**Trees and Shrubs for Sustainable Built Environments**  
**HORT 306 Fall 2018**

**Plant List 1**  
**Palms & Cycads for Texas and the Southern USA**

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**Reading Assignments**
In *Landscape Plants For Texas And Environs, Third Ed.*

- Family descriptions
  - Intro on families & monocots vs. dicots (p. 63-64)
  - Arecaceae (p. 69), Cycadaceae (p. 78), & Zamiaceae (p. 107)
- Intro materials on Palms (p. 489)
- Descriptions for individual species

See page listings on Plant List 1 Handout  
(also available under lists on course website)

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**Arecaceae (Palmae) - Palm Family**
- Large monocotyledonous family
  - Over 200 genera with 2,500 to 3,000 species
- Most either lack a trunk or are single trunk
  - Infrequently multi-stemmed, usually from basal suckers
  - Diffuse vascular bundles, lacks continuous secondary cambium
- Only native genus to Texas is *Sabal*
  - Southern U.S. species also include *Rhapidophyllum* & *Serenoa*
- Other exotics include *Butia*, *Brahea*, *Chamaerops*, *Cocos*, *Livistona*, *Phoenix*, *Rhapis*, *Syagrus*, *Trachycarpus* & *Washingtonia*  
  (also found in Cal.)

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**Monocotyledonous Versus Dicotyledonous**

Vascular cambium in ring (dicots, left) rather than diffuse (monocots, right)
**Palms As Monocots**

- Some practical implications
  - Damage to trunks may be more permanent
  - Not as easily girdled by mechanical damage
  - Critical not to injure growing point (meristem)
  - Smaller rootball needed during transplant
  - Fronds often a maintenance issue

**Why An Hour-Glass Shape?**

- Transplant stress
- Excess frond removal
- Cold damaged fronds
- Long term drought

**Easy To Transplant Large Palms**

**Arecaceae (Palmae) Palm Family**

- Fronds are fan-like, costapalmate, or feather-like
  - Overall size and margins are key in identification
- Inflorescences sheathed in woody spathe-like covering
- Fruits mostly drupes with fleshy coatings
  - Important exceptions like coconut
Fan & Costapalmate Palms

Sabal spp.
Palmettos

- Genus of evergreen shrub- or tree-form fan palms (costapalmately segmented leaves)
- Most are coarse textured, more tolerant of cold (USDA zones 8a/7b – 13), & poor drainage than many palm species; native to S.E. USA / Mexico / Caribbean Basin
- Slow growth rates & coarse textures limit some design uses
- Can be effective screening shrubs or accent trees, best palms for Central / North Texas

Sabal mexicana
Texas Palmetto

- Tree 30’-40’ (60’), coarser textured than S. palmetto
- Cold hardy, USDA zones 8 (7b) - 13, slow grower
- Texas native, perhaps best tall palm for much of Texas

Sabal palmetto
Palmetto Palm

- Single trunk tree, 25’ - 35’ (50’), native to SE USA coastal plains but not native to Texas
- Cold hardy z. 8 (7b) – 13; slow grower
- State tree of Florida and South Carolina
**Sabal minor**
Dwarf Palmetto Palm
- Shrub species, 3’ - 6’ tall; very cold hardy z. 7b (7a) - 13 and tolerant of swampy soils; TX, AR, LA native
- Good bold accent, understory weed in some areas

**Trachycarpus fortunei**
Windmill Palm
- Medium, 20'-25', fan palm, very thin fibrous trunk
- Finer textured than most palms; single trunk; segments with drooping tips, rich dark green

**Trachycarpus fortunei**
Windmill Palm
- One of most cold hardy palms, z. 8-10, but foliage can yellow in cold; best with afternoon shade in extended heat
- Fronds damaged by high winds; needs chilling; avoid high pH soils; bud rots
- Nice accent, but best in groupings

**Chamaerops humilis**
Mediterranean Fan Palm
- Small / medium fan palm, 8’-12’ (20’)
- Straight central trunk surrounded by arching basal suckers; green or bluish
- Small divergent spines on leaf stalks are maintenance liability, barrier plant use
- Cold hardy z. 8b (8a) – 13; slow grower
- Heat, drought, salt, and some wind
**Washingtonia robusta**  
**Mexican Fan Palm**
- Tall, 50'-60' (100'), rapid growing fan palm
- Large leaves with huge recurved prickles on frond stalks, major maintenance liability
- Minimally cold hardy, z.9 (8b) - 13, thin trunk, good heat, salt, wind and drought tolerance

**Washingtonia filifera**  
**California Fan Palm**
- Similar to W. robusta, but bit shorter (40'-50'), slower grower, thicker trunked, and more cold hardy, zones 8b(8a) – 13
- Petticoat palms
- Better in low humidity

**Serious pruning hazard!**

**Pruning Palms Can Be A Maintenance Issue**
- How often must we prune?
- How do we access the site?
- How large is the palm?
- Size of fronds and / or fruiting structures?
- Presence of spines/prickles?
- What is client’s tolerance for liability?
- Expense / mess
**Brahea spp.**

_blue fan palms_

- Mostly medium size stout Central American palms, very slow growers to 30’ to 40’ tall
- Handsome stiff blue-green foliage
- Hardy in USDA zones 9 (8b) – 13
- Tolerates heat, drought, wind, alkalinity, and some salts, but needs well drained soils
- _Phytophthora_ root & bud roots may develop in mesic climates
- Good trees for xeric landscapes

**Livistona chinensis**

_chinese fan palm_

- Slow growing Asian palms that mature as large shrubs to small trees 20’ to 25’ tall with slender trunks; best in groups
- Dark green 4’ to 5’ long fronds have drooping distal segments
- Distinctive languid tropical look
- Full sun or in high light interiorscapes
- Hardy in USDA hardiness zones 9(8b)-13
- Heat, drought, somewhat salt tolerant, soil pH adaptable, needs good drainage
- Susceptible to lethal yellows and _Gandoderma_; use protected site in z. 8b

**Feather Palms**

- Thickish trunked squat feather palm, 12’ - 15’ tall
- Stiff blue-green leaves, 2’ - 6’ long
- Wider canopy to height than many palms, slow grower, needs some winter chilling
- Edible date-like fruit on females
- Salt, drought, and wind tolerant
- One of most cold hardy feather palms, z. 9 (8b) – 10a, not vigorous in true tropical climates
- _Phytophthora_ infection issues

**Butia capitata**

_jelly palm_

- Handsome stiff blue-green foliage
- Hardy in USDA Zones 9b, 10a
- Tolerates heat, drought, wind, alkalinity, and some salts, but needs well drained soils
- Good trees for xeric landscapes
- Salt, drought, and wind tolerant
- One of most cold hardy feather palms, z. 9 (8b) – 10a, not vigorous in true tropical climates
- _Phytophthora_ infection issues
**Cocos nucifera**  
**Coconut Palm**

- Perhaps the most important commercial feather palm
  - Ornamental signature plant of the tropics
  - Commercial source of numerous coconut products
- True tropical, nearly frost intolerant, USDA z. 10-13 only
- Lethal yellows has been devastating in some regions

**Phoenix canariensis**  
**Canary Island Date Palm**

- Thick massive trunked feather palm, 20' - 30' (60') tall, dark green fronds
- Huge leaves arch upward then droop with age, lower segments very SPINY

Once useful seaside / street tree in Gulf Coast areas, z.9 (8b), 2nd or 3rd most cold hardy feather palm

Prone to several problems: lethal yellows, palm heart rot, bud rot, root knot nematodes, palm borers, palmetto weevil, Mg deficiencies in high pH soils
**Phoenix dactylifera** Date Palm

- Source of commercial date production, but poor fruit set occurs in humid climates
- Susceptible to similar problems as *P. canariensis*, but resistant to cotton root rot
- Foliage tends to stay more upright than *P. canariensis*, but lower segments are also spiny

**Phoenix roebelenii** Pygmy Date Palm

- Miniature version of *P. dactylifera*
- Grown as single or multi-trunk forms (need to plant multiple plants)
- Cold tolerant only in 9b (9a) -13, but fair heat and drought tolerances
- Sun to part shade, well drained fertile soils
- Popular for large containers, patio pots, oasis, alcove, or accent plants

**Phoenix dactylifera** Date Palm

- Trunks are less massive, with more multi-stem habits, and perhaps slightly more cold hardy (z. 8b - 13) than *P. canariensis*; Potential for night lighting

**Syagrus romanzoffiana** Queen Palm

- Strong tropical accent
- One of the more cold tolerant feather palms behind species of *Butia* and *Phoenix*, cold hardy in z. 9b(9a) -13
  - Frequently planted, but marginal in 9a & 8b
- Offers the luxuriant tropical look of king/royal palms
- Valued as a street or avenue tree
- Moderately susceptible to lethal yellows & bud rots
Cycadaceae

Cycad Family

• Ancient tropical / subtropical gymnosperm family
  – No close extant (living) related families
  – 9 genera containing about 85 species
• Dioecious floral structures in whorls or cone-like
  – Males strongly cone-like & erect
  – Females spreading open nest-like cones
• Pinnate or bipinnate lobing / leaves
• Frond-like foliage surrounds terminal bud
• Genera *Cycas*, *Zamia* (?Zamiaceae?), and *Dioon* are found in tropical / subtropical U.S. landscapes

*Cycas revoluta*

Sago Palm

• Short stout-trunked cycad, 8’ - 10’ tall
• Resembles a feather palm, stiff plastic-like dark green leaves radiating in spiral

*Cycas revoluta*

Sago Palm

• Very slow growing, full sun to shade
• Best in moist acidic soils, but drought, heat & wind tolerant once established
• Often planted in z. 8, but reliably cold hardy only in z. 9b (9a) - 13

What Is Wrong With This Cycad?
Zamia pumila
Cootnie

- Small shrubby relative of Cycads (in Zamiaceae) native from Coastal Georgia through Florida hardy in USDA z. 8b - 13
- Pinnately compound evergreen fronds 1’ to 2’ (4’4") tall form mound 2’ to 4’ (5’) wide from subterranean trunks; dioecious
- Best with some shade, soil pH adaptable, tolerates heat, drought, and salinity exposure; good coastal landscape plant
- Shade or tropical accent, small scale groundcover, foundation plantings, mixed borders, rock gardens, & interiorscapes

Questions / Comments?

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