TREE-FOR-ALL '03

GETTING NEW TREES
STARTED RIGHT

Presented by
Urban Forestry & Horticulture Section
and Tree Commission of the City of Huntsville, Alabama,
in cooperation with
the Huntsville-Madison County Botanical Garden,
Auburn University and the Alabama Cooperative Extension System,
the USDA Forest Service,
the Mountain Lakes Chapter of the Society of American Foresters,
and the Alabama Urban Forestry Association.

October 18, 2003

For more information on trees, visit AUFA's website - http://www.aufa.com
Welcome to this short-course on **getting new trees started right**. It was prepared under an Urban and Community Forestry Grant from the USDA Forest Service.

A complete copy of this narrative can be obtained by email through the website of the Alabama Urban Forestry Association.

Topics in this presentation include . . .
- Picking the Right Tree for the Job
- Planting Design Hints
- Nursery Stock Selection
- How to Plant Young Trees
- Taking Care of Young Trees

**Introduction:** "Good trees" seldom happen by chance. When you're planting a new tree, the factors that make it "good" or "bad" are all things you can control. So it makes sense to do some planning, and get it right on the first try.

What is "the right tree" for the job you have in mind?

Let's look at the factors one at a time.
"the right tree" is practical...

- Safe and healthy
- Easy and economical to maintain

Problems are caused by:
- environmental stress,
- poor nursery stock,
- improper planting,
- improper maintenance,
- unfortunate choice of species

The "right tree" should be safe and healthy, and easy and economical to maintain.

Have you ever noticed how some trees always seem to be up to something? Two months ago you hired a guy to prune out a ton of deadwood, a month later a major fork split out? And now a heavy branch seems to be dying back?

These problems are often related to environmental stress, poor nursery stock, improper planting, improper maintenance, and unfortunate choice of species. These are things you can control when you’re starting out a brand new tree.

"the right tree" is useful...

Useful, providing:
- shade and cooling,
- seasonal color,
- summertime or year-round screening,
- protection from winter winds,
- other things

But, the wrong tree can provide
- thorns,
- mess to sweep up,
- broken limbs

The "right tree" should be useful to you. A tree can provide shade and cooling, soil stabilization, seasonal color, summertime or year-round screening, protection from winter winds, flowers, bright berries and evergreen foliage for the holidays – the list goes on and on. But it can also provide thorns, mess to sweep up, broken limbs, and other things you don’t want.

What you get is determined by what kind of tree you buy, how you plant it, and how you take care of it. More on those subjects later.

"the right tree" is attractive...

Attractive:

- What it looks like
- species and variety
- nursery stock quality
- planting technique
- good post-planting care

The "right tree" should be attractive. To a great extent this depends on species and variety, but you can influence it by choosing high-quality nursery stock, by planting it well, and by giving it the first-year care a good tree deserves.

"the right tree" grows fast...

Reasonably fast-growing.

But avoid "fast-growing species." What you gain in growth rate, you lose in strength.

For good growth, rely on:
- Good species
- Good nursery stock
- Good planting
- Good maintenance

The "right tree" should grow reasonably fast. The usual answer – and the wrong one – is to buy a so-called "fast-growing tree." This often means a "bargain tree" – a silver maple, a boxelder, or a hybrid poplar. The problem is, with these "fast-growing" species, what you gain in growth rate, you lose in strength. A much better approach is to get a good tree and plant it well. A happy tree is a fast-growing tree.
Do you see the pattern? The trick is to get what you really need – make a profile and see what trees fit it. Get help in identifying and locating the right trees. Look around your neighborhood to see what kinds of trees are growing well on similar sites. Then learn all you can about them and make sure they fit your situation.

What site factors do you have to deal with? Limitations that contribute to the success or failure of your tree. Look at soil, moisture, drainage, sunlight, and overall climate.

Take a bird’s-eye view of your property, and think about the relationship of the sun and prevailing winds to your house.

In general, you’ll do best with evergreen windbreak trees to the northwest, but deciduous shade trees on the south and west sides of a house. It may help to create a "funnel" for prevailing summer winds in warm weather, and screening – for privacy, and to block out headlamps, obnoxious neighbors, and things you would rather not have to look at. Plantings seldom do much to screen out noise, but research indicates that if you can’t see the source of the noise (especially traffic), the sounds are much less bothersome.

When trees and other plants face severe competition for space, everything suffers. Consider potential conflicts with buildings, pavement, overhead wires, underground utilities, and other plants.
Avoid easement conflicts

Study the survey map of your property. Learn which parts of your land are under public easements. An easement is not public property. It is someone's right - the City's, in this case - to use part of your property for certain purposes.

The most common easements are "utility and drainage easements," usually along the back of a property, and "access easements" along the sides. You should not set out plants that will interfere with the use of an easement.

Avoid construction conflicts

Don't forget to consider future construction possibilities. These willow oaks were planted in a vacant area, with plenty of clearance from the nearby power lines; but about 10 years later the property owners decided to insert parking space between the trees - at the cost of significant damage to their roots.

Be sure to allow plenty of clearance for outbuildings, additions to existing buildings, new driveways, and turnarounds.

Avoid irrigation conflicts

If you're likely to install irrigation, plan ahead, so the system doesn't destroy what it is meant to serve. This irrigation trench, which is only about a foot deep, severed over half of the feeder roots of this oak tree. We'll talk a little later about why this happens and how to avoid it.

Avoid utility conflicts, cont'd

If you have power lines along the edge of your property, don't challenge them - plant so as to minimize their impact on your landscape.

To avoid having large-growing trees severely pruned for power line clearance, plant them at least 20 feet back from the nearest electric line. Smaller-growing trees and shrubs can be closer, or even under the power lines. Think in terms of the plants' mature size.

Avoid utility conflicts

In choosing tree-planting sites, remember that utility companies are required to keep the power on, protect the electric system, and prevent children from climbing into trees where they could come into contact with live power lines.
There is no connection between the size of a tree when you plant it and how big it will eventually become. Assuming that you will plant a tree properly and give it at least basic care, its ultimate size depends mostly on what kind of tree it is.

Here’s where most people need help. Do some reading on the preferences of various kinds of trees before you make any decisions about what to buy and plant. To help you get started, we have included in your handouts are lists of small, medium, and large trees for this area. There are also many websites with good tree information—we have listed several of the best at the end of these notes.

How big a tree you need depends partly on the available space.

This chart, which we’ll look at more closely in the next few slides, looks at the volume of soil a tree needs, based on the mature diameter of its trunk.

Research has revealed that for every inch of mature trunk diameter, a tree needs about 60 cubic feet of soil... near the surface.

Why only soil near the surface? Because oxygen is required to release the energy in sugar, which is made in leaves, dissolved in water, and piped down to the roots through the branches and trunk. Air rarely penetrates more than about 18 inches, especially in clay soils.

Tree roots don’t grow where they don’t find oxygen, so they usually occur in a disk-shaped area no deeper than about 18 inches.
How big a tree fits the space?

So—a tree that will have a 24-inch trunk needs about 1,440 cubic feet of soil.

If we think of this as a disk 18 inches deep, this disk would have a diameter of 35 feet!

If you provide less growing room, the tree will begin to decline before it reaches its potential.

How big a tree can you handle?

Once you know what kind of trees you want, another size issue arises—how big a tree to buy. The bigger a plant is, the harder it is to move and set in place. Imagine a cone-shaped root-ball made of clay soil, 2 feet wide at the top and 2 feet tall—it would weigh nearly 300 pounds. The weight increases fast as the root ball gets larger!

How big a tree can you afford?

And larger trees cost more. These retail prices are estimated from a recent wholesale nursery catalog.

All in all, the larger a tree is at planting, the more difficult and expensive it is to obtain it, plant it, and get it to grow well. The optimum size is usually a diameter of 2 - 2½ inches or somewhat less, measured near the ground.

Trees to avoid...

Finally, know what trees to avoid. These flowering pears seemed like a good idea when they were planted—but the owners had no idea how much maintenance they required to keep them serviceable. Soon the trees crowded the sidewalk, blocked traffic visibility, grew into power lines, began suffering wind breakage, and even provided cold-weather roosts for thousands of blackbirds!

The notes for this presentation include a list of “problem species.” You should think carefully before you buy a tree on this list.

Nursery Stock Selection

Now let’s turn to the selection of nursery stock.

Nursery stock standards need not be complicated to be effective. The following requirements are based on those of the City of Huntsville:
Taking Care of Young Trees

Before getting into the specifics, it helps to understand the difference between a true branch and a fork, and to recognize "included bark."

A well-formed branch has a collar at its base, somewhat resembling the knuckle at the base of your thumb. This collar is the key to the strength of the branch attachment, and also the tree's protection from decay. In pruning, the final cut must leave the collar undamaged.

A well-attached branch also has an upward-turned "bark ridge," like a tiny mountain range running across the top of the attachment.

But on forks and poorly-attached branches, bark disappears down into the crotch from each side, becoming "included." This is the beginning of serious trouble for the tree.

Forks have much less strength, no collar, no bark ridge, and no protection from decay.

Nursery Stock Criteria

When you buy nursery stock, each plant should have...

A tag identifying the species and preferably the nursery that grew it.

Medium- to large-growing trees should have a single stem with no forks.

Each plant should have a full, balanced crown, with well-formed branches.

The trunk diameter or height should be as advertised,

Root balls should be appropriate to the size of the tree, and neither broken apart nor separated from the tree's roots.

You should avoid buying plants with serious problems:

Some problems involve POOR VIGOR OR FORM, such as:

Inadequate root development.

A sparse or yellowing crown.

Abnormal sunken places in the bark, especially below branches.

Narrow branch angles, especially those with included bark.

Other problems involve DAMAGE, such as:

Open wounds on the trunk, branches, or roots.

Cracks or bark splits surrounded by inrolled callus.

Dead, cracked, broken, or flush-cut major branches.

Separating grafts.
A third set of problems involve POOR PREPARATION —

Flush-cut pruning scars, or branch-stubs left at pruning
Evidence of topping
Evidence of pruning done in an effort to "shape up" a derelict tree or shrub
Or an improperly prepared root ball.

And avoid plants with HEALTH PROBLEMS. These may be recognized by...

Signs [e.g., eggs] or symptoms [damage] of harmful insects; or
Signs [e.g., visible fungus growths] or symptoms [damage] of disease-carrying organisms, such as fungi.

Finally, ALL SHRUBS AND GROUND-COVER PLANTS must be vigorous, healthy, and pest-free. A plant that does not cover the top of its containers may be unhealthy, or it may have been recently shifted to a larger container size, to sell for a higher price. Before you buy, gently slide a few plants from their containers, to be sure the roots are healthy and not grown into a solid mass.

At last — this is probably what you came for — how should the trees be planted?

The conservation organization American Forests, along with the American Society of Landscape Architects, has done extensive research to learn why so many trees die prematurely in cities. Mainly, they found that traditional planting techniques don't work well in areas impacted by construction. Your goal should be to fool the tree into thinking it's not a city tree. Here's how:

First -- prepare a planting area 12-18" deep. Think of it as a root zone, not a "hole." It should be 3 to 5 times as wide as the tree's root ball -- the objective is to loosen the soil, so new roots can spread sideways out into the surrounding soil, to create a strong base for the tree. This becomes especially important in times of drought and flooding. If you think soil amendments are needed, spread them across the entire planting area, and till them in well.
In the middle of this area, dig a hole no deeper than the height of the root ball, and set the root ball so its top is even with the surrounding ground level, or slightly higher.

Remove all the ties, burlap, and other ball-wrapping materials from the top half of the root ball. This encourages good contact between the soil of the root ball and the surrounding soil.

Backfill around the root ball. Use water to float out air pockets that can cause roots to dry out and soil to sink.

Firm and level the soil, but don't recompact it solidly.

Don't replace sod over the root-zone.

And remove stem-wrapping materials. These are intended for protection during shipping and handling, but they can cause problems if you leave them in place.

Mulch takes the place of the layer of leaf-litter on the forest floor, and its benefits to the tree are many. It is very important during the tree's first few years of life, particularly if it is a free-standing lawn tree. It should be made of a coarsely-chopped organic material, like pine needles or shredded pine bark.

Mulch should be applied no more than 3 inches deep — and never piled up around the base of the tree.

There is considerable disagreement about staking — whether it should be done at all, and if so how, and with what materials. The goal is to hold the root ball still (so that new roots can become established in the surrounding soil), but to let the trunk sway a little (promoting good taper toward the base of the trunk).

On trees that may be unstable during strong winds, set two 5- to 8-foot stakes (depending on the height of the tree) firmly into the ground; don't drive them through the root ball.

Install padded supports, only tight enough to prevent the tree from tipping, and low enough to permit some swaying motion.

Supports should definitely be removed within a year after planting.
**Immediately after planting** you should:

- trim loose bark from around any stem wounds, leaving rounded (not pointed) corners.
- prune out badly damaged branches from the newly-planted tree.

But under no circumstances should any newly-planted tree be topped or receive other major pruning.

**First-year pruning**

After the first year, remove...

- Deadwood and damaged branches
- The weaker side of any fork in the main stem.
- Branches with "included bark"
- Crossed or rubbing branches
- Recurrent branches (growing back toward the center of the crown)
- Duplicate and interfering branches

Further pruning should not be done until about a year after planting, to give the tree an opportunity to become established. Soon after the leaves reach full size in the **second full growing season after planting**, attack the tree's major problems, beginning with the most serious.

Start by removing deadwood, and damaged branches. Eliminate the weaker side of any fork in the main stem. Prune out branches with "included bark," where the bark disappears down into the crotch from both sides. Prune cut limbs that are crossed or rubbing, growing back toward the center of the crown, or interfering with better branches nearby.

The tree may be lopsided for a time after pruning work is done, but a healthy, vigorous tree will quickly fill in gaps in its crown, and grow stem wood that straightens out minor crooks and bends.

**General Pruning Technique**

To prune out a branch:

1. First a bottom cut, until the saw blinks.
2. Then a top cut. This removes the weight, leaving a manageable stub.
3. Finally, remove the stub with a cut just outside the collar at the base of the branch.

In pruning out a branch, there are three immediate goals:

- To remove the branch.
- To avoid tearing a strip of bark from the tree when the branch separates.
- And to prevent decay from entering the tree.

First, eliminate the heavy part of the branch. This may need to be done in several stages. Each piece removed must be manageable. First, make an **upward cut from below**, until the saw begins to bind a little.

Then, make a **top cut**, about an inch from the first cut. The wood will split between the top of the first cut and the bottom of the second one, and the branch will fall. Leave a stub that you can manage with one hand.

Finally, remove this stub with a **cut just outside the collar at the base of the branch**.

**Pruning one side of a fork**

To prune out one side of a fork...

- Remove most of the weight first.
- Avoid damaging the other stem.

Pruning out one side of a fork in a young tree may leave the tree lopsided for a time, but in a few years this will scarcely be noticeable.

The keys are:

- Remove most of the weight first.
- Avoid damaging the other stem in making the final cut.
The first year after a young tree is planted is the most critical time in its life. During this period you have the greatest leverage on the future of the tree -- you have the greatest impact on the tree's form, strength, and vitality, all with the least difficulty and cost.

Even if the tree needs no other help, be sure that its soil stays moist throughout its first 2-3 growing seasons. The tree can't live without water!

Finally, take every opportunity to learn about trees, and to include them into your life.

If you do this well, they won't disappoint you.

For more information and references on trees, go to http://www.aufa.com and click on "Tree Questions?"
<table>
<thead>
<tr>
<th>LATIN NAME</th>
<th>COMMON NAME</th>
<th>NOTABLE VARIETIES, COMMENTS</th>
<th>LEAF SHED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acer palmatum</td>
<td>Japanese Maple (Usually multi-trunk.)</td>
<td>'Bloodgood,' 'Burgundy Lace,' 'Dissectum,' 'Atropurpureum,' 'Ornatum,' and many others of various size, shapes, and colors.</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Cotinus coggygria &amp; C. obovatus</td>
<td>European and American Smoketree. (Usually multi-trunk. Can be trained to 1 trunk.)</td>
<td>Many varieties. European species may be green or purple; American species has bluish medium-green leaves. Flowers are filamentous, like ostrich feathers with small suspended seeds.</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Ilex decidua</td>
<td>Possumhaw (deciduous holly). (Usually multi-trunk. Can be trained to 1 trunk.)</td>
<td>'Byers Golden,' 'Council Fire,' 'Hunter,' and many others.</td>
<td>Deciduous. Winter berries</td>
</tr>
<tr>
<td>Lagerstroemia indica</td>
<td>Crapemyrtle. (Usually multi-trunk. Can be trained to 1 trunk.)</td>
<td>Dozens of varieties, including 'Natchez,' 'Potomac,' 'Yuma,' 'Acoma,' 'Cherokee,' 'Comanche,' 'Osage,' 'Sioux,' etc. Select variety first for size and shape, hardiness, and disease resistance; then choose flower color, blooming season, fall foliage, and bark display. Do not top crapemyrtles!</td>
<td>Deciduous, but has interesting bark and persistent fruit hulls.</td>
</tr>
<tr>
<td>Magnolia x soulangiana</td>
<td>Saucer magnolia. (Usually multi-trunk.)</td>
<td>'Lilliputian,' 'Verbanica.' Very early large purple flowers. Vulnerable to late spring frost.</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Malus sargentii</td>
<td>Sargent crabapple. (Usually multi-trunk. Can be trained to 1 trunk.)</td>
<td>Many varieties, including 'David,' 'Jewelberry,' 'Mary Potter,' 'Prairifire,' 'Profusion,' 'Red Jade,' 'Red Jewel,' etc.</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Stewartia malacodendron</td>
<td>Silky Stewartia. (Usually multi-trunk.)</td>
<td>Native (rare)</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Tsuga canadensis 'Sargentii'</td>
<td>Weeping Canadian Hemlock. (Usually multi-trunk.)</td>
<td></td>
<td>Evergreen</td>
</tr>
<tr>
<td>Vaccinium arborescens</td>
<td>Sparkleberry, Tree Huckleberry. (Usually multi-trunk.)</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Viburnum obovatum</td>
<td>Blackhaw, Walter Viburnum. (Usually multi-trunk. Can be trained to 1 trunk.)</td>
<td></td>
<td>Semi-evergreen</td>
</tr>
<tr>
<td>Viburnum plicatum var. tomentosum</td>
<td>Doublefile Viburnum. (Usually multi-trunk. Can be trained to 1 trunk.)</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>LATIN NAME</td>
<td>COMMON NAME</td>
<td>NOTABLE VARIETIES, COMMENTS</td>
<td>LEAF SHED</td>
</tr>
<tr>
<td>----------------------------</td>
<td>----------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Aesculus pavia</td>
<td>Red Buckeye</td>
<td>Small native tree with beautiful flowers.</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Crataegus aestivalis</td>
<td>May Hawthorn,</td>
<td>A small tree or large shrub, 12' to 20' tall; habit is quite variable; often multi-stemmed, but may be trained to a single trunk. Shape ranges from irregular and open to dense and rounded. Usually slow-growing. Outstanding late-spring flowers.</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Chionanthus virginicus</td>
<td>Fringetree, Oldman's-beard, Grancy graybeard</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Ilex x attenuata 'Fosteri'</td>
<td>Foster Holly</td>
<td>Can exceed 25' in height over a long period.</td>
<td>Evergreen</td>
</tr>
<tr>
<td>Koelreuteria bipinnata</td>
<td>Chinese Flame-tree</td>
<td>Non-native; may look out-of-place in some environments, but can be very serviceable.</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Koelreuteria paniculata</td>
<td>Goldenraintree</td>
<td>Non-native; may look out-of-place in some environments, but can be very serviceable.</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Laburnum spp.</td>
<td>Goldenchain Tree</td>
<td>Non-native; may look out-of-place in some environments, but can be very serviceable.</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Magnolia acuminata</td>
<td>Yellow Magnolia</td>
<td>var. subcordata</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Magnolia grandiflora</td>
<td>Southern Magnolia</td>
<td>'Glen St. Mary,' 'Jane' is a dwarf form.</td>
<td>Evergreen</td>
</tr>
<tr>
<td>Malus baccata,</td>
<td>Flowering crabapple</td>
<td>Many varieties of each species, with much diversity of size, shape, flower color, etc. Crabapples require periodic pruning, but can produce excellent effects in the landscape.</td>
<td>Deciduous</td>
</tr>
<tr>
<td>M. callocarpa,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M. floribunda</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M. hupehensis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M. sargentii</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prunus caroliniana</td>
<td>Carolina laurel/cherry</td>
<td>Often a shrub, but can be pruned into an elegant small evergreen tree.</td>
<td>Evergreen</td>
</tr>
<tr>
<td>Prunus cerasifera</td>
<td>Pissard (Purple-leaf) Plum, or Cherry Plum</td>
<td>'Atropurpurea,' 'Krauter Vasuvius,' 'Mount St. Helens,' 'Newport,' 'Thundercloud'</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Prunus serrulata</td>
<td>Kwanzan Flowering</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>'Kwanzan'</td>
<td>Cherry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prunus x yedoensis</td>
<td>Yoshino Cherry</td>
<td></td>
<td>Deciduous</td>
</tr>
</tbody>
</table>
**Trees 25-50' Tall**

General selection criteria: USDA hardiness zone 7 (N Ala - N Tenn); typically single-trunk (unless specified otherwise); branches & trunk of larger species resistant to breakage; surface rooting generally not a problem; no thorns; minimal problems with messiness; little invasive potential.

<table>
<thead>
<tr>
<th>Latin Name</th>
<th>Common Name</th>
<th>Notable Varieties, Comments</th>
<th>Leaf Shed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acer barbatum</td>
<td>Florida Maple, or Southern Sugar Maple</td>
<td>'Evelyn,' 'Postelense,'</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Acer campestre</td>
<td>Hedge Maple</td>
<td>'Endowment,' 'Goldspire,' 'Newton Sentry,' 'Temple's Upright'</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Acer saccharum</td>
<td>Sugar Maple</td>
<td>'Endowment,' 'Goldspire,' 'Newton Sentry,' 'Temple's Upright'</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Carpinus betulus</td>
<td>European Hornbeam</td>
<td>'Fastigiata,'</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Carpinus caroliniana</td>
<td>American Hornbeam</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Gleditsia triacanthos v. inermis</td>
<td>Honeylocust (thornless)</td>
<td>Create light shade; use only thornless varieties, and preferably non-fruited varieties. 'Imperial' and 'Sunburst' varieties grow to 30-45' in height.</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Gordonia lasianthus</td>
<td>Loblolly-Bay</td>
<td>'Variegata,'</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Halesia carolina</td>
<td>Carolina Silverbell</td>
<td>'Rosa,'</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Ilex opaca</td>
<td>American Holly</td>
<td>'Calloway,' 'Howard,' 'Lady Alice,' 'Old Gold,' 'Slim Jim,' 'Westcroft,' 'Yellow Jacket,' 'East Palatka,' 'Savannah,'</td>
<td></td>
</tr>
<tr>
<td>Magnolia grandiflora</td>
<td>Southern Magnolia</td>
<td>'Bracken's Brown Beauty,' 'D.D. Blanchard,' 'Greenback,' 'Hasse,' 'Little Gem,' 'Majestic Beauty,' 'Phyllis Barrow,' 'Plantation,' 'Russet,' 'Samuel Sommer,' 'Select III,'</td>
<td>Evergreen</td>
</tr>
<tr>
<td>Nyssa sylvatica</td>
<td>Blackgum, Black Tupelo, Sour gum,</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Oxydendrum arboretum</td>
<td>Sourwood, Sorrel-Tree</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Pistacia chinensis</td>
<td>Chinese Pistache</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Quercus acutissima</td>
<td>Sawtooth Oak</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Tilia cordata</td>
<td>Littleleaf Linden</td>
<td>'Greenspire,' 'June Bride,' 'Rancho,'</td>
<td>Deciduous</td>
</tr>
<tr>
<td>x Cupressocyparis leylandii</td>
<td>Leyland Cypress</td>
<td>'Haggerston Gray,' 'Naylor,' 's Blue,' 'Silver Dust,'</td>
<td>Evergreen</td>
</tr>
</tbody>
</table>
**Large Trees 50', tall and larger. General selection criteria:** USDA hardiness zone 7 (N Ala - N Tenn); typically single-trunk (unless specified otherwise); branches & trunk of larger species resistant to breakage; surface rooting generally not a problem; no thorns; minimal problems with messiness; little invasive potential

<table>
<thead>
<tr>
<th>Latin Name</th>
<th>Common Name</th>
<th>Notable Varieties, Comments</th>
<th>Leaf Shed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acer saccharum</td>
<td>Sugar Maple</td>
<td>'Commemoration,' 'Green Mountain,'</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Cedrus atlantica</td>
<td>Atlas Cedar</td>
<td>'Argentea,' 'Glauc'a'</td>
<td>Evergreen</td>
</tr>
<tr>
<td>Halesia monticola</td>
<td>Mountain Silverbell</td>
<td>'Roses'</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Liriodendron tulipifera</td>
<td>Tuliptree, Tulip-Poplar, Yellow-Poplar</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Magnolia acuminata</td>
<td>Cucumbertree, Cucumber Magnolia</td>
<td>'Variegata,'</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Magnolia grandiflora</td>
<td>Southern Magnolia</td>
<td></td>
<td>Evergreen</td>
</tr>
<tr>
<td>Metasequoia glyptostroboide</td>
<td>Dawn Redwood</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Quercus alba</td>
<td>White Oak</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Quercus falcata</td>
<td>Southern Red Oak, Spanish Oak</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Quercus michauxii</td>
<td>Swamp Chestnut Oak</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Quercus muehlenbergii</td>
<td>Chinkapin Oak</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Quercus phellos</td>
<td>Willow Oak</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Quercus prinus</td>
<td>Chestnut Oak</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Quercus shumardii</td>
<td>Shumard Oak</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Taxodium distichum</td>
<td>Baldcypress</td>
<td>'Monarch of Illinois,' 'Pendens,'</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Tilia cordata</td>
<td>Littleleaf Linden</td>
<td>'Glenleven,'</td>
<td>Deciduous</td>
</tr>
<tr>
<td>Tsuga canadensis</td>
<td>Canadian Hemlock, Eastern Hemlock</td>
<td></td>
<td>Deciduous</td>
</tr>
<tr>
<td>Ulmus parvifolia</td>
<td>Chinese elm</td>
<td>Seedling plus several varieties, including 'Allea' and 'Drake.' A durable &quot;survivor&quot; tree for medium-to-large areas.</td>
<td>Deciduous</td>
</tr>
</tbody>
</table>
# UNACCEPTABLE AND QUESTIONABLE SPECIES

**in the North Alabama area**

## PROBLEM CODES:
- **(C)** Conditionally acceptable
- **D** Excessive disease problems
- **G** Excessive growth rate, causing weak wood, excessive maintenance load, etc.
- **H** Undesirable growth habit (weak crotches, etc.)
- **I** Excessive insect problems
- **M** Messy (flowers, seeds, leaves, fruit, etc.)
- **R** Aggressive roots, causing sidewalk heaving, invasion of sewer lines and drain fields, etc.
- **S** Site incompatibility (not cold hardy, not adapted to local soils, etc.)
- **W** Undesirable wood properties (weakness, tendency to break during winds, susceptibility to decay, etc.)
- **X** Special problems (poisonous parts, thorns, unusually susceptible to vandalism, etc.)

## COMMON NAME | BOTANICAL NAME | PROBLEM CODES
--- | --- | ---
**LARGE TREES**
Boxelder & *Acer negundo* & **G,H,R,W**
Silver maple & *Acer saccharinum* & **G,H,R,W**
Tree-of-Heaven & *Ailanthus altissima* & **G,W**
Catalpa & *Catalpa bignonioides* & **(C)M**
Sycamore & *Platanus occidentalis* & **(C)D**
Cottonwood & *Populus species* & **M,R,W**
Colorado blue spruce & *Picea pungens* & **S**
Red spruce & *Picea rubens* & **S**
Live oak & *Quercus virginiana* & **S**
Laurel oak & *Quercus laurifolia* & **S**

**MEDIUM TREES**
Camphor & *Cinnamomum camphora* & **S**
Cutleaf European Birch & *Betula pendula* & **D,S**
Silktree (*"mimosa"*) & *Albizia julibrissin* & **D,M**
Chinaberry & *Melia azedarach* & **G,W**
Yellowwood & *Cladrastis lutea* & **G,W**
Mulberry, red & white & *Morus species* & **G,M,R,W**
Princesstree (or Royal Paulownia) & *Paulownia tomentosa* & **G,M,W**
Slash pine & *Pinus elliottii* & **S,W**
Eastern white pine & *Pinus strobus* & **D,I,S**
Pin oak & *Quercus palustris* & **(C)D,S**
Willows & *Salix species* & **G,R**
Sassafras & *Sassafras albicidum* & **(C)G,R**
Siberian elm & *Ulmus pumila* & **D,G,H,I**

**SMALL TREES**
Sumac species & *Rhus species* & **(C)G,H,W**
Goldenrain tree & *Koelreuteria paniculata* & **(C)S,W**
Pear, flowering (Bradford, etc.) & *Pyrus calleryana* & **(C)G,H**
Tree-for-All 2003
"GETTING NEW TREES STARTED RIGHT"

Prune out severely damaged branches. However, leave more extensive pruning until the tree is established.

Included bark (covering both sides of internode)

True branch

Pine

Bark ridge

Branch collar

Cut #2 here
.or here

Cut #1

Note: Cut #3 misses bark ridge above, and all of the branch collar

Huntsville Tree Commission

Huntsville-Madison County Botanical Garden

Huntsville, Alabama
October 18, 2003