

Tags

Edited Oct 6, 2021 6:30 PM by [admin...](#)

Frog book ch.6 biomes

Frog book: biomes

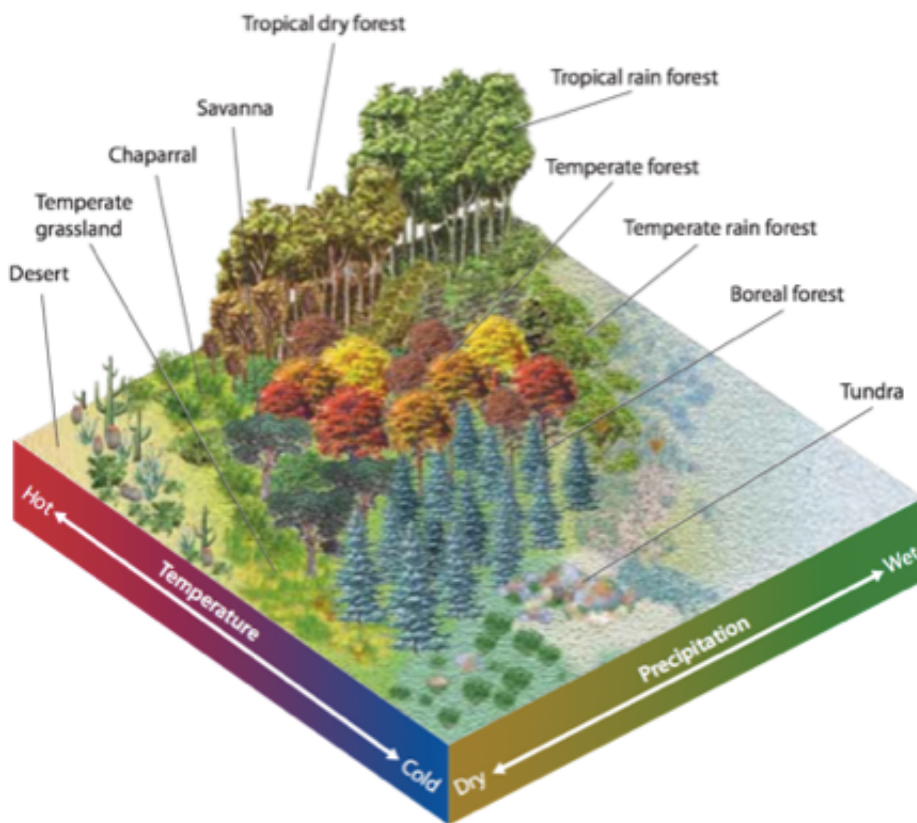
elephants and biodiversity

carrying capacity–new term

biome: climate and plant/animal life

errors in ch.6–where?

Fig 6.3



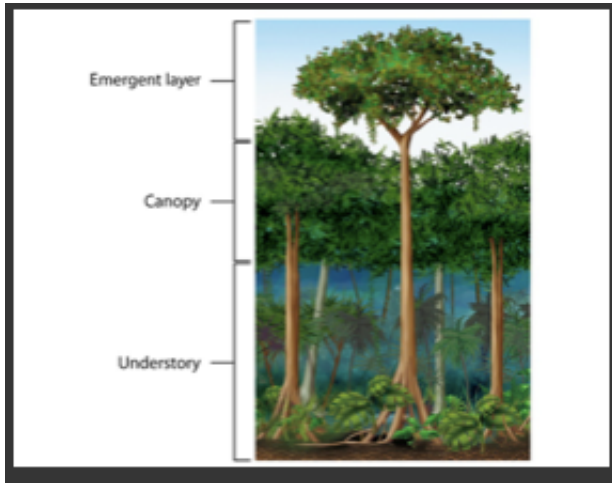
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NPP: biomass after respiration

(rate which primary producers convert energy to biomass)

tropical rain forest–canopy (layers)-----

poor soil nutrient levels (all in trees)



shallow roots, big leaves, lots of rain

pitcher plants—eat animals

epiphytes—grow on other plants (e.g. orchids)

air roots

specialized animals

tropical dry forest——

deciduous forest: warm, but variable rain (e.g. monsoon)

autumn leaves—loss to protect plant, changes in photosynthesis

waxy leaves (e.g. pine needles) if over winter plants

estivation: hibernation

migration: birds (why birds and not other animals?)

savanna——

very dry, few trees, seasonal grasses, fires

porous soils (like Kona), often coffee locations (s. america)

waxy leaves, deep roots

desert——

under 25 cm (250 mm) of water per year (10 inches)

dry dry dry, so dramatic temp variations (opposite of ocean biomes)

few plants, low nutrient levels in soil

nocturnal animals (e.g. rats, snakes)

succulents: store water (e.g. cacti)

large, shallow roots, also taproots (160 ft. deep)

temperate rain forest——

not too warm, not too cold, just right

rainy, warm, mossy, foresty (e.g. washington, oregon, BC)

coniferous—have pine cones, conifers: oily needles (don't freeze)

lumber

temperate forest——

eastern US: oak etc. seasonal loss of leaves

hibernating animals

temperate (mild) grassland——

prairie, steppe (russia)

moderate rain, but not enough for trees. grass only.

grass grows from below, so can be eaten by cattle and still live

roots capture moisture, hold soil together (kikuyu grass)

chaparral——

California, mediterranean (middle of the earth, contrast with chinese translation of the word "china": middle earth kingdom)

dry, seasonal rain, drought (like now)

Boreal (north) forest———

taiga

acidic soils (from conifers/pine needles as competition)

very cold

conifer shape sheds snow, preserves branches (christmas trees)

when ground freezes, no water for roots, all water stored as sap in trees (oily compound, very sticky, makes retsina in Greece)

tundra——

russia, alaska, canada

very cold—study the climatograph (-220 °C!) right....

permafrost—permanently frozen ground, so only shallow roots

polar ice——

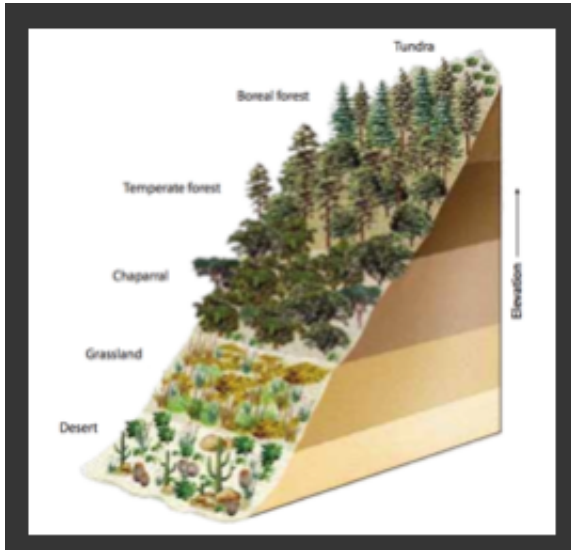
not really a biome, but stuff lives there (aquatic mammals, fish, very small rocks, churches, mud, but no ducks)

Notothenioids—antifreeze fish

blubbery mammals

mountains——

another non-biome, but look at this!



how cool is that?

aquatic ecosystems—

salinity, depth, standing or flowing water

salt water = 30–50 ppt (parts per thousand)

ppt, ppm, ppb

fresh water = 0.5 ppt

in between 0.5–30 ppt = brackish (anchialine ponds in Kona)

study the fishies in the pictures

DEPTH!!!!

determines amount of light, tf. photosynthesis

photic zone=light

aphotic=no light

benthic=really no light, never, ever ever. don't even think about it.

aquatic mammals must surface for air

fishies don't-gills

DO dissolved oxygen (very important) depends on plants (so depth) and temp (cooler water can hold more O₂)

warm water has low O₂ generally.

best place to fish: cool water after a waterfall (why?)

flowing water: rivers

standing water: ponds

lakes can become inland seas

littoral=shore, limnetic=away from shore benthic=bottom

wetlands:

marshes, swamps, bogs and fens

marshes marshes marshes!-tall grasses

swamps-some trees

bogs-acidic, poor decomposition, floating stuff

fens-spring underneath, less acidic, better nutrients

bogs decay slowly-ancient cheese story, peat moss

rivers-oxbow lake and meander

source, tributary (continuity concept), mouth (delta)

slope exponential as distance from source

deposition rates (rapids vs. plains)

silt carrying capacity, turbidity

estuaries-like deltas

tidal estuary: hudson river: deeper than the body it serves

oceans---

200 ft. of salt if all oceans evaporated

oceans were red (iron) then ppt out (iron range in WI, MI)

salinity, wind and temperature determine flow

upwelling (recall Peruvian fisherpersons)

also downwelling

photic zones-

intertidal zone-makes sense, between tides

neritic zone-close to shore, less than 200 ft. deep (not in Hawaii, we have no

continental shelf-boo hoo)

open ocean (pelagic) zone

kelp forests-e.g. california coast

coral reefs-away from fresh water, coastal, photic

open ocean-scary stuff