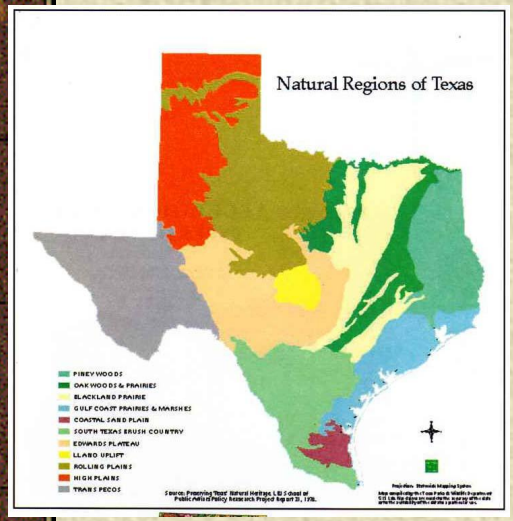


ECOREGIONS OF TEXAS

Texas Master Naturalists

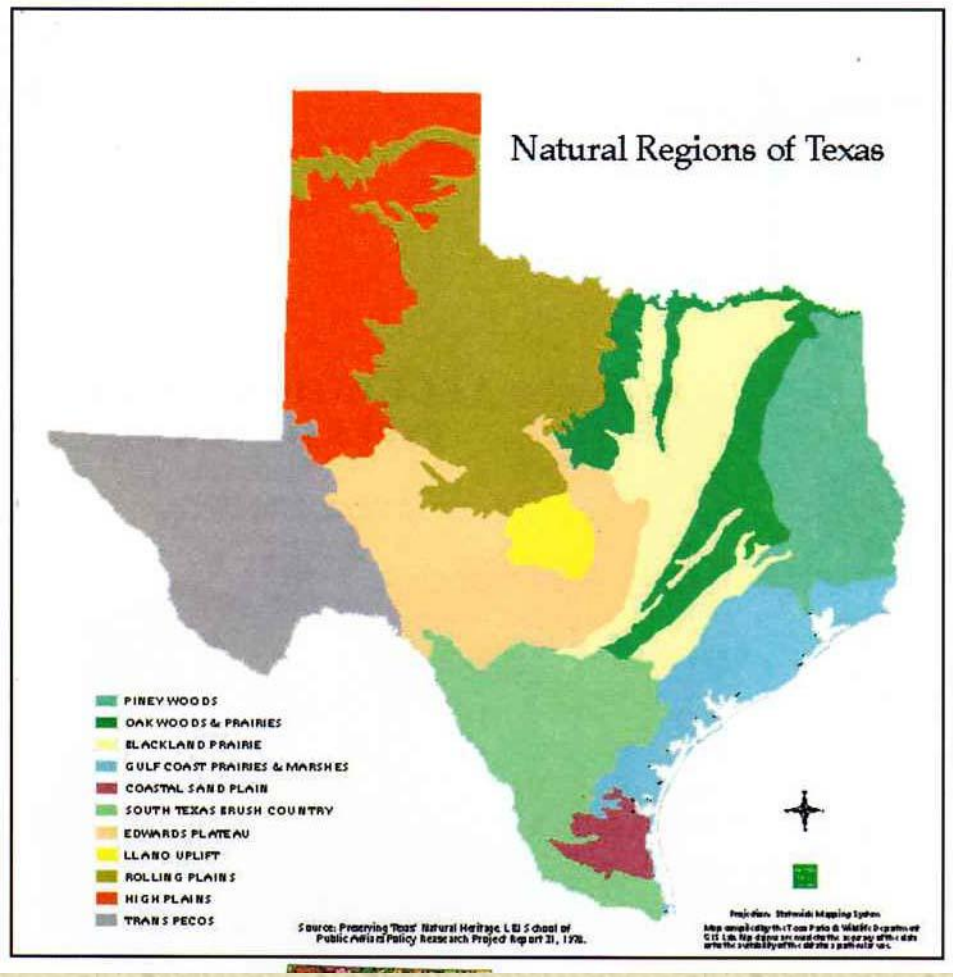
Brazos Valley Chapter

VIDEO: Texas Nature Celebration

LEARNING GOALS

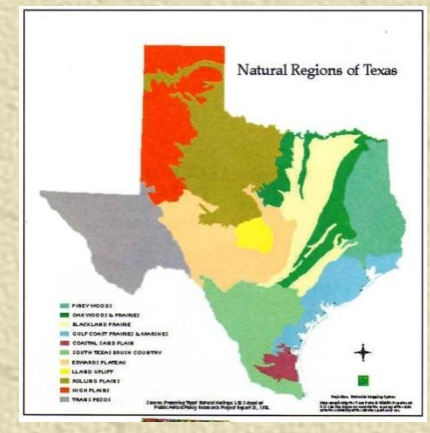
1. Identify 9-11 ecological regions and understand how they relate to larger biomes (6) and smaller subregions (25)
2. Explain why managers use different maps at different scales to solve different problems
3. Explain why ecoregions differ in biodiversity

1. How many ecoregions in Texas?



Some say 6-10

- 6 biomes
- 8 natural regions
- 10 wildlife viewing areas (TPWD)



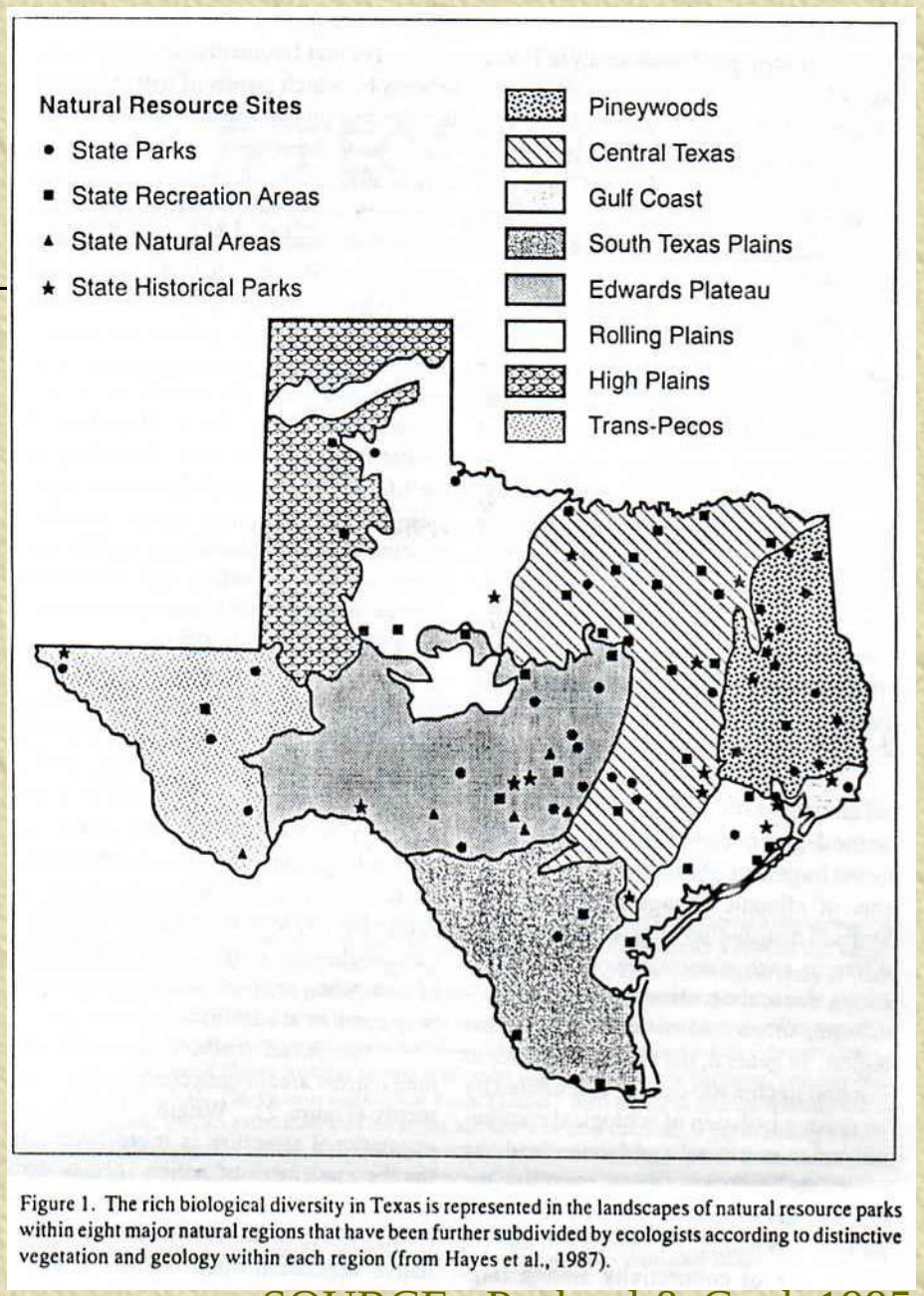


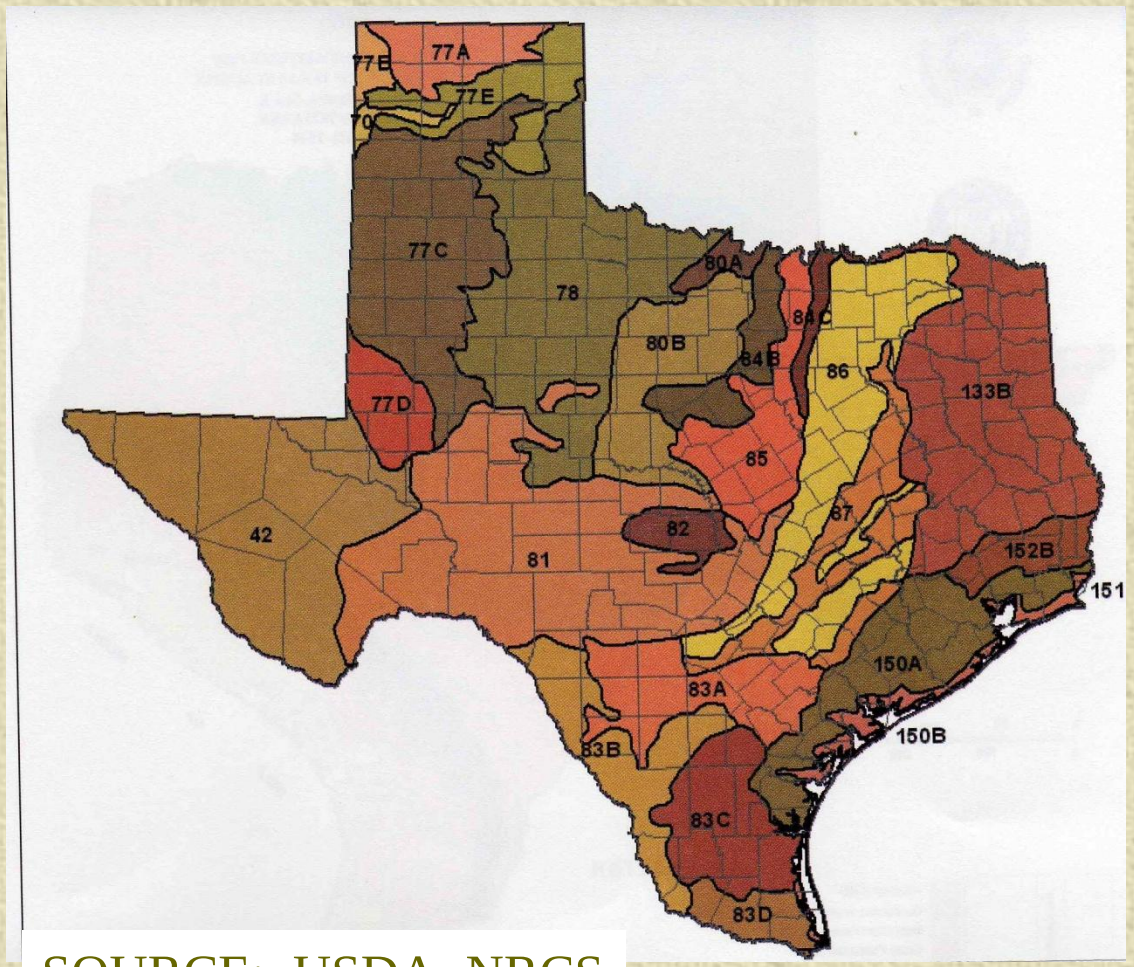
Figure 1. The rich biological diversity in Texas is represented in the landscapes of natural resource parks within eight major natural regions that have been further subdivided by ecologists according to distinctive vegetation and geology within each region (from Hayes et al., 1987).

SOURCE: Packard & Cook 1995

Or is it 25, counting subregions!

Major Land Resource Areas

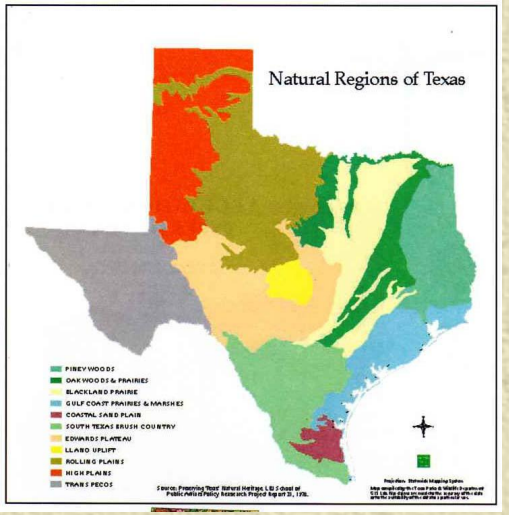
MLRA



SOURCE: USDA, NRCS

BIOMES: ecoregions (subregions)

1. KANSAN PRAIRIE: grassland plains
   - rolling plains (3 subregions)
   - high plains
2. CENTRAL TEXAN: savannah
   - blackland prairie (2 subregions)
   - oakwoods & prairie (3 subregions)
3. BALCONIAN: hill country
   - Edwards plateau (3 subregions)
   - Llano uplift
4. AUSTRORIPARIAN: pineywoods (2 subregions)
5. TAMAULIPAN SCRUB: south Texas brush country (3 subregions)
6. GULF COAST: coastal sand plain (2 subregions)
7. CHIHUAHUAN DESERT: Trans pecos (6 subregions)



Where we are in the big picture

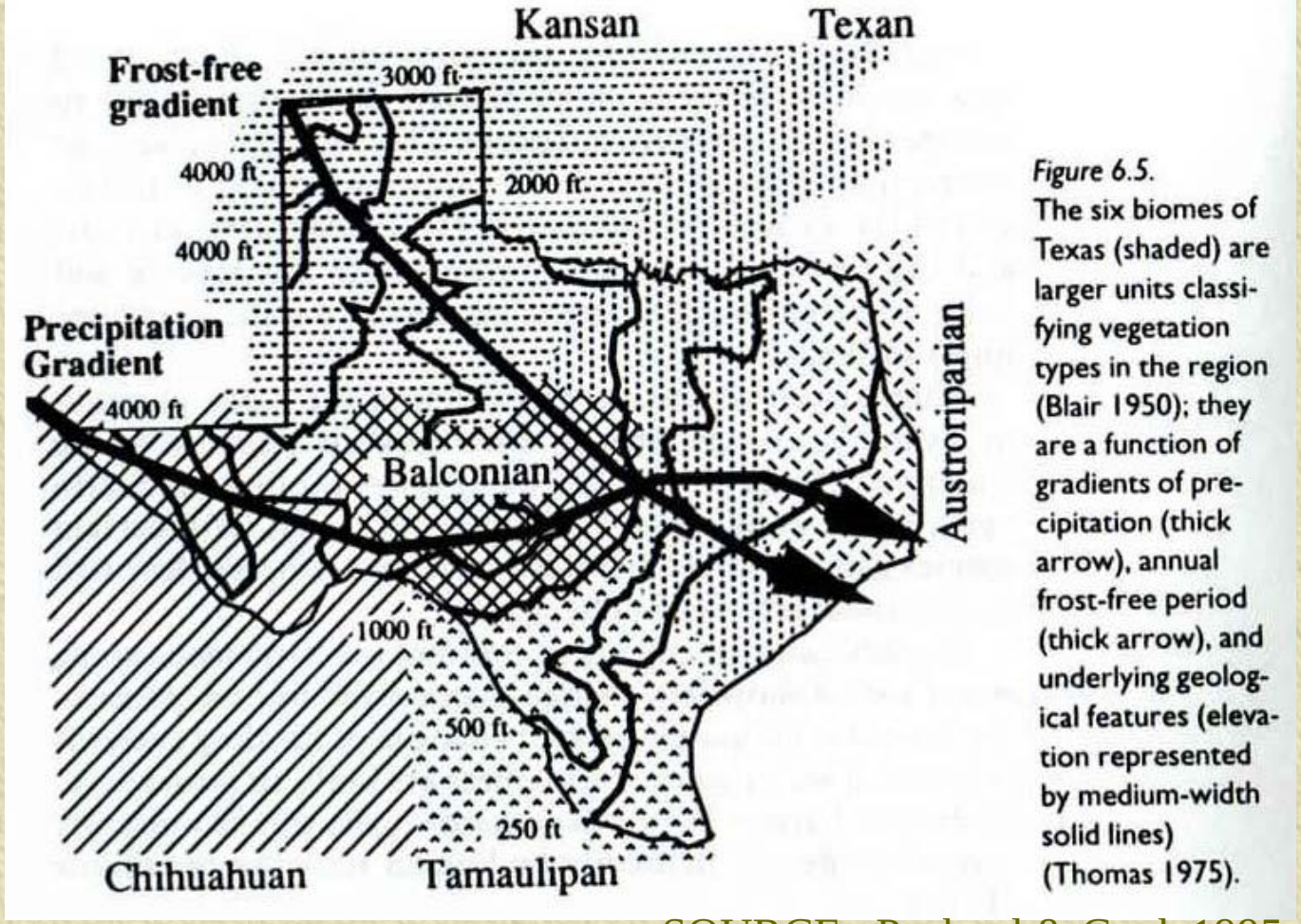


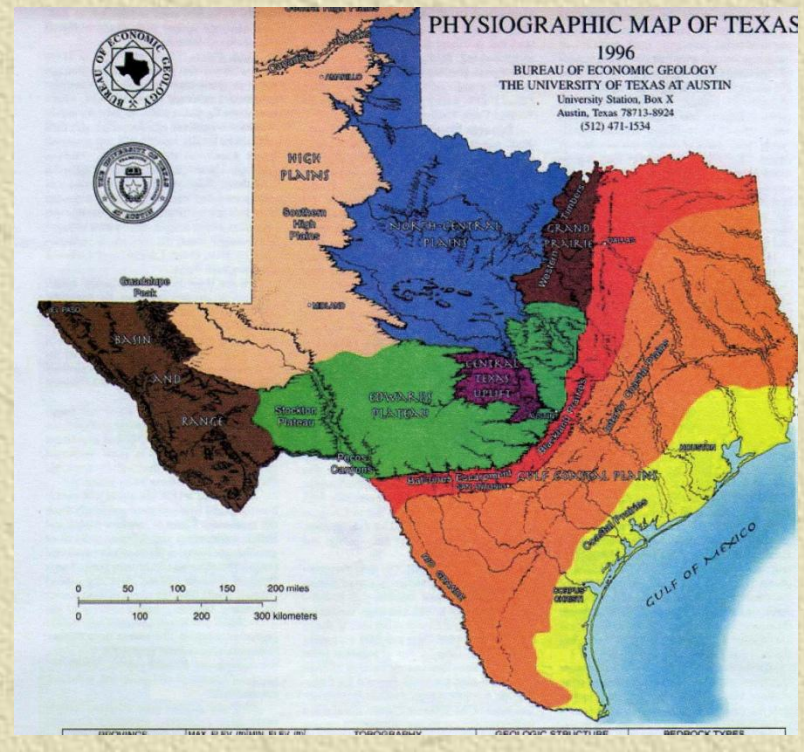
Figure 6.5. The six biomes of Texas (shaded) are larger units classifying vegetation types in the region (Blair 1950); they are a function of gradients of precipitation (thick arrow), annual frost-free period (thick arrow), and underlying geological features (elevation represented by medium-width solid lines) (Thomas 1975).

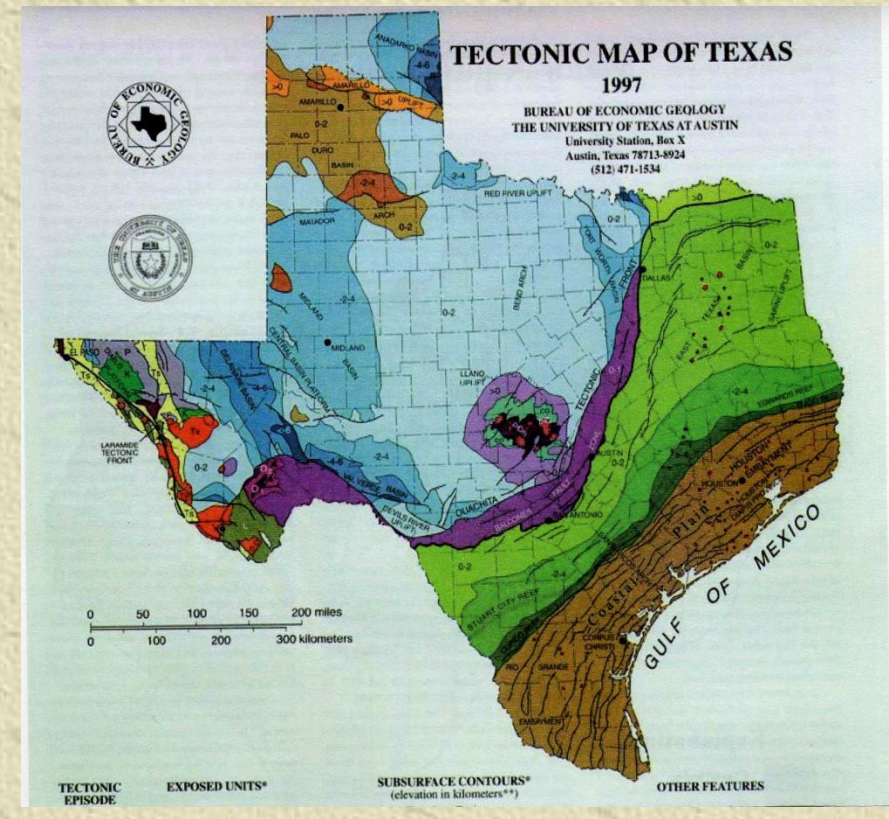
SOURCE: Packard & Cook 1995

2. Why so many different maps?

- History- coarse grain maps initially covered large areas of the continent
- Technology- satellite imagery resulted in much finer resolution
- Scale of the Problem- scale matters, since managers implement national, state & local laws
- Biodiversity stewardship- communities, populations, genotypes

Historical: geological inventory

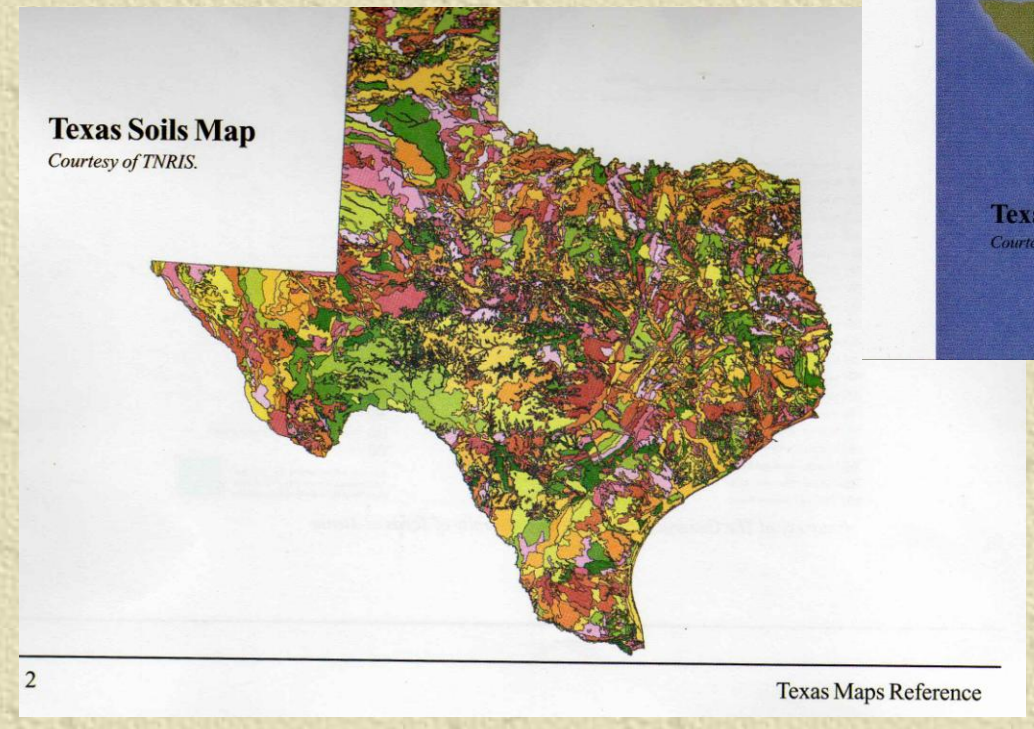




Technology: satellite imagery

Scale of problem: Fine vs. coarse

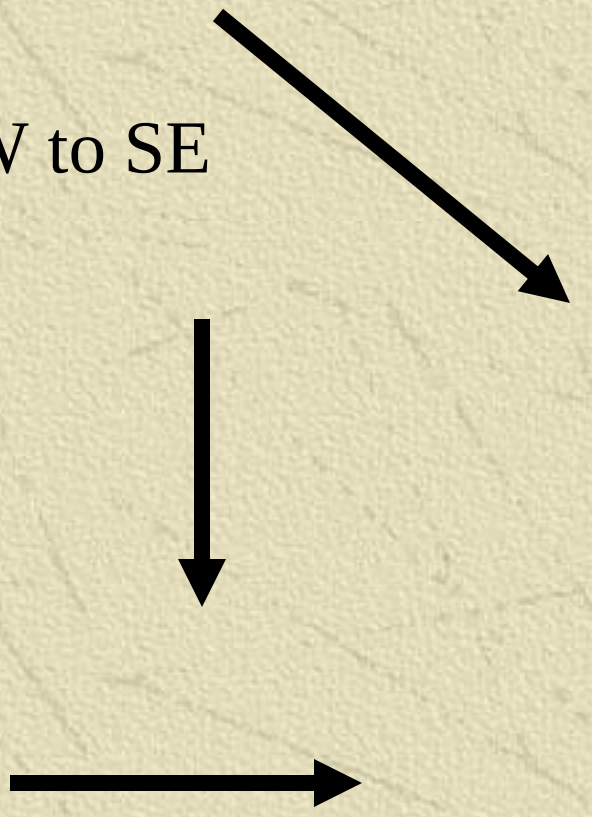
Urban & Ag development



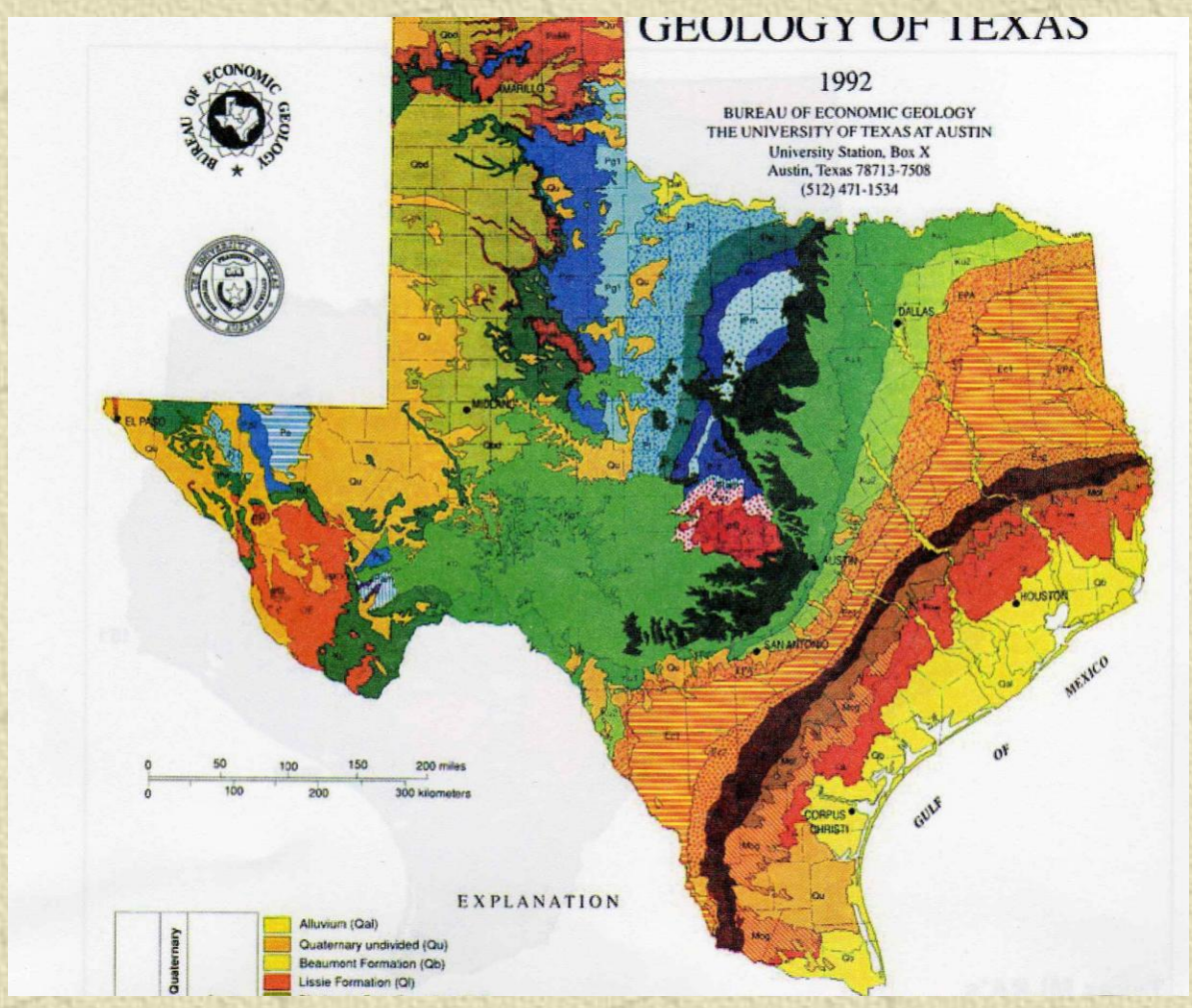
Wetland protection

3. Why is our region special?

- Geology
  - river drainages run NW to SE
  - soils and bedrocks
- Frostline gradient
  - north to south
- Rainfall gradient
  - West to east



Geology


GEOLOGY OF TEXAS
1992
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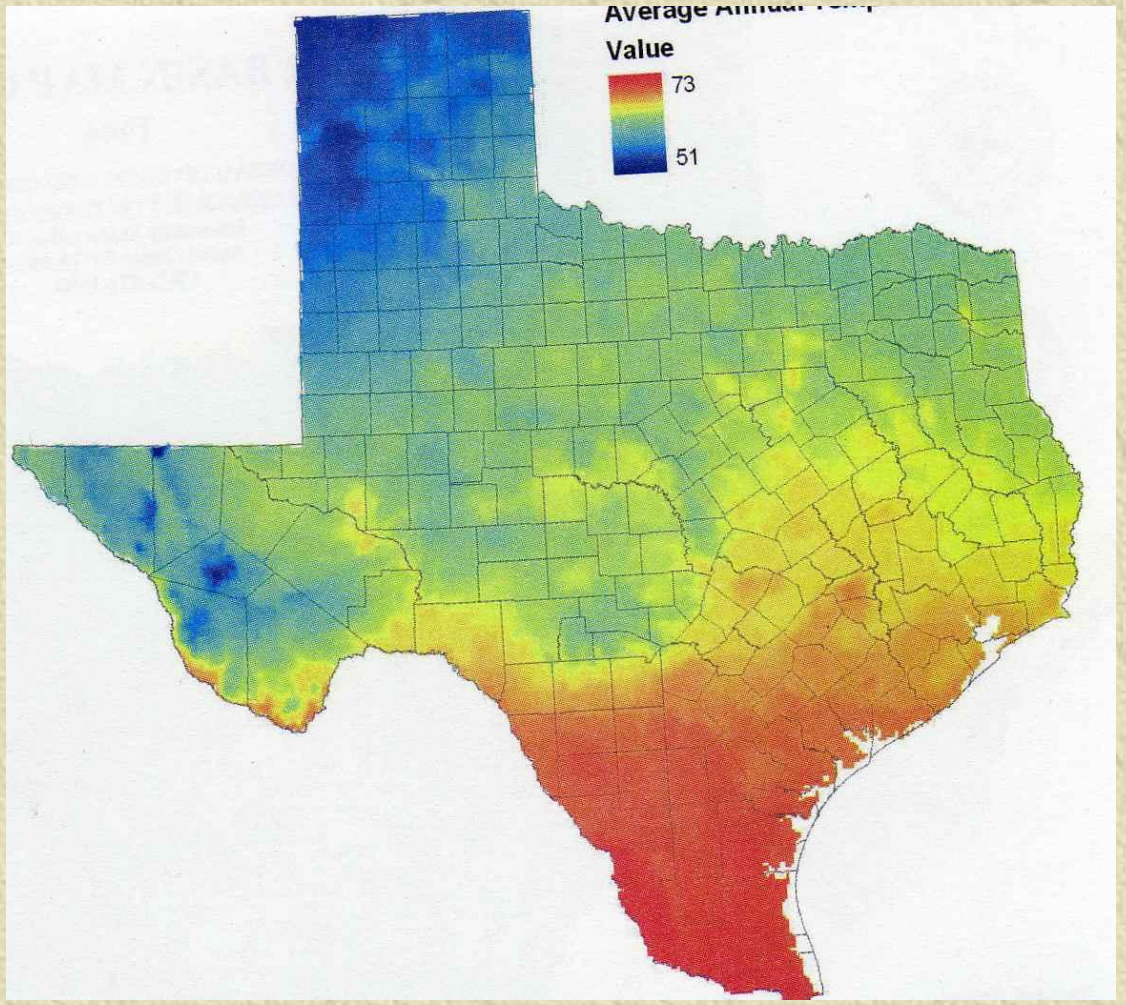
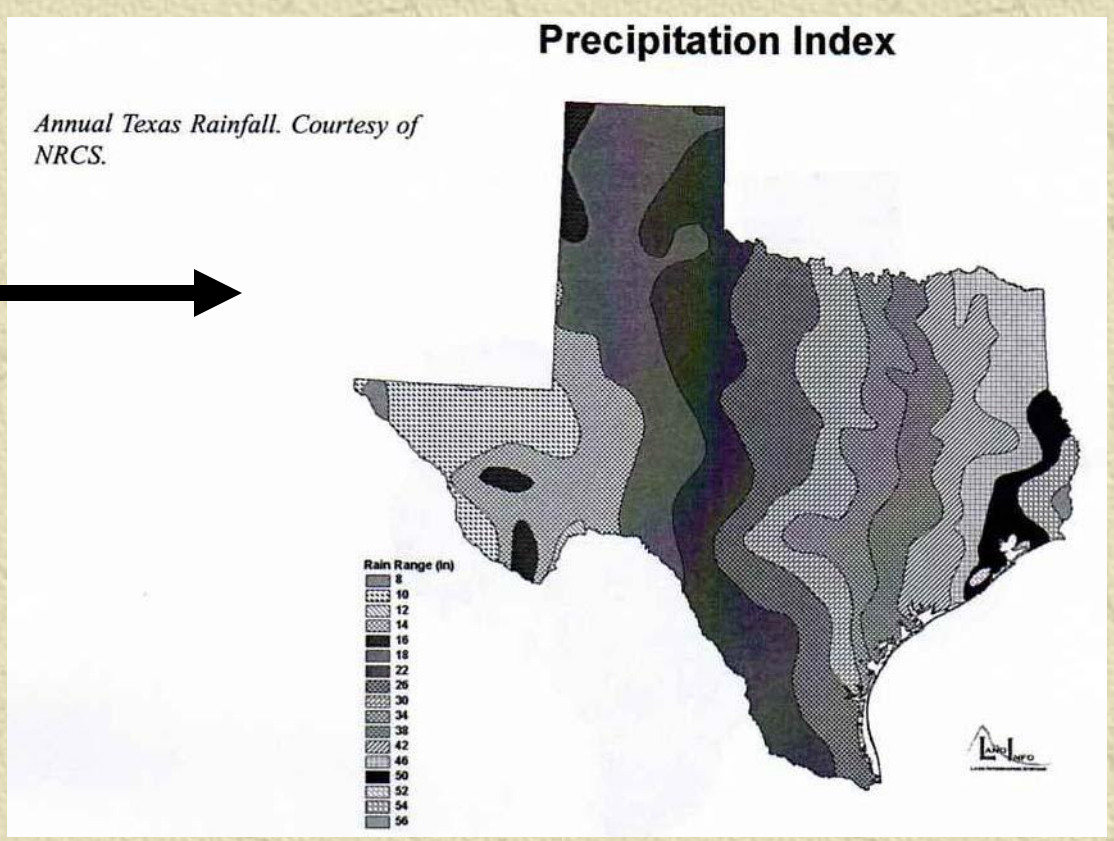
BUREAU OF ECONOMIC GEOLOGY
AMARILLO
MIDLAND
EL PASO
DALLAS
AUSTIN
SAN ANTONIO
HOUSTON
CORPUS CHRISTI
GULF OF MEXICO
0 50 100 150 200 miles
0 100 200 300 kilometers
EXPLANATION
Quaternary
Alluvium (Qal)
Quaternary undivided (Qu)
Beaumont Formation (Qb)
Lissie Formation (Ql)

Temperature



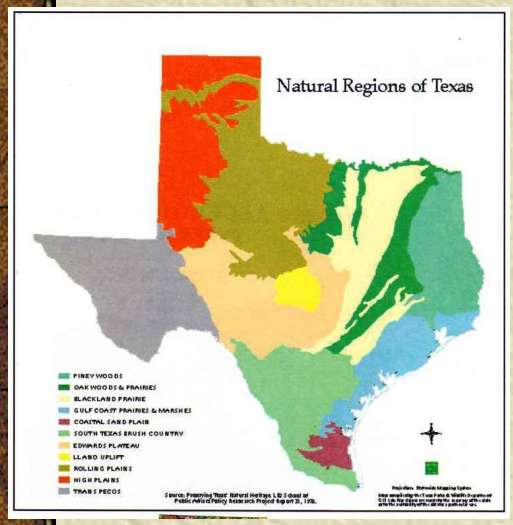
Rainfall



Annual Texas Rainfall. Courtesy of NRCS.

Connectivity

- climate conditions predicted to move northeast
- perpendicular rivers may be barriers to species moving along natural gradients



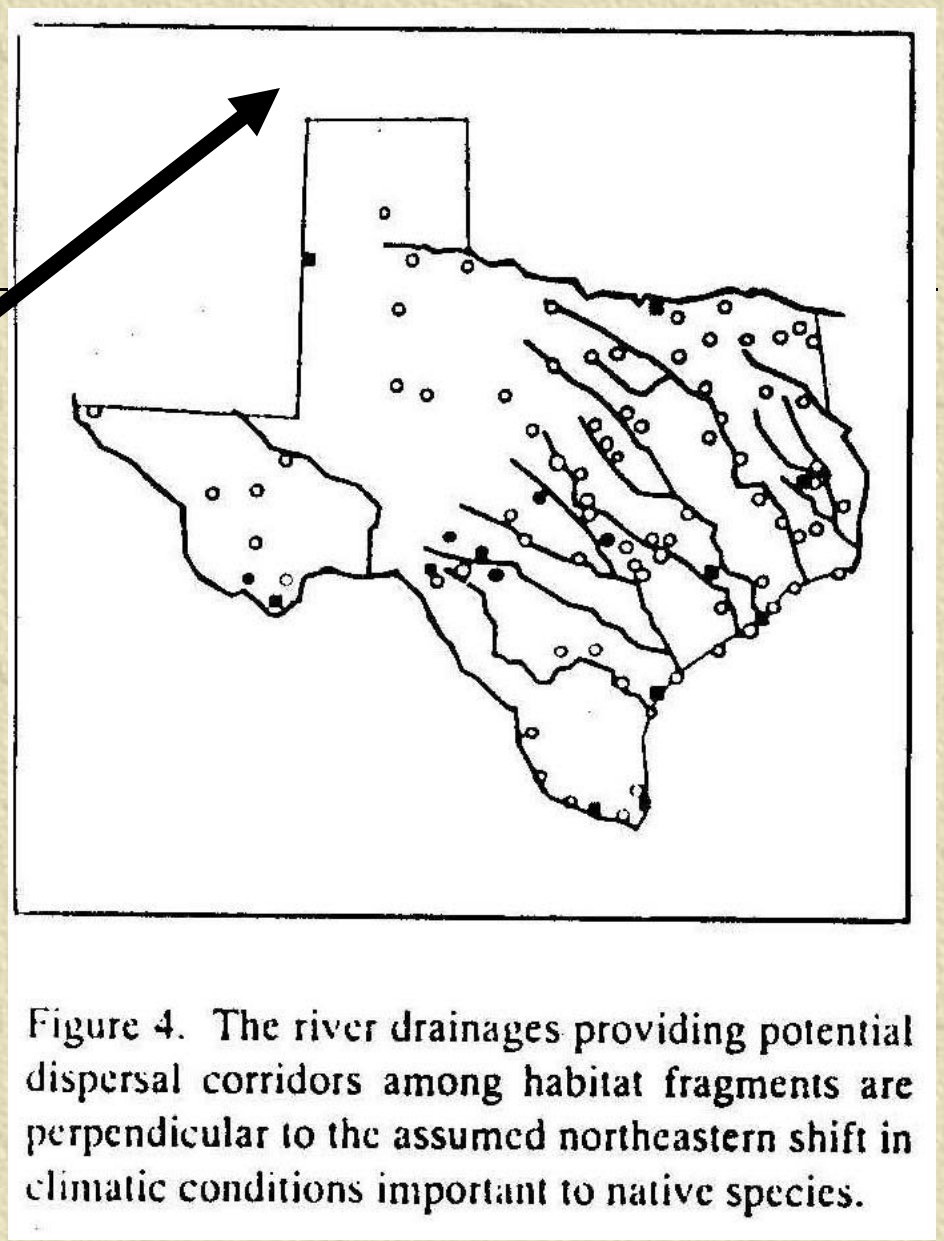
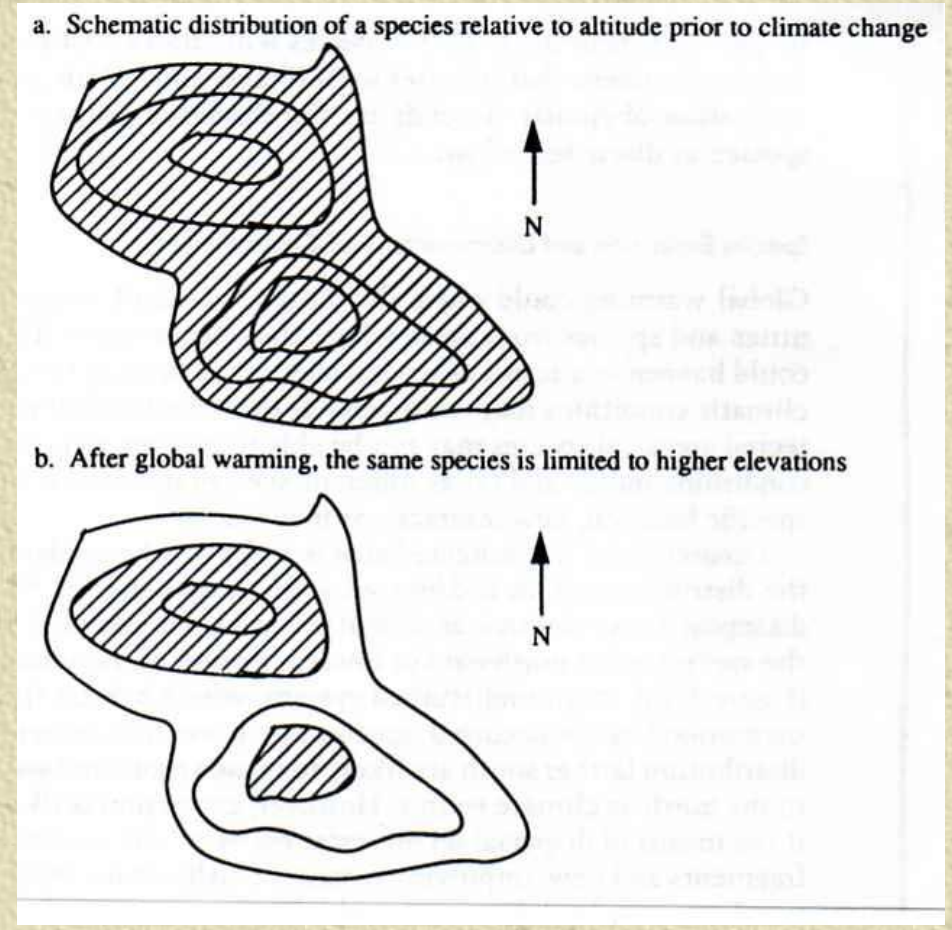


Figure 4. The river drainages providing potential dispersal corridors among habitat fragments are perpendicular to the assumed northeastern shift in climatic conditions important to native species.

SOURCE: Packard & Cook 1995

Biodiversity stewardship

- Habitat fragmentation
- Global climate change



SUMMARY

- Ecoregions within continental biomes (subregions)
  - Central Texan savannah (blackland prairie (2), oakwoods & prairie (3))
  - Austroriparian (pineywoods (2))
  - Balconian escarpment (Edwards plateau (3), Llano uplift)
  - Kansan plains (rolling plains (3), high plains)
  - Chihuahuan desert (Trans pecos (6))
  - Tamaulipan scrub (south Texas brush country/plains (3))
  - Gulf coast (coastal sand plain)
- Map technology depends on the “problem”
  - Biodiversity = Communities (coarse), populations, genotypes (fine)
- Ecoregions differ in biodiversity due to geology (northwest/southeast), the frost line (north/south) and the rainfall gradient (west/east)

Sources

- Texas Master Naturalist Training Handbook. Texas A&M University. http://masternaturalist.tamu.edu
- Biodiversity. Jane M. Packard, Wendy Gordon and Judith Clarkson. 2009. In: The Impact of Global Warming on Texas. Gerald R. North, Jurgen Schmandt, Judith Clarkson (ed.). University of Texas Press, Austin. http://wfsc.tamu.edu/jpackard/share/my pubs/ch5biodiversity.pdf