Trees and Shrubs for Sustainable Built Environments
HORT 306 Fall 2018

Plant List 4
Trees with Significant Landscape Liabilities

Reading Assignments
In Landscape Plants For Texas And Environs, Third Ed.
– Intro materials on trees (p. 681, 997) and shrubs (p. 682, 807)
– Family descriptions for:
  Aceraceae (p. 65), Elaeagnaceae (p.80), Euphorbiaceae (p. 82), Fabaceae (p. 82), Meliaceae (p. 89), Moraceae (p. 89), Oleaceae (p. 92), Rosaceae (p. 99), Salicaceae (p. 100), Scrophulariaceae (p. 102), Simaroubaceae (p.102), Sterculiaceae (p. 103), Tamaricaceae (p. 103), Ulmaceae (p. 106),
– Descriptions for individual species
  See page listings on Plant List 4 Handout (also available under lists on course website)

There is no perfect tree, but every tree has its place!
Some just have fewer acceptable placements in sustainable landscapes than others.

Why Study “Trash Trees”
• All of the following are common in one or more portions of our region
• Not all are “trashy”, just lacking in merits
• In some situations, they are still the best available option
• Some offer compensatory attributes
• Some you need to know to avoid them such as invasive species
**Ulmus pumila**  
*Siberian Elm*

- Medium (30' - 50') tree, irregularly rounded crown, USDA z. 4 (3b) - 9
- Resistant to DED and phloem necrosis, but can be weedy
  - Susceptible to wet wood, elm leaf beetles, and cotton root rot
  - Susceptible to wind damage, may break up in ice / snow
  - Invasive root system and dense crown inhibits turf culture
  - Weedy species, confused with aesthetically superior *U. parvifolia*
- Reserve for difficult sites where other species will not grow

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**Celtis laevigata**  
*Sugar Hackberry*

- Medium/large native deciduous shade tree, 40'-60'(100')
- Few favorable landscape traits, but adapted to very adverse sites, hardy in USDA zones 5 - 9
- Weedy species, birds spread seeds widely, unique bark
- Intergrades with *Celtis occidentalis* north of our region

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**Celtis laevigata**  
*Sugar Hackberry*

- Shade tree (difficult sites), naturalizing, shelter belts, wildlife food & habitat
- Mistletoe, witch's broom, & nipple gall are persistent problems

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**Acer saccharinum**  
*Silver Maple*

- Large deciduous eastern USA shade / forest tree
- Shortish stout trunk with spreading large branches
- Silver-back deeply lobed leaves flutter in breeze
- Useful in mesic portions of USDA zones 4 – 7 (8)
- Develops poor fall color
- More esteemed in Europe than most of USA
**Acer saccharinum**
Silver Maple
- Subject to similar limitations as *A. rubrum*, but a bit less site specific than *A. rubrum*
- Very weak wood, several insect / disease problems
- Very weedy on favorable sites; dense shade & surface roots hinder turf culture
- Intolerant of salinity; not adapted to hot dry regions

**Acer rubrum versus Acer saccharinum habit**

**Ailanthus altissima**
Tree-Of-Heaven
- Classic trash tree, long ago extremely popular, sort of tropical looking
- USDA z. 4 - 8 (9)
- Elephant hide bark, bold coarse texture
- Dioecious
  - Flowers are noticeable but not overly showy
  - Male flowers are malodorous
- Fruit on females can be tan to red
- Extremely widely adapted, actually hard to kill once established
- The tree everyone loves to hate
- Prone to limb breakage, trunk rot
**Albizia julibrissin**  
**Mimosa**
- Small 20' - 30' deciduous tree, vase-shaped, hardy USDA zones 7 (6b) - 10
- Stratified branching
- Light airy texture, large bipinnately compound leaves with tiny dark green leaflets
- Light to dark pink 2” powder-puff flowers
- Very adaptable, but develops chlorosis on extremely high pH soils
- Very rapid grower, can become weedy

**Elaeagnus angustifolia**  
**Russian Olive**
- Known as Oleaster in the Old World
- Although most frequently used for erosion control and shelter belts, the silver foliage is attractive
- Extremely cold tolerant; common plant in z. 2 - 6, less well adapted to z. 7 & 8
- Widely planted 15’ to 20’ tall small tree in the Central to Northern Plains and Intermountain West
- Takes drought, salts, variable soil pH; although short-lived it can be invasive

**Albizia julibrissin**  
**Mimosa**
- Verticillium wilt, mimosa webworm, and cotton root rot can all be limiting factors
- Tree with tropical flavor & once popular, but short-lived

**Firmiana simplex**  
**Chinese Parasol Tree**
- A coarse textured small to medium, 25’ to 30’ (40’), deciduous tree with upright oval to rounded crown
- Gangly in youth
- Useful USDA z. 7 - 9
- Large leaves easily damaged by wind
- Bright green trunks stand out
- Showy summer panicles of follicles
**Firmiana simplex**
Chinese Parasol Tree
- Tolerates wide range of well drained soils, heat & humidity, drops leaves during droughts; watch herbicide drift
- Novelty, tropical accent, buffer strips, highway plantings, street tree when thin bark will not be damaged; can become weedy

**Gymnocladus dioicus**
Kentucky Coffeetree
- A large, 40’ - 60’ (90’) deciduous coarse textured shade tree for USDA zones 4 – 8; slow grower
- Trees have huge bipinnately compound green to bluish green leaves, brown to yellow fall color

**Gymnocladus dioicus**
Kentucky Coffeetree
- Flowers not showy, but females can be interesting in fruit
- Large hard seeds, were at one time ground to make a coffee substitute
- Tolerant of a wide range of soil pH, soil salts, drought, & cold
- Poor vigor in zone 8 or warmer
- Can be starkly coarse in winter

**Fraxinus americana**
White Ash
- Medium / large, 50’-60’ (100’+), upright oval native North American tree
- Often a better growth form than Green Ash, but less tolerant of urban sites
- Susceptible to several ash borers, ash yellows is problem in NE USA; emerald ash borer has become a serious liability for use of essentially all *Fraxinus spp.*
- Tendency to self prune limbs; hardy USDA z. 4 (3) - 9
- Good timber tree; nice yellow or maroon fall color
**Fraxinus texensis**
Texas Ash

- Considered by some as a variety of *F. americana*
- Essentially a smaller, (25') 35' to 45' tall, sometimes multi-trunk version of *F. americana*
- More heat and drought tolerant than *F. americana*, but less cold tolerant (USDA zones 7 - 9)
- Needs more extensive testing in Central & West Texas
- Tends to be a slower grower than *F. americana*
- Sometimes yellow, orangish or bronze fall color

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**Fraxinus pennsylvanica**
Green Ash

- Medium / large, 30' - 60' (100'), forest, shade, park or street tree
- Very cold hardy, USDA z. 2 - 9, more tolerant of compacted urban soils than *F. americana*, may develop a good yellow fall color

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**Fraxinus pennsylvanica**
Green Ash

- Single straight bole in forest, tendency to weak multi-stem trunk in urban settings
- Susceptible to emerald ash borer / other borers, surface roots, dense shade hinders turf, poor growth form unless trained

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**Fraxinus pennsylvanica**
Green Ash

Post Emerald Ash Borer 😞
**Fraxinus velutina**  
**Arizona Ash**

- Rapid growing small / medium, 20'-40' tall, shade tree
- Round lollipop crown, moderately fine textured
- Short-lived, extremely ash borer susceptible, grows in USDA zones 7 (6b) – 9 (10a)
- Fruit set can be maintenance liability on female trees, also weedy, "trash tree", performs better in South & West Texas

**Gleditsia triacanthos**  
**Common Honeylocust**

- Species type is medium to large deciduous native tree
- Open filtered shade, but nasty thorns on twigs, branches and main trunk
- Interesting, but messy fruit
- Used only in specialty situations or naturalizing

**Gleditsia triacanthos var. inermis**  
**Thornless Common Honeylocust**

- Similar to *G. triacanthos* but lacking thorns
- All commercially available trees and cultivars are from this variety, low chill hr. adapted clones are lacking in the trade
- Fine textured foliage, layered branches, filtered shade, early season yellow fall color; vase-like or layered canopy
Maclura pomifera
Osage Orange
• A deciduous small to medium size tree, 25' to 30' (50') tall, indigenous to Texas and Oklahoma; thorny when juvenile
• Growth habit reminiscent of Mesquite
• Grape-fruit size syncarp of drupes produced on female trees, hence names Hedge Apple or Horse Apple
  – Biological curiosity in evolution
• Thorny shrubby forms used as living fences / barrier plant

Maclura pomifera
Osage Orange
• Once used by native Americans for bow manufacture, hence names Bodark, Bois d'Arc, or Bow Wood
• Initially a rapid grower that slows with age, adapted to a wide range of soil and site conditions in USDA z. 5 – 9; little fall color
• San Jose scale and cotton root rot can be problems
• Thorns, fruit, and dense canopy cause maintenance issues

Morus alba
Common Mulberry
• Medium, 30' - 40', deciduous tree, short stout trunk
  – Irregular rounded crown, lots of dead twiggy growth
  – Dark glossy green foliage, no fall color
  – Edible raspberry-like or blackberry-like fruit
  – Fruit messy & results in stains

Morus alba
Common Mulberry
• Extremely tough adaptable tree, tolerates reflected heat, drought, cold (z. 4), soil salts, heavy clays, various pH soils
  – Tends to be short-lived, susceptible to cotton root rot, webworms, bacterial blight, & other minor pests/diseases
• Use only where better trees will not grow; extremely weedy
• Weeping forms are painfully coarse textured in winter
**Melia azedarach** Chinaberry

- Medium, 30' - 40', deciduous tree, z. 7 - 10
  - Irregular upright oval to umbrella-shaded crown
  - Pleasantly coarse in leaf, not so pleasing in winter character
- Clusters of half inch yellow drupes resembling tiny crabapples, mildly effective in fall/winter, but *poisonous* & messy, naturalized southern USA

**Parkinsonia aculeata** Retama

- Small, 15' - 20', deciduous or semi-evergreen tree
- South Texas tree naturalized further north in Central Texas
- Several interesting features; bright green trunk, fine textured leaf, filtered shade, yellow flowers
- Relatively short-lived, cold hardy only to z. 8b (8a) - 13

**Melia azedarach** Chinaberry

- Fragrant purple & white flowers in spring, hidden by foliage
- Good yellow fall color; winter fruit effect can be interesting
- Will tolerate extreme sites, but very weedy and prone to wind, ice and snow load damage
- Similar class of trash tree as *Ailanthus altissima, Ulmus pumila*, & *Sapium sebiferum*; use only in dire circumstances

**Parkinsonia aculeata** Retama

- Thorns are maintenance liability & plants can be weedy; does not age well
- Very site adaptable, cold & excessively wet soils are limiting; but drought, heat, salt & alkaline soil tolerant
*Paulownia tomentosa*  
**Royal Paulownia**

- Controversial member of *Scrophulariaceae* versus *Bignoniaceae*, but is functionally very similar to *C. bignonioides* in landscapes
- An irregular rounded tree, 30’ to 40’ tall, in our region, important timber tree in its native land
- Large cordate leaves lend a bold tropical effect
- Light purple foxglove-like flowers in spring

*Populus nigra* ‘Italica’  
**Lombardy Poplar**

- Extremely narrow columnar medium size tree
- Often used to line drives, USDA z. 3 - 8 (9)
- Very short-lived, highly susceptible to cankers
- Spreads by root suckers; poor fall color
- A better plant in low humidity environments

*Prosopis glandulosa*  
**Honey Mesquite**

- Irregular spreading deciduous rounded crown
- One of most widely distributed trees in Texas
- Several desirable ornamental features;
  - Ferny fine textured foliage, filtered shade, fruit and flowers can be attractive, adapted to almost any site
  - Pollinator support, wildlife food, browse, wood, food
**Prosopis glandulosa**

**Honey Mesquite**

- Beautiful lumber
- Problems:
  - Thorns can rival those of *Gleditsia triacanthos*
  - Takes over pasture land
  - Difficult to transplant
  - Allergenic pollen
  - Looks rough in winter

**Prunus serotina**

**Black Cherry**

- Medium to large deciduous tree, dark glossy green foliage, preserved if in situ, but seldom planted intentionally
- Small nearly inedible cherries, but valued by wildlife; grows z. 4 – 9; white spring flowers
- Wilting foliage is toxic to wildlife and stock
- Source of cherry lumber / veneer
- Several native regional varieties in West Texas

**Robinia pseudoacacia**

**Black Locust**

- A 40' - 50' (100') deciduous North American tree suitable for USDA z. 5 (4) - 9, often irregular canopy
- Native NE USA, naturalized elsewhere, including Texas
- Chains of white spring flowers, yellow fall color
- Suckers to form colonies, erosion control, strip mine reclamation, naturalizing, fence post production
- Blue-green foliage ruined by leaf miners
- Drought tolerant, but develops chlorosis on high pH or compacted soils
**Robinia pseudoacacia**
**Black Locust**

- Very attractive plant when not ravaged, but borers and leaf miners can be limiting

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**Salix alba ‘Tristis’**
**Weeping Willow**

- Popular deciduous tree used near water features, USDA zones 3 - 8 (9a)
- Adapted to a wide geographic range and wide variety of sites as long as moisture is available
- Valued for fine-textured weeping form, bright yellow twigs, tolerance of wet sites, & cold hardiness
- Root systems can be problems with sewers/drains

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**Salix alba ‘Tristis’**
**Weeping Willow**

- Short-lived like most *Salix* spp., prone to storm damage and many pests/diseases
- Taxonomically confused with *S. babylonica*, Babylon Weeping Willow, and often sold as such
- Best used in conjunction with water features; nice for reflection effects

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**Salix nigra**
**Black Willow**

- Medium/large deciduous native tree, adapted z. 4-9
- Short stout trunk dividing to a few large upright branches, often leaning, small branches pendulous
- Valued for fine texture and tolerance to wet sites
  - Native to water courses, planted near water features
- Beautiful tree with many liabilities;
  - Short-lived, brittle wood, aggressive root system, subject to borers, cankers, & cotton root rot, several other pests / diseases
  - Limit use to naturalizing near water features, stream / bank stabilization
**Sapium sebiferum** *(Triadica sebifera)*

**Chinese Tallow Tree**

- Controversial small/medium (25'-35') deciduous tree
  - Major weed problem near Gulf Coast, extensive displacement of native vegetation in some sites
- Ecological catastrophe or good temporary tree depending on point of view, often short-lived

**Sapium sebiferum**

**Chinese Tallow Tree**

- Tree of mixed merit in landscape settings
  - Fast growth, clean summer foliage, yellow, orange, red fall color, interesting flowers, fruit, trunk character
  - Major weed potential, restricted plant in Texas
  - Limited cold hardiness, z. 8 (7b)-10, tendency to break up in wind or under ice/snow load

**Sophora japonica**

**Japanese Pagodatree**

- Small to medium size, 25’ to 35’ (60’) tall, deciduous shade tree from Japan, USDA zones 5 (4) - 8
- Nice uniform rounded to upright oval crown
- White chains of flowers followed by translucent yellowish green legumes; messy fruit

**Sophora japonica**

**Japanese Pagodatree**

- Slow to flower from seed, use grafted mature clones
- Drought tolerant, soil adaptable
- Shade, park, street, or specimen tree
**Tamarix gallica**  
Salt Cedar

- Deciduous, semi-evergreen, to evergreen multi-stem large shrub or small tree
- Soft feathery gray-green to blue-green foliage, soft textured version of *Juniperus* spp.

- Pepto-Bismol pink flower panicles summer-fall; incongruous with foliage
- Tolerant of salty soils and irrigation water, coastal dunes
- Very invasive in SW USA, displaces native species
- Adapted to USDA z. 6 (5) to 10 (11)
- Example of Biological control vs. garden pest

**Questions / Comments?**

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