DRY ECOSYSTEMS

1A. SCRUB

scrub - arid-semiarid temperate regions
- chaparral in western US, also Chile, Mediterranean, S.Africa, Australia

Mediterranean climate
- cool moist winter (Calif. 400 mm)
- short grow season after winter rains
- hot dry summer (1+ months drought)

soil - low in nutrients (N + P)
- dry in summer

1B. PLANTS & ANIMALS

sclerophyll vegetation
- shrubs & dwarfed trees (12-18 feet)
- rapid growth in spring
- dense branching, no central trunk
- deep roots (most tissue below ground)
- leaves small, thick, waxy, evergreen, contain oils that promote fire
- also allelopathy to inhibit neighbors

animals - mice, jackrabbits, coyote, deer

1C. SCRUB ECOLOGY

succession
- subclimax, too dry for grasslands
- maintain by fire or human disturbance, otherwise forest in 15-20 years
- periodic fire recycles, germinates seeds

decomposition - slower than grassland
- dry, inhibited by allelopathy

humans - agriculture & cattle grazing
- urbanization

2A. DESERTS

deserts - 26% land surface, all continents
- evaporation exceeds rain (7 to 50x)
- no succession (conditions too harsh)

distribution - between 15-35° N & S
- all continents, S.Calif.-Ariz.-Nev.

temperature - not always hot (Asia)
- most hot during day (90% insolation)
- cold at night (ground re-radiates heat)

rain - usually brief & in winter (cold air)
- high air pressure cells deflect rain
- also rain shadow on downslope

soil - somewhat fertile (need irrigation)
- desert pavement tight, flash floods
- toxic salt levels remain in dry lakebed

2B. PLANTS & ANIMALS

plants - open clumps collect in gullies
- intake CO2 at night to reduce evap.
- 4 diff strategies to survive drought

endure - creosote, lichen on rocks
- active all seasons at low levels
- sclerophyllous leaves, large root

evade - mesquite, deep root into water
- drop leaves when drought begins

resist - cacti & succulents (esp. hot)
- store water in swollen stems

escape - ephemerals (annual grasses)
- survive via seeds until rain returns

animals - insects, lizards, snakes, mice
- forage as generalists & opportunists
- succulents first, then woody, dead

2C. DESERT ECOLOGY

productivity - generally low
- limited by lack of water

decomposition - low, not much litter

humans - previously limited to oases
- now agriculture, oil wells, off-road
- desertification - erosion of semiarid