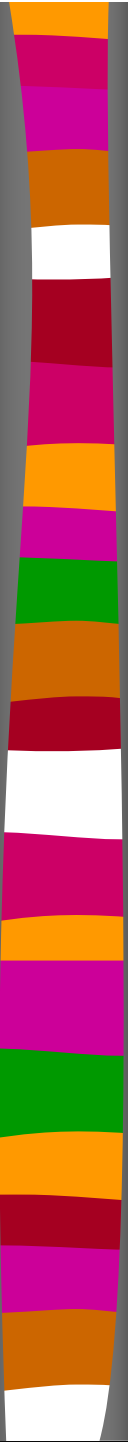


Desert: The Biome of Extremes



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From our presentation you will learn:

- What makes a desert a desert
- Where deserts are found
- Climatic and geographic factors that cause deserts and determine location
- Life in deserts and mechanisms for survival
- Citations for references





What is a Desert?

“A desert is a region with mean annual precipitation of less than 10 inches, with potential to evaporate more water than falls as precipitation, and so little vegetation that it cannot support abundant life.”

– Professors Jean Bahr and Chuck DeMets
University of Wisconsin-Madison

Where are deserts found?

- United States
- Mexico
- South America
- Africa
- South Central Asia
- Australia
- Antarctica
- NOT EUROPE





What Causes Deserts?

- Deserts are classified by location and weather patterns. There are several overlapping classification systems. To keep it simple here is one system with four classes of desert:
- Subtropical Deserts
- Coastal Deserts
- Mid-Latitude Deserts
- Polar Deserts



Subtropical Deserts, cont.

- Air masses hold a great amount of water vapor, “wicking” moisture away from land underneath
- Most major hot deserts are subtropical deserts
- Example: Sahara Desert
 - world’s largest hot desert - 3.5 million square miles
 - temperatures can reach 57° C (135° F)



Cool Coastal Deserts

- Found along the coastline at same latitudes as subtropical deserts
- Average temperature much cooler due to cold offshore ocean currents
- Example: Atacama Desert of Chile
 - All moisture in form of fog
 - No rain for 40 or 400 years (depending on source)



Polar Deserts

- Cover nearly 20 million square miles
- Mostly bedrock or gravel
- Caused by location on planet
 - Low-angle sunlight causes cold conditions
 - Cold air carries little moisture
- Example: McMurdo Dry Valleys of Antarctica



Mid-Latitude Deserts

- Found in continental interiors, between 30°-50° N. and S.
- Caused by either land barriers or distance from oceans (continentality)
- Very hot summers, very cold winters
- Example: Gobi Desert of Mongolia



Other Deserts

- **Paleodeserts:** ancient deserts in areas no longer dry

Example: Nebraska Sand Hills

- **Extraterrestrial deserts:** deserts on other planets

Example: Martian “Sand Seas”



Challenges of Desert Life

- Temperature extremes
- Lack of water
- Scarce food

Life in the ~Hot~ Desert

Physical
Adaptation

Behavior

Plants

Animals

Animal Adaptation

Behavior

- Estivation – summer hibernation
- Nocturnal feeding
- Daytime rest – dens, holes, shade
- Energy conservation

Physical

- Careful kidneys
- Salt glands (no sweat glands)
- Skin structures
- Light coloration
- Life cycle regulation



Plant Adaptation

Cactus (Americas) and euphorbia (Africa)

- Shallow root systems - stability and moisture
- No leaves, green trunk can photosynthesize
- Can store a lot of water (saguaro 2,000 lbs!)

Other Plants

- Far-reaching root systems, horizontal or vertical
- Compact growth
- Leaves small, absent, or ephemeral (ex: ocotillo)
- Thick cuticle (waxy layer) or “fur” on leaves



Interesting Information

- 40 different species of rodents found in the Sahara Desert
- Hottest recorded temperature: 134°F. Death Valley, USA
- Camels drink water up to 25% of their body weight
- 1200 different species of insects found in Sahara Desert
- 1/3 of Earth's land surface covered by deserts
- Largest desert plant: saguaro of N. America



Works Cited

- Utah Education Network: www.uen.org/
- Temperature converter:
www.geocities.com/tempconverter/
- State of Utah Resources Web:
www.surweb.org/
- Types of deserts USGS:
pubs.usgs.gov/gip/deserts/types/
- Earth Science Explorer (in cooperation with NASA)
www.cotf.edu/ete/modules/mseese/earthsys.htm
|



Works Cited, cont.

- U.Minnesota Geography 106 lecture notes
www.geology.wisc.edu/~chuck/G1062000/Lecture_links/demets_15.html
- The Learning Network: www.infoplease.com
- Köppen Climate Classification
www.hqlist.demon.nl/gvg/ctkoppe2.htm
- The World's Biomes, UC Berkeley:
www.ucmp.berkeley.edu/glossary/gloss5/biome/deserts.html