo by Joe Murray, Treebio.com, Bugwood.org



Photo by: Joe Murray, Treebio.com, Bugwood.org

Prepare container stock for planting

- Score or slice the sides and bottom of container root balls
- Straightening circling roots is critical to long-term survival and structural integrity!





The Right Way



Trunk flare at or slightly above the level of surrounding soil

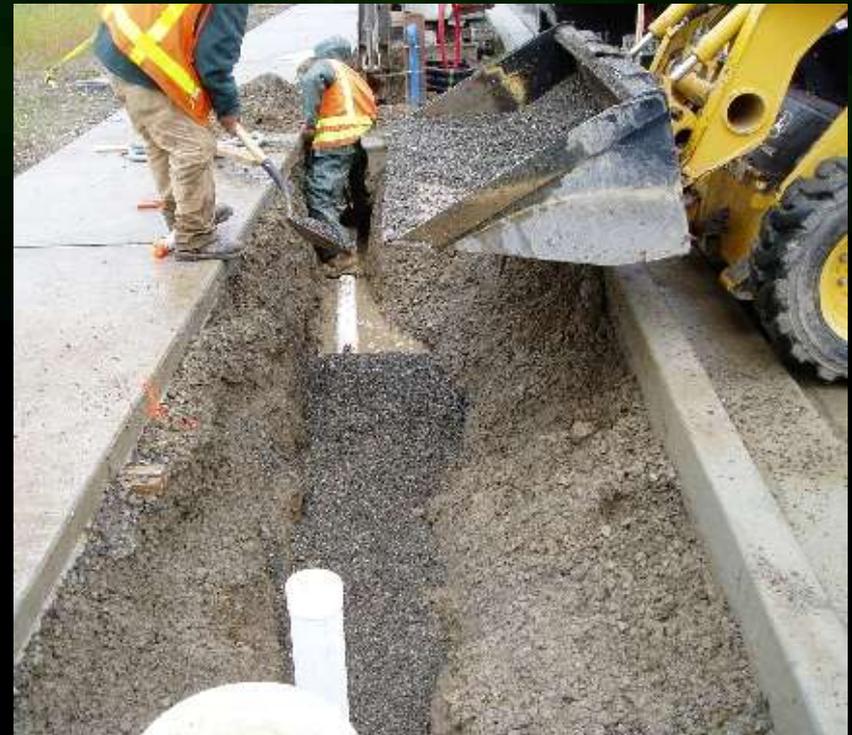
“Perfect” planting

Planting Strips are More Common



- Confirm positive drainage or correct, if necessary
- Remove or amend poor materials; up to 20% of soil volume

- Provide as much rooting area as possible - long if not wide



Post Tree Planting Care

- Prune only dead, dying, damaged and dysfunctional branches at planting time
- Mulch with 3” of arborists chips (But not against trunk)
- Stake properly
- Water regularly 2 to 3 yrs.
- Remove stakes and ties after one season
- Prune as needed, after first season



A 20-gallon watering bag

Planting too deep = long term decline



Target the root flare

Timely and thorough watering is critical to establishment.

- Soak rootball completely during first 3 years.
- Minimum 1 time/week first growing season.
- Every 2 weeks during second growing season.
- Once per month during third growing season.
- Precipitation, temperature, irrigation and runoff require adjustments.
- Maintain mulch cover.



Mulching

- Mulch
 - controls weeds
 - creates visual protective space around tree
 - creates optimal rooting conditions
 - conserves moisture



Avoid mulching mistakes



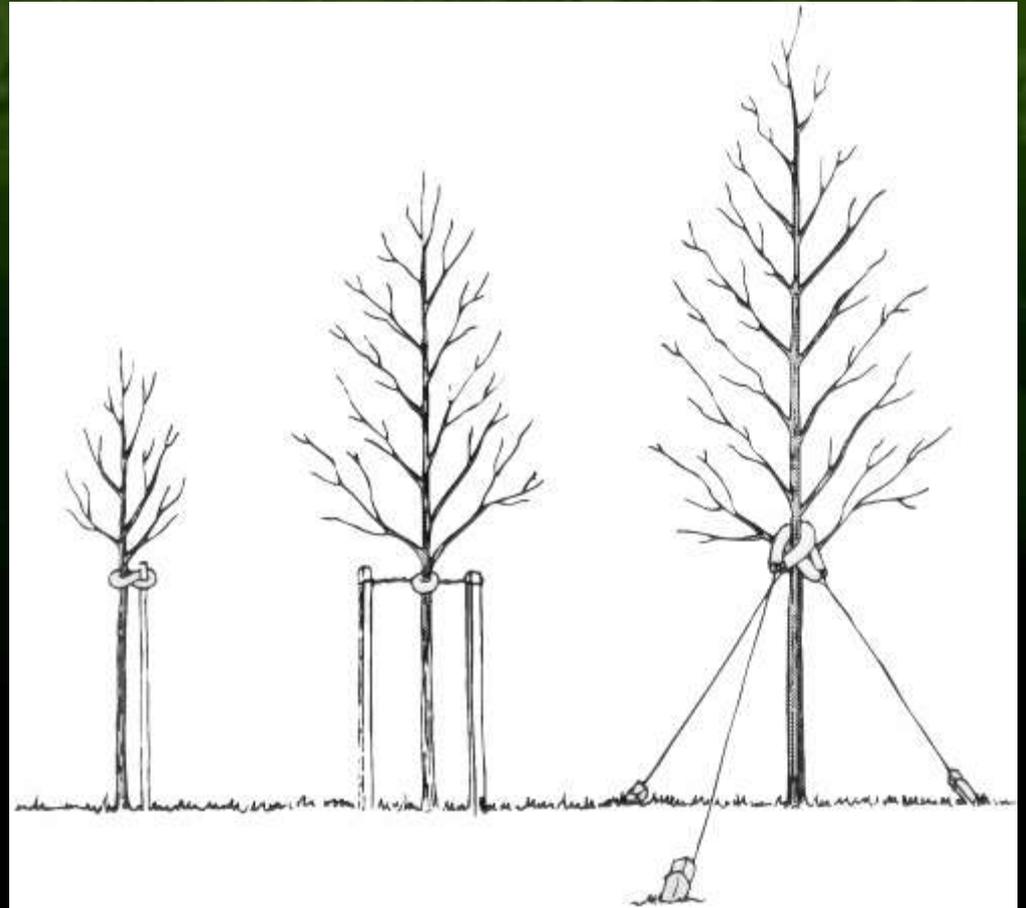
- Too deep
- Too thin
- Too close to tree trunk
- Does not reach dripline



Make “Bagels” not “Volcanoes!”

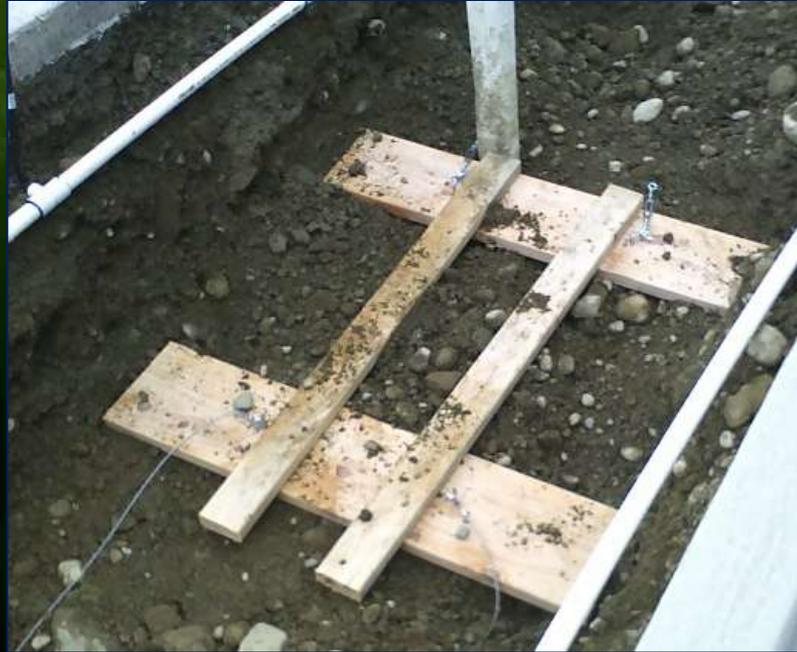
Common Staking Techniques

- Stake the tree only if necessary.
- Stake it with proper materials and form.
- Allow trunk movement
- Avoid trunk damage - wide webbing
- Remove after one season



Not So Common Staking

- For large trees with solid rootballs.
- Return to cut cables.



Poor Staking

- Damages trunk.
- Too rigid.
- Creates mowing and tripping hazard.



To Summarize: A Tree Planting Philosophy

- Plant the right tree in the right place.
- Plant for a long, stable, healthy life.





Research shows that for every \$1 we invest in trees in our cities, \$2.70 worth of benefits are returned.

A scenic landscape featuring a pond in the foreground with a white swan swimming. The background is filled with lush green trees and vibrant flower beds in shades of orange, yellow, and blue. The scene is captured in a soft, natural light, suggesting a peaceful park or garden setting.

Well-maintained Trees Are an
Asset to any Landscape

What are a few ways to get trees
planted in your community???

Any Questions???



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