FOREST<u>S</u>

1A. CONIFER FORESTS

also taiga or boreal forests
- dark evergreen trees below tundra
- northern hemisphere around Arctic
- incl. redwoods in northern Calif.
- 11% land surface

seasons - pronounced, humid, low evap.
- long winters cold & snowy
- short summers cool & rainy/foggy

soil - low in nutrients, decompose slowly
- deep leaf litter, acidic from bark

1B. PLANTS & ANIMALS

conifers - fir, larch, pine, spruce
- low diversity (uniform) but very dense
- needles thick, evergreen, drop gradual
- drooping branches to shed snow load
- seeds from cones, no flowers
- understory of moss & lichens
  grows in shade, incr soil moisture

animals - large, short appendages, pale
- many migratory (caribou, moose)
- carnivores incl. owls, weasels, wolves

1C. CONIFER ECOLOGY

productivity - nutrients in trees & litter
- usually low (cold, short season)

logging - most of the world's lumber
- slow rate of regeneration
- forms bogs, expands tundra (Siberia)

hydroelectric schemes
- dam freshwater rivers & lakes
- flood indigenous & waterfowl sites

2A. DECIDUOUS FORESTS

also broadleaf forests - temperate
- eastern US, formerly Eurasia
- western US incl. oak woodlands
  (open trees surrounded by scrub)
  & mixed woodlands (oaks + conifers)

seasons - cold winters with rain
- warm summers with less rain

soil - quick decompose within 4 years
- nutrients returned to soil

2B. PLANTS & ANIMALS

deciduous trees - ash, beech, birch
- most drop all leaves in winter
- flowers pollinated by wind & animals
- well-devel. stratification, many layers
- dark understory with ferns & mosses

animals - deer, black bear, songbirds

2C. DECIDUOUS ECOLOGY

productivity - quick decomp. (4 years)
- more biomass in detritus than tissue

logging - cleared for centuries
- firewood, lumber, agriculture
- less diversity-biomass than old growth

3A. TROPICAL RAINFORESTS

evergreen tropical rainforests
- 10° around equator, 7% land surface
- largest Amazon, Australia develop.
- Indo-Malaysia highest diversity, Africa
- types - lowland, highland, cloud forest

seasons - not well-defined
- warm year-round, mean temp. 25-27°C,
  more fluctuations daily than seasonal
- daylength approx. 12 hours
- rain often daily, wet summer monsoon

soil - rapid decompose, absorbed by roots
- poor for farming (nutrients leached)

3B. PLANTS & ANIMALS

stratification - pronounced vertical layers
- canopy hot-dry, ground cool-dark-wet

plants - 50-80% of all known species
- epiphytes set aerial roots in host tree
  (incl. shade-tolerant house plants)
- vines exploit gaps in canopy

trees - produced most oxygen in atmosphere
- evergreen leaves drop gradually
- pointed drip-tips to shed water
- roots shallow (most only 0.3 m)
- trunks buttressed for support
- micorrhizae (fungi absorb nutrients)

succession - trees fall to open canopy
- allows shade-intolerant to pioneer

pollination - mostly via animals
- attract with flowers (color + nectar)
- herbivores disperse seeds in fruits

animals - 50% of all known species
- includes 90% of all primate species
- populations often large & arboreal

3C. TROPICAL ECOLOGY

diversity - technically not that high
- high species richness (plants & animals)
- medium species evenness (small pops)

productivity - highest for terrestrial
- warm & humidity year-round
- plant growth & bloom entire year
- most nutrients in tissues (not soil)

crops - banana, pineapple, coconut,
  cocoa, avocado, rice, also rubber
- 25% natural pharmaceuticals

logging - hardwood, rattan, paper pulp
- cleared for grazing, farming, mines
- lead to topsoil erosion & massive fires
- only 50% remaining, for 30 more yrs?
- many indigenous peoples displaced