Maybe if I stay here nobody will find me until fall?

**Construction Damage**

AOK ➙ Improper Precautions ➙ DOA

**Saving In Situ Trees**

- No cure for massive root damage exists, only preventative measures truly effective
- Determine which trees are to be saved prior to beginning grading/construction
- Consider likelihood of successful preservation versus preservation costs

**Which Trees To Save?**

- In consultation with owner(s) and architect
- Consider for each tree:
  - Species, age, health, life expectancy
  - Importance to the landscape design
  - Extent of preservation measures required
  - Cost versus success probability
  - Likelihood of successful preservation
  - Sentimental / historical considerations
  - Potential adaptability to the new environment
Establish a Root Protection Zone

- No compaction or fill in RPZ
- No material storage in RPZ
- No pedestrian or vehicular traffic in RPZ
- Fence enclosing 1.5 to 2 X drip-line
  - More is better
- Mulch & fertilize, irrigate if needed
- Make clean pruning cuts if necessary
- If must trench do it by hand to preserve large roots

Preventative Measures May Need To Be Extensive To Be Effective

Real Life Example, What A Place For Sewer Line Fill?

Easier To Preserve Groups Of Trees Rather Than Individuals
Plant Selection & Handling

- Do not plant or purchase diseased, damaged or infested plants
- Avoid plants with poor growth form
- Purchase from a reputable dealer
- Transport in covered vehicle or with wind barrier
- Store in filtered shade until planted
- Keep roots cool & moist until planted
- Carry plants by rootball / container, not by the stems

Balance Immediate Impacts With Economic Costs Of Larger Stock

- Unlike with container-grown annuals, the longer time and greater transplant shock may allow smaller container sizes of trees to catch up with large ones in the field
- Lauren Garcia’s work suggests the best sizes economically are #3 to #7 trees in the southern U.S.
- Balance immediate impacts versus long term cost benefits

Herbaceous Plants

- Frequently sold in flats or as 1 gallons
  - Larger sizes for instant effect
  - Larger plants tend to remain larger plants throughout growing season
- Avoid leggy or overgrown plants
  - No deep planting, place the crown at or slightly above original grade
- Best if not yet in bloom, hint of color = first color
- Buy acclimated plants, not directly from the greenhouse, & no excess growth regulators, know your supplier’s practices!!!!

Small Size Annuals Never Catch Up

- Graph showing plant index growth for different sizes of annuals over days from planting.
Bare-Root Nursery Stock

- Used only in dormant / quiescent state
  - Possible exception are plants from Missouri Gravel Bed System
- Cheapest, but often least desirable type of stock
- Harvest & storage conditions are critical
  - Be leery of “common storage”, desiccation often occurs
  - Should be root pruned in previous years before lifting

Upon receipt, remove shipping materials, soak roots for several hours, store in cooler with roots wrapped in moist sphagnum moss or similar materials or heel in immediately

Balled-&-Burlapped (B&B Stock)

- Typically field grown, dug, rootball wrapped in burlap or plastic
- Planting season unlimited, but expensive and heavy with high shipping and handling costs
- Avoid plants with cracked or loose rootballs
- Lift by rootball not stem
- Avoid excessively large or small rootball to shoot ratio
  - Large root:shoot ratio may indicate poor vigor
  - Small root:shoot ratio may indicate inadequate ball
  - Palms are an exception to sizes

Plant Specification Aides

- Plant Specifications:
  - AmericanHort® ANSI Z60.1-2014 (American Standard for Nursery Stock)
- Installation & Maintenance Specifications:
  - ANSI standards from International Society of Arboriculture

Miscellaneous Design Considerations

- Water quality preservation/pollution
- Water harvesting in arid landscapes
- Green roof / living wall technology
- Container gardens
- Pest issues
- Fire prevention in landscape design & maintenance
- Energy conservation issues
**Water Quality / Pollution Prevention**

- Bioswales
- Constructed wetlands
- Rain gardens

**Water Harvesting in Arid Regions**

Images from: *Harvesting Rainwater for Landscape Use*
Patricia H. Waterfall, Extension Agent
University of Arizona Cooperative
http://aggie-horticulture.tamu.edu/archives/parsons/publications/deerbest.html

Excellent source of ideas, specifications, and information for calculations

Also see:
http://rainwaterharvesting.tamu.edu/

**Green roof Technology**

*Extensive versus Intensive*

**Deer in the Landscape**

- Dependent upon availability of alternative food sources and deer population
- Protecting plants
  - Repellents are of questionable effectiveness
  - Caging is unsightly, fencing is a possibility
  - Damage from antler rubbing may be as bad as feeding for young trees
- Very few plants are immune, some are less palatable than others to browsing deer
- Sources of information:
  - Deer in the Urban Landscape. John Lipe as revised by Forest W. Appleton.
    - http://rainwaterharvesting.tamu.edu/
  - "Those deer make mighty fine eatin' & add to holiday festivities too!"
Landscaping in Fire Prone Regions

- Store combustibles away from buildings
- Avoid combustible mulches & hardscape materials
- Space shrubs & trees so canopies do not touch
- Keep wooded “natural areas” 50’ from house
- Use more color & turf, less shrubs & trees, close to the house
- Avoid plants that retain dead leaves / branches
- Avoid limbs that overhang structures
- Limb up trees to 6’ or more
- Avoid shrubs under canopy of trees
- Avoid plants with highly combustible substances, like resins
- Prune deadwood & ornamental grasses before fire season
- Keep leaves / trash raked
- Keep plants well watered during fire season
- Use succulent plants with high water content
- http://passporttexas.org/firewise-landscaping/

Be Responsible, Obey Quarantine Restrictions

APHIS Fire ant distribution
N.A.P.I.S. Emerald ash borer distribution
U.S. Dept. Agric. gypsy moth distribution map
Texas Dept. Ag. Sweet Potato Weevil quarantine map
N.A.P.I.S. Emerald ash borer distribution

Curving Question (?):
See Syllabus!

“In order for an individual grade to be considered for curving up to the next highest grade, a student must be within 1% (24 points HORT 308, 30 points HORT 609) of the next highest grade and have not missed more than two labs and/or lectures (as evidenced by missed examinations, lecture quizzes, lab quizzes, or bonus point opportunities). If the student has missed more than two labs and/or lectures, then their grade will not be eligible for curving up.”

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