

Regional Landscapes of the United States and Canada

The Desert Southwest

Prof. Anthony Grande
©AFG 2015

The Desert Southwest

Parts of Chapters 2, 3, 10, 18, 19 in American Landscape

Extends along the Mexican border from the Gulf of Mexico to the Pacific Ocean.

Includes parts of Texas, New Mexico, Colorado, Arizona, Nevada and California.

2

Desert Southwest

When you think about this region, what images come into your mind?

Arid conditions
Cliff dwellings
Canyons
Mexican border area
Spanish architecture
Southern California
Cactus
Sunny skies

Arizona, it's a dry heat.

3

OVERVIEW

- **Varied Topography:** plateaus, mountains, basins.
- ❖ **Climatic aridity** is a **physical unifier**.
- ❖ **Human adaptation** to aridity is the **cultural unifier**.
- **Distinct Tri-Cultural Region** with unique characteristics and acculturation:
 - **Spanish with roots in Mexico:** settlement and colonial heritage are chief regional identifiers.
 - **Native American:** historic settlement and Indian culture is a secondary unifier.
 - **European-American:** late arriving dominant population.
- **International Regional Economy:** integrated with that of northern Mexico but a politically tense closely monitored border area.

4

Physiography of the Desert Southwest

1. **Mountains** (W. TX and E. NM): **SOUTHERN ROCKIES**
2. **Plateaus** (S. CO, NW. NM and N. AZ): **COLORADO PLATEAU**
3. **Fault Block Structures** (S. CA and W. AZ): **BASIN and RANGE**
4. **Coastal Ridges** (SW. CA): **PACIFIC COAST RANGES**

➢ **San Andreas Fault:** Passes through So. California from the Gulf of California to San Francisco Bay.

EXOTIC RIVERS: Colorado R. (with the Green and Gila) and Rio Grande (with the Pecos) are the major rivers flowing through the desert region.

Review map handout from "Empty Interior"

5

Salton Basin Geology

- Occupies a fault block depression that is below sea level.
- Once was the northern tip of the Gulf of California.
- Cut off from the gulf as the Colorado river delta grew.
- The basin was dry until 1905.

Dashed line = ancient shoreline


6

Salton Sea Landscape

During normal spring floods in 1905, the Colorado River broke its banks and flowed down hill via an irrigation ditch into the below-sea-level Salton Basin creating a lake.

The lake's water has become saltier each year.



The All-American Canal provides the area with fresh water for irrigation from the Colorado River.



Irrigated agricultural areas within the Sonoran Desert.

Mexicali, Mexico

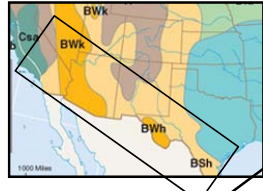

The San Andreas Fault

Sections of the fault east of LA are "locked" (have not moved in hundreds of years) and are closely monitored by geologists.

8


Climate

- Area of semi-arid (BS) and desert (BW) climate conditions. Hot and dry most of the year.
- Mediterranean climate (Cs; summer dry, winter wet) is in coastal So. California.
- Arizona-California-Nevada border area is the driest part of the region.
- The "monsoon" that occurs in July/August is actually just thunderstorms created as Pacific moisture is drawn in by the hot Colorado Plateau.

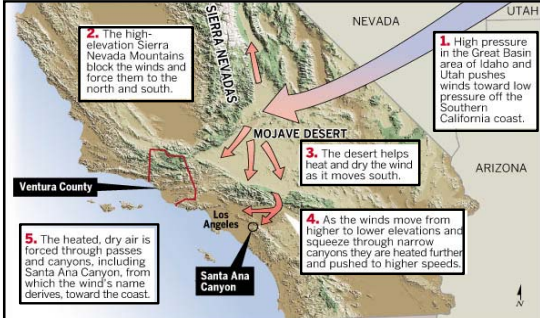
9

Mojave and Sonoran Deserts: CA-NV-AZ



- Driest and hottest area of North America.
- Death Valley is in the Mojave.
- Joshua trees are the unique desert vegetation.
- Saguaro and Organ Pipe cacti predom in the Sonoran section.
- Many dry river and lakes beds prone to flash flooding.
- Oasis: Area where water is close to the surface; becomes the focus of the area.

Santa Ana Winds



1. High pressure in the Great Basin area of Idaho and Utah pushes winds toward low pressure off the Southern California coast.
2. The high-elevation Sierra Nevada Mountains block the winds and force them to the north and south.
3. The desert helps heat and dry the wind as it moves south.
4. As the winds move from higher to lower elevations and squeeze through narrow canyons they are heated further and pushed to higher speeds.
5. The heated, dry air is forced through passes and canyons, including Santa Ana Canyon, from which the wind's name derives, toward the coast.

Sources: UCLA and UC San Diego research studies. Steve Greenberg / Star Staff

Santa Ana Winds and Fire

Low humidity, hot temperature plus wind creates a severe fire hazard.



MALIBU FIRES 21 OCTOBER 2007


Smoke plume 3 hrs later

Source: NASA

Los Angeles Smog

Smog (smoke + fog) is a type of air pollution created when by-products of combustion mix with atmospheric moisture. (Originally caused by the mixing of soot with fog in coal burning areas.)

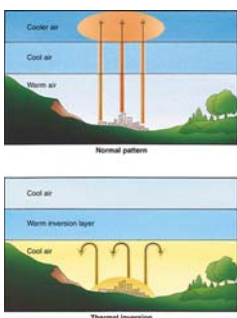

Los Angeles smog is caused when vehicle emissions react with sunlight to form photochemical pollution. This mix of gases includes particulates and ozone.



In the Los Angeles Basin the problem is heightened by a combination of local weather and topography that act to prevent dispersion of contaminants.

13

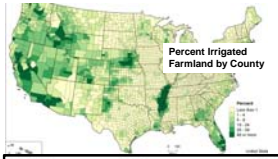
Inversion Layer

1. Weak ocean winds push polluted LA air against the mountains.
2. The winds cannot break through the layer of hot Mojave desert air.
3. Winds are forced to double back over the LA Basin, warming as they descend, and trapping pollution within the inversion.

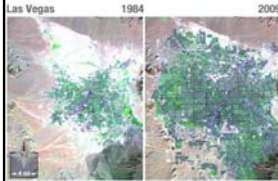
14

Area of Water Deficiency and Competition



Because of the climate and the increase in urban/sub-urban populations and irrigated agriculture, there is a competition for water.

- ✓ El Paso, Albuquerque, Phoenix, Tucson and Las Vegas metropolitan areas are growing.
- ✓ The Southern California conurbation of Santa Barbara-San Diego needs water from outside its area.



15

Urban Growth

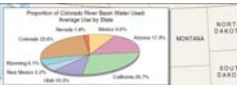



16

Colorado River Water Use

Intense competition for its water:



- ✓ In 1915 nearly the entire flow of the Colorado R. allocated mainly to Arizona and California. **Now half the flow goes to upstream states.**
- ✓ Population and economic booms in Nevada, Arizona and southern California **need water.**
- ✓ International agreement provides Mexico with a **minimum flow** to seasonally flush the delta region.

The allocation formula is now facing severe strains due to several years of below-average precipitation in the basin and high rates of population growth in the Southwest.

17

Glen Canyon Dam and Lake Powell

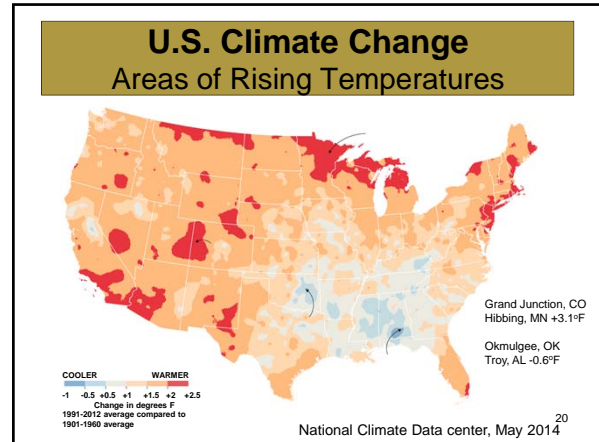
Evidence of drought

18

The Central Arizona Project




Water is diverted from the Gila River Basin and moved to the Phoenix and Tucson areas.

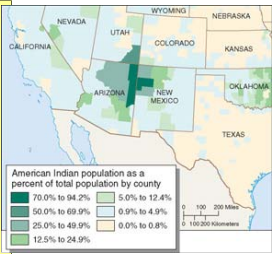



Population Make-up

- ❖ A sizable **native population** (1% of total population) that has a long history in the region.
 - Ruins are scattered throughout the area.
 - The **Navajo** are the largest of many tribes in the area.
- ❖ An **Hispanic population** that dates back more than 400 years with arrival of Spanish explorers and missionaries.
 - Today's population (25% of total population) is mainly of **Mexican heritage** and experiencing rapid growth.
- ❖ **European-Americans** are the largest group (74% of total population).
 - They arrived in mid-1800s with the American westward expansion.
 - Population is mainly **northern European heritage**.

American Indians of the Southwest


- Earliest inhabitants but least integrated into U.S. society. (In part to preserve their culture.)
- They are located in areas that Anglo settlers rejected because of dryness.
- Many different tribes live in the area.



American Indian Reservations

Largest groups



- Navaho
- Apache
- Pueblo
- Papago
- Hopi
- Utes



Chaco Culture

The **Four Corners** area is the center of **Chaco Culture**, an advanced Native American society that thrived between **AD 900 and 1200**.

Numerous national and state parks preserve the ruins, culture and memory of these ancient people.

The Four Corners

A unique political geography!

25

Chaco Culture National Historic Park

26

Mesa Verde Nat'l Park

27

Canyon de Chelly Nat'l Mon.

28

Taos Pueblo, New Mexico

Built c.1,000 AD and was designated a World Heritage Site in 1992.

Currently about 150 people live within the pueblo.

29

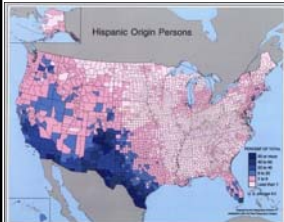
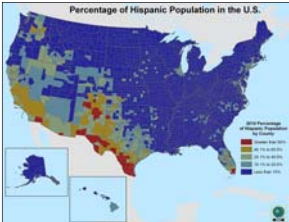
The Acoma Pueblo, New Mexico

First settled c.1,100 AD, it is called "Sky City" because it sits atop a mesa.

30

U.S. Hispanic Population

2010 US Census

People of Mexican heritage are predominant in the desert southwest border region.

31

Spanish America Timeline

Spanish exploration occurred in the mid-1500s.

- California was originally thought to be an island.
- Claimed the territory as part of Mexico.
- San Diego Bay was entered in 1542.**
- Area was far from Mexico City, core of Spanish America.
- Area never systematically settled.**



Settlement sequence

- Became a **buffer zone** against English and French expansion.
- Upper Rio Grande Valley** from El Paso area (present day New Mexico; before 1700)
- Arizona** (around 1700)
- Texas** (around 1700)
- California** (beginning 1769 with a string of missions starting in San Diego.)

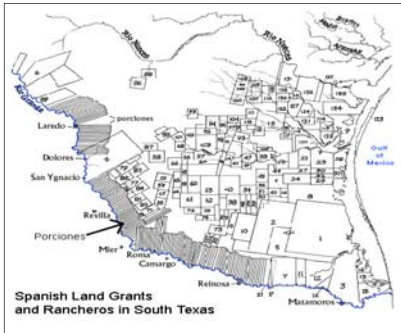
32

Spanish Toponymy

- Adobe:** a structure made from sun-dried bricks (also called adobe).
- Mission:** religious outpost
- Presidio:** military outpost or fort
- Hacienda:** an estate or plantation or ranch (*rancho*)
- Pueblo:** town or village
- San** and **Santa:** honorific meaning saint or holy one.
- Los, Las, La, El:** article of speech meaning "the."

33

Spanish Colonial Land Grants for Ranching




Spanish Land Grants and Rancheros in South Texas

34

Spanish Colonial Settlement

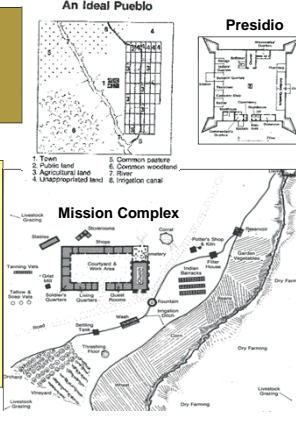
- Mission: Came first.** Consisted of a **church and houses** for the priests and their support staff, usually within a walled compound.
- Haciendas (estates)** were established for ranching and vineyards in surrounding areas. Livestock and plantings were bought from Spain. The **main house** had an inward design focused on courtyards.
- Presidios** were built for troops to protect the missions, haciendas, ranchos, settlements, mines and trade routes.





Spanish Mission-based Settlement

The colonial Spanish settlement (pueblo) was built around the mission (church) and public plaza. The presidio (fort) was built nearby to protect the residents and their property.



La Hacienda de los Martinez Taos, N.Mex (c.1800)

Spanish Missions

Missions, fronting a large public plaza, **became the focus of settlement** and now form the core of the "Old Town" of the region's cities.

- San Antonio
- El Paso
- Santa Fe
- Albuquerque
- Tucson
- San Diego
- Los Angeles
- Santa Barbara

Spanish Missions

Ruins of Salinas Mission, near Albuquerque, NM

Mission San Xavier, Tucson, AZ

Chimayo near Santa Fe

Mission Basilica San Diego de Alcalá
California's First Mission
Founded by Fr. Junipero Serra
1659 to 1700

Santa Fe, New Mexico

Santa Fe is the 3rd oldest European-founded city in the US (after St. Augustine, FL and Jamestown, VA), **and is the oldest continuous capital city in North America. Was the administrative center of Spanish holdings north of Mexico.**

All Spanish towns in the Southwest were built around a church and plaza. 40

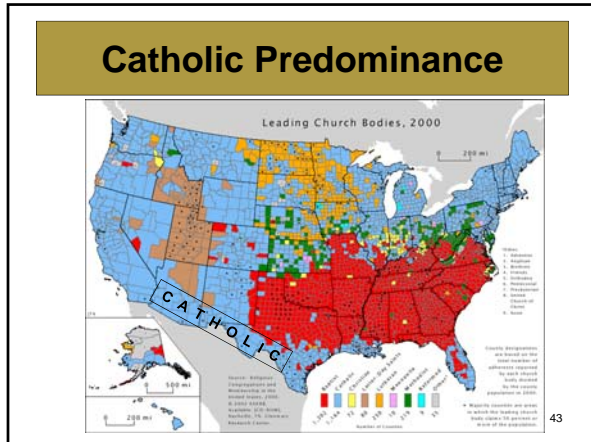
California Missions

The California Missions were **linked by road (El Camino Real)** and located a **day's journey apart**.

Most were established by Franciscan missionaries. **Fr. Junipero Serra** is the most famous of them.

Missionary Aftermath

- Missionaries were more successful gaining converts from the sedentary Indians than from the nomadic tribes.
- Missionary system destroyed much of the native culture and tended to exploit Indians as a cheap labor force.
- Close living and daily interaction exposed the Indians to European diseases for which they had little immunity.
- Epidemics greatly reduced the native population.
- Established a settlement pattern throughout the Southwest and California.



California Settlement

See atlas pp. 32-36 + 46

California's status continued as a backwater of Spanish Empire until it became part of Mexico in 1821.

Called Alta California by the Mexicans, it extended north to Oregon. They awarded land grants to U.S. citizens to encourage settlement.

Americans revolted in June 1846 (after hearing about the Texas Rebellion) and declared the California Republic.

California Republic was "occupied" by the U.S. in July 1846. After the Mexican War (1846-48), California was given to the U.S. as part of the Mexican Cession. California grew after 1849 following the discovery of gold near Sacramento.

44

Political Geography Terms Cession vs. Annexation

❖ **Cession:** Land that is given or sold through treaty.

❖ **Annexation:** Land within a political unit that is **seized and held** by an outside entity.

- It is made legitimate by the recognition of an appropriate agency within that entity and/or by an international body.

45

American Expansion into the Southwest

See pp. 28, 40, 42, 46 and Section 4 in Historical Atlas

- **1821:** After its independence from Spain, Mexico allowed the "Anglos" to settle in its northern area (1820s-1830s; now the U.S. Southwest).
- **1835:** Texas (which was settled by Americans who were given land grants by Mexico) declares its independence from Mexico.

- **1836:** Texas wins the war and is awarded most of NE Mexico (present-day TX, NM, OK, KS, CO, WY).
- **1845:** U.S. annexes Texas and admits it as a state, leading to the Mexican War.
- **1848:** Mexican War ends with the Mexican Cession. Mexico loses its northwestern land holdings (area N of today's border except southern Arizona and southern N.Mex.)

46

Mexican Cession 1848

Northwest Mexico was transferred to the U.S. by the **Treaty of Guadalupe Hidalgo** following the Mexican War.

Technically it was purchased for \$15 million (\$300+ million today) but written off to settle pre-existing Mexican debts so no money was exchanged.

47

Gadsden Purchase 1853

- An area of Northwest Mexico purchased in 1853 for \$10 million. (now southern Arizona and southwest New Mexico)
- The idea of **James Gadsden**, a railroad tycoon, who wanted to build a **southern trans-continental railroad to make the West dependent on the South.**
- Opens up the area to Anglo-Americans and leads to the growth of **Southern California**, esp. Los Angeles.

48



Southern California

Southern Metropolis

- A **megalopolis** from Santa Barbara to San Diego has been created: about 185 mi long with over 19 million people
- Rapid 20th century growth:** World War I conversion from agriculture to urban, location of the motion picture and aircraft industries; perception of open space and freedom that was in short supply on the East Coast.
- Continued municipal independence**, despite spreading and merging; many small cities.
- Automobile dependent.**

Automobiles and Southern California

- ❖ **50% of land is devoted to automobiles** (streets, high-ways, parking lots, driveways, repair shops)
- ❖ **Driving mentality** from early days with a decentralization (anti-East Coast) point of view leading to
 - Single-family houses.
 - No central business districts.
 - Limited mass transit.
 - Low population density
 - **Leads to sprawl, congestion and pollution.**

Los Angeles

- Settled by the Spanish as an **agricultural pueblo** to provide food for the settlers.
- The site of Los Angeles (LA Basin) includes the **largest area of flat land** on the California coast.
- Chosen as the **terminus** of the **Southern Pacific Railroad** (1870s).
- The **San Gabriel Mts.** provided a **reliable water source** (for irrigation) from its snowpack and rain runoff until the early 1900s.

Los Angeles Metro Area

Metropolitan Los Angeles fills the LA Basin.

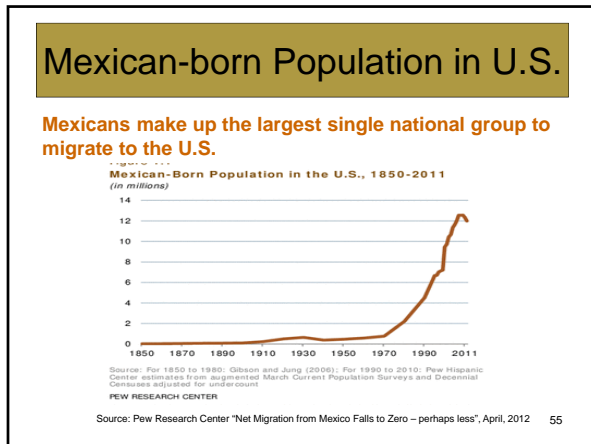
- Los Angeles is its largest city.
- Many cities exist within the area making it the 2nd largest metro area of the U.S. after New York.
- The Port of LA is an artificial harbor.

Mexican Influence

- Immigration to U.S.**
 - 1900-2010: 4.6 million people
 - Late 1980s: 75-90,000/yr
 - 2000 to 2010: c.171,000/yr
- Much of it illegal** - crossing the border without documentation
 - Estimated 6 million illegal Mexican residents in 2011; rate is slowing.
- Push factors**
 - Mexican population growth
 - Widespread unemployment
- Historic Pull factors**
 - Ease of crossing
 - Available jobs
- Have transplanted their culture** to the Southwest.

Hispanic or Latino population as a percent of total population by county

- 70.0% to 99.7%
- 50.0% to 69.9%
- 25.0% to 49.9%
- 12.5% to 24.9%
- 5.0% to 12.4%
- 1.0% to 4.9%
- 0.1% to 0.9%



- ## Cross-Border Economy
- **Mexican Migration**
 - 1910s-1920s: Mexican immigration encouraged to fill labor needs in U.S.
 - World War II
 - U.S. labor shortage (workers in armed forces)
 - **Mexican Labor Program** (Bracero Program) to 1964
 - **Maquiladoras**
 - Border Industrialization Program (1965) initiated by Mexico
 - U.S. labor-intensive manufacturing industry
 - Import of raw materials, semi-finished parts from U.S.
 - Manufactured products to be re-exported (since 1989, 50% can be sold in Mexico)
 - Mexican wage-rates are cheaper than U.S. rates.
- 57

- ## North America Free Trade Agreement (NAFTA), 2001
- **Loss of special tariff status for maquiladoras**
 - **Increased integration** of border area as a region as more people cross it daily.
 - Income differential between U.S. and Mexico.
 - Mexican workers legally enter U.S. daily for higher paying jobs.
 - Tourists/retirees from U.S. go to Mexico for lower costs.
 - Mexican shoppers go to U.S. stores for goods not available at home.
 - Cross-border travel to visit friends and family.
 - **“Twin cities” exist along border from the Gulf of Mexico to Pacific Ocean.**
- 58