Regional Considerations

Texas Regional Conditions

- Winter temperatures
  - Subtropical in Rio Grande Valley to cool/cold temperate (USDA zone 6) in Panhandle, most of population in z. 7 - 9
- Summer temperatures
  - HOT, HOT, and HOTTER
  - Extreme daily highs & little cooling at night
  - Wide fluctuations in higher West Texas elevations

Reading Assignments

Pages 54 - 57
Plus Corresponding Color Plates in Landscape Plants For Texas And Environs, Third Edition

Texas Regional Conditions

- Precipitation
  - Yearly averages in Texas range from 60 in./yr. in Beaumont to 8 in./yr. in El Paso areas
  - Averages do not reflect distribution through the year
  - Examples:
    - College Station average is @38 in./yr.
    - But received over 16” in two days in fall 1995
    - 73 consecutive days without rain in summer 1993
    - Only 8” from December 1995 through July 1996
    - Over 50” of rain from January to August in 2007
    - 2008 to 2013 B/CS/Houston officially country’s most anomalous climate region (drought), followed by Spring 2015 that was wettest spring on record
**Texas Regional Conditions**

- Natural Climatic Zones, Soils, & Vegetation Types
  - Extremely variable soils
  - Transition zone from mesic to xeric (E to W)
  - Nearly tropical to cool/cold temperate (S to N)
  - Temperate mixed conifer/hardwood forests, savannas, grasslands, scrub, to desert (E to W)

**Variation in Texas Weather**
*(examples of extreme ranges)*

<table>
<thead>
<tr>
<th>Average</th>
<th>First / Low</th>
<th>Last / High</th>
</tr>
</thead>
<tbody>
<tr>
<td>USDA hardiness zone</td>
<td>6a</td>
<td>9b / 10a</td>
</tr>
<tr>
<td>Number 32 F days</td>
<td>&lt; 10</td>
<td>&gt; 125</td>
</tr>
<tr>
<td>Date 1st frost</td>
<td>Oct. 1</td>
<td>Dec. 7 or later</td>
</tr>
<tr>
<td>Date last frost</td>
<td>Feb. 15</td>
<td>Apr. 15</td>
</tr>
<tr>
<td>Days &gt; 90 F</td>
<td>&lt; 40</td>
<td>&gt; 180</td>
</tr>
<tr>
<td>Precipitation (in./yr.)</td>
<td>&lt; 8</td>
<td>&gt; 60</td>
</tr>
<tr>
<td>Pan evaporation exceeding</td>
<td>&lt; 0</td>
<td>&gt; 68</td>
</tr>
<tr>
<td>precipitation (in./yr.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RH at noon in July (%)</td>
<td>&lt; 40</td>
<td>&gt; 70</td>
</tr>
<tr>
<td>Max. 100 yr. wind (miles/hr.)</td>
<td>&lt; 70</td>
<td>&gt; 110</td>
</tr>
</tbody>
</table>

**Texas Regions**

- Southwest tip of pine/hardwood forest of SE USA
- Gently rolling to slightly hilly
- Mostly acidic well drained soils
- Sands, sandy-loams, clay-loams, to clay soils
- Hot summers, range of winter temperatures

- East Texas (Piney Woods)

- Coastal Prairies
  - Flat, poorly drained, tends to be swampy
  - Moderate rainfall, fairly even distribution
  - Prairie plants now invaded by trees
  - Heavy gumbo clays
  - Mild winters, steamy summers
  - Significant maritime influences
  - Near sea level
Post Oak Savannah

- Drainage mix of fair to poor
  - Problems with internal and surface drainage
- Gently rolling to slightly hilly
- Mix of slightly acidic sands to slightly alkaline black or gray clays
  - Soil pH often higher when irrigated with alkaline water
- Rainfall (E - W) & low temperatures (S - N) vary greatly

Texas Regions

- Calcareous soils (alkaline)
- Mostly heavy clays, drainage variable
- Moderate rainfall
- Frequent summer drought
- Hot summers, range of winter lows

Blacklands

- Little precipitation, peak late summer to fall
- Trees only near water
- Extreme summer heat
- Drying winds
- Range of winter temperatures
- Some sands, lots of caliche clays, mountain rubble

West Texas

- Wide range of elevations, 2500 to 8500 ft.
- Well drained soils, some caliche
- Little rain, mostly late summer / fall (monsoons)
- Winter lows & summer heat are elevation dependent

Trans Pecos
Texas Regions

Hill Country
- Moderately rugged terrain
- Caliche slopes, limestone escarpment, thin rocky clays
- Rainfall, 15 - 35 in./yr.
- Frequent summer droughts
- Mild to cold winters
- Mostly good drainage

Texas Regions

High & Rolling Plains
- Clays and sands over caliche
- Few woody plants
- Rain (10 - 20 in.) mostly May - June
- Coldest region of Texas
- Summers still hot, but cooler than all but Trans Pecos mountains
- Wind / hail can be very damaging

Texas Regions

Southern Rio Grande Valley
- Warm temperate to subtropical
- Little rain (18 - 27 in./yr.), long droughts
- Sands to heavy clays
- Irrigation waters with high salinity
- Drought deciduous rather than cold deciduous plants
- Chaparral or brush country

Texas Regions

Southern Gulf Coastal Plains
- Mild winters
- Rainfall becomes limiting (25 - 30 in/yr)
- Flat and often poorly drained
- Alkaline clay, caliche, sand
- Summers hot, winters mild
- Strong storms

Images courtesy of Dr. Cynthia McKenney
Northeast Texas & Midwest/NE U.S.

This region encompasses several Texas cities including Texarkana, Paris, Mount Pleasant, Gilmer, portions of the northeastern Metroplex, and many major cities in the Midwest and Northeastern U.S.

Transition area overlapping in the north with boreal species, in the west with Plains plants, in south with Southeastern U.S. flora and to the southwest with Central Texas flora.

Painting With A Broader Brush, USA Regions: Midwest

- Cold winters, summer hot to mild
- Variable soil pH, but generally fertile and arable
- Extended droughts rare in east, increasing in frequency in west
- Precipitation is fairly uniform
- Originally predominantly prairies, with eastern portions part of the savanna and deciduous forest
- Cold is the predominant limiting factor to woody plant growth

Painting With A Broader Brush, USA Regions: Northeastern US

- Cold winters, summer hot to mild
- Soils predominantly acidic
- Rainfall generally uniform and extended droughts are rare
- Elevation and maritime influences are important in local climate
- Cold is the predominant limiting factor to landscape plant utilization
- Deciduous to mixed deciduous/coniferous forests

Southeast Texas and Southern U.S.

Several Texas cities including Madisonville, Huntsville, Crockett, Nacogdoches, Tyler, Longview, Lufkin, northern parts of Houston and Beaumont, etc.

Transition area overlapping in northwest with Southern Plains plants, in north with Midwest flora and in the Northeast with New England flora, and to the south with the subtropical Gulf Coast plants.
Painting With A Broad Brush, USA Regions: Southeastern US

- Long hot humid summers except mountains, winters variable from mild to cold
- Rainfall rather uniform and extended droughts are unusual
- Soils are predominantly acidic (signature red clays), with some higher pH soils in the uplands
- Site and soil drainage is variable, but often acceptable
- Elevation and terrain varies from mountainous to sea level
  - Piedmont has rolling hills, coastal plain is flatter
- Heat and cold can limit landscape plant selection

Central and North Central Texas

- Transition area overlapping in north with Southern Plains / Prairie plants, in east with Southeastern U.S. flora, in South with Coastal Plains plants, and in the west with Southwestern U.S. flora
- Many important Texas cities including Austin, Bryan / College Station, San Antonio, San Marcos, Dallas / Fort Worth, Round Rock, Waco, etc.

West Texas & Southwestern U.S.

- Overlaps in north with Intermountain West & West Coast plants, in east with semi-arid Hill Country and Southern Plains flora
- Includes a few Texas cities in El Paso, Fort Stockton, Alpine, San Angelo – plus other locations in Mohave, Sonoran, and Chihuahuan deserts like Phoenix, Tucson, Albuquerque, Las Cruces, Reno, Palm Springs, Palm Desert and Las Vegas.

Southwestern Flavor
Painting With A Broader Brush, USA Regions: Southwestern US

- Very hot and very dry
- Extended droughts any time of year, maybe for years
- Chihuahuan, Mojave, & Sonoran Deserts
- One to two peaks of precipitation
- Mountainous to flat basins
  - Terrain plays an important role in local climate
- Soils variable, but alkaline/pans are problematic
- Heat, drought, soils, salts, high irradiance, and cold can all be limiting

Northwest Texas, Central Plains, and Intermountain Western U.S.

Transition area overlapping in north with boreal species, in the north, in the west with West Coast plants, in the south with Southeastern U.S. flora and to the east with Midwestern and eastern U.S. flora.

This region includes several Texas cities such as Lubbock, Amarillo, Dalhart, and Dumas and many major cities in the Central and Intermountain USA.

Painting With A Broader Brush, USA Regions: Central Plains

- Rich agricultural lands
  - Soils deep & fertile, mostly well drained, acidic to alkaline
- Rainfall decreasing from east to west
  - Summer droughts common, hot summers, cold to mild winters
- Native vegetation, tall and short grass prairies with savannah and cross timber in southeast
- Elevation generally increasing to north and west
- Cold, heat, and drought often limiting to plants

Painting With A Broader Brush, USA Regions: Intermountain West

- Elevation, prevailing winds, and continental effects dominate climate
- Series of mountains, plateaus and basins
- Highly variable winter and summer temperatures
- Rainfall impacted by mountainous terrain and wind patterns, winter snowfall is important to vegetation
- Much of the region is drought prone, water issues dominate landscaping
- Soils variable from acidic to basic
- Fires & winter desiccation can be problems
**Selected Trees and Shrubs for the U.S. West Coast**

Transition area overlapping in north with boreal species, in the north, west with Intermountain West flora and in the south with Southwestern U.S. and tropical flora.

This region includes numerous major cities along the West Coast of USA.

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**Painting With A Broader Brush, USA Regions: West Coast**

- Coastal temperate rainforests to dry Mediterranean climates
- Elevation and location relative to mountain ranges and ocean are important climatic factors
- Winter temperatures vary from subtropical to cold temperate
- Fog belts important for some ecosystems
- Wildfires are seasonal problem
- Soils are highly variable, but often fertile

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**South Texas & Immediate Gulf Coast**

Overlaps in west with xeric Southwestern U.S. plants, in east with mesic SE U.S. plants

Protected locations in San Antonio, South Houston, Galveston, Corpus Christi, Brownsville, McAllen, South Padre, coastal developments from Texas to LA and in FL Panhandle, further inland in Central–South FL.

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“Aruba, Jamaica, oh I wanna take yah… to Bermuda, Bahamas, …”
• Encompasses portions of other regions:
  – Much of Florida
  – Immediate Gulf Coast MS, LA, TX
  – Lower Rio Grande Valley
  – Parts of Desert Southwest
  – Portions of Coastal California, Interior Valley of California, and Hawaii
• Salinity and wind tolerance important
• Local climates are hard to generalize, but cold is less of a limiting factor than in other US regions.