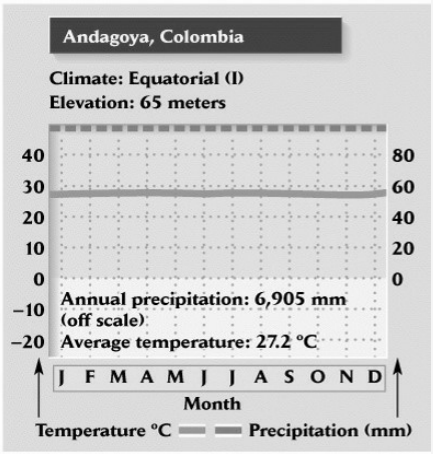
Tropical Rainforest

Temperature	No temperature variation - warm around 27.2C
Precipitation	Above temp line - tons of water, no drought
Growing season	All months
Species	Most species of any terrestrial biome
Plants	- Warm, wet conditions speed the decomposition of detritus and the reabsorption of released nutrients by plants, so soils cannot support long-term agriculture - C3 Photosynthesis: Present in most plants, not good at CO2 or H2O conservation but not needed because of plenty moisture in biome -Plants with drip tips to avoid fungal infection and rotting - Large, thin leaves
Animals	- Black and White Colobus Monkey - Dung Beetle - Jaguar - Agouti

Tropical Rainforest



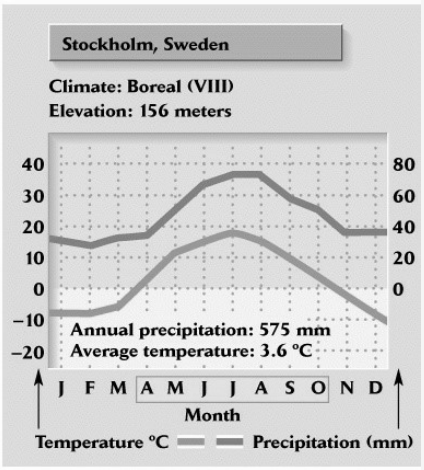
Boreal Forest (Taiga)

Temperature	Cold until growing season, avg 3.6C
Precipitation	Rain in growing season. Most precipitation falls as snow (severe winters) in other months.
Growing season	AMJJASO
Plants	- **Poor and acidic** soil -Cold temperatures limit the decomposition of litter, so soils contain a great deal of organic matter - Abundance of **conifer trees** like spruces, firs, and pines because they are shared like cones so can **slough off heavy loads of snow** to prevent damage - Conifers have **needles with thick waxy coatings** and **small surface area** to resist cold conditions and minimize water loss - Trees are **evergreen** because of a short growing season where there is not enough time to drop leaves and rebuild them every year - Droughts trigger widespread canopy and soil fires that consume the abundant accumulated organic matter.

Boreal Forest (Taiga) (cont)

Animals	- Lynx - Beaver - Haire - Elk
Special	World's largest terrestrial biome. Most in Russia and Canada

Boreal Forest



Tropical Savanna/Seasonal Forest

Temperature	Temperature varies little
Precipitation	Wet/dry seasons. Dry season between May and October. Outside of May and October is wet
Growing season	All year
Plants	- Tree/grass codominance, often require disturbance to maintain - Dry season makes a "thorn forest" because of many succulents.

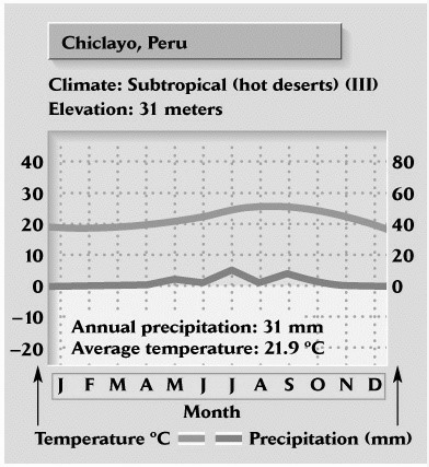
Tropical Savanna/Seasonal Forest (cont)

Animals	- Elefant - Giraffe - Gaselle - Eland

Desert

Temperature	Line above precip, avg of 21.9C
Precipitation	Barely or none
Growing season	All months
Plants	- Plants can leave without water by metabolizing fat to obtain it - Plants are thorny and adapted to conserve water (fleshy stems and leaves) - Thick cuticles - C4 (spatial separation of photosynthesis) and CAM Photosynthesis (temporal separation of photosynthesis)
Animals	- No big mammal because of no shade or water. - Dominant mammals are burrowers {{nl} - Anochetus ant - Texas horned lizard - squirts blood from eyes to defend itself because blood taste foul to predators - Fat sand rat - Greater roadrunner

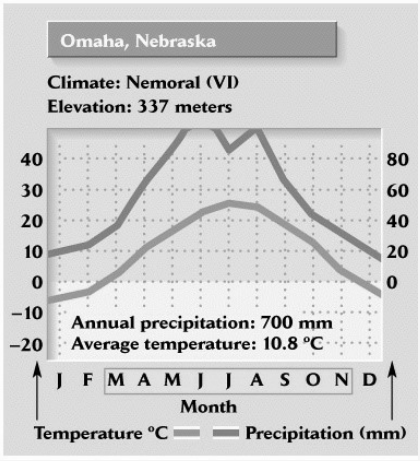
Desert



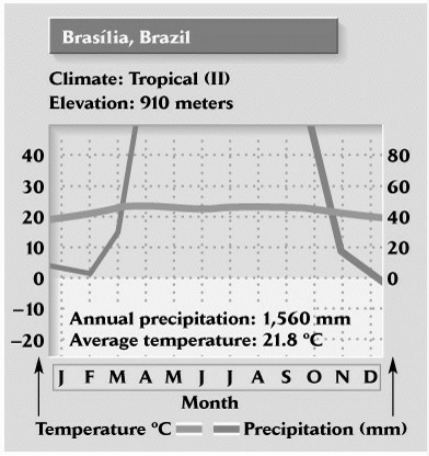
Temperate Forest

Temperature	Avg temp 10.8C
Precipitation	- Summers are moist - Dinstict winter season with frost and snow
Growing season	MAMJJASON
Plants	- Soils are fertile and low acidity
Animals	- Bobcat - Grizzly Bear - Squirrel - Deer

Temperate Forest



Tropical Savanna/Seasonal



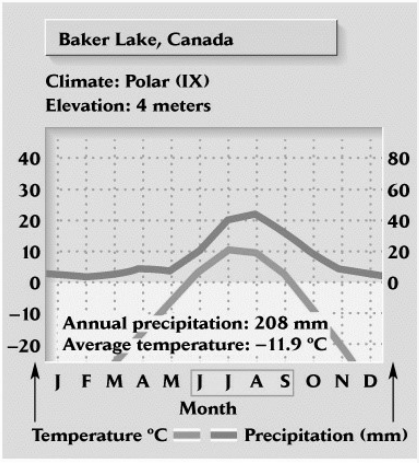
Tundra

3 Types	Artic, Antartica, Alpine Tundra
Temperature	Cold, severe winters, avg -11.9C
Precipitation	Some rain but not much, similar to a desert. Cold air holds little moisture so most moisture is locked up as snow.
Growing season	JJAS - short growing season due to very severe winters

Tundra (cont)

Plants	- Almost no trees due to permafrost - Permafrost is a massive carbon storage area: with global warming, tundra (which used to be a sink) is now a source of carbon and methane (greenhouse gases) - Most plants low to ground - Plants produce anti-freeze protein - Lichens, moss, heath - Slow decomposition of organic matter, so soil is infertile and low in oxygen
Animals	- Migration of animals out in cold months and in during growing season - species-poor - Peary caribou - Lemming (don't run off cliffs) - Wolf - Polar bear

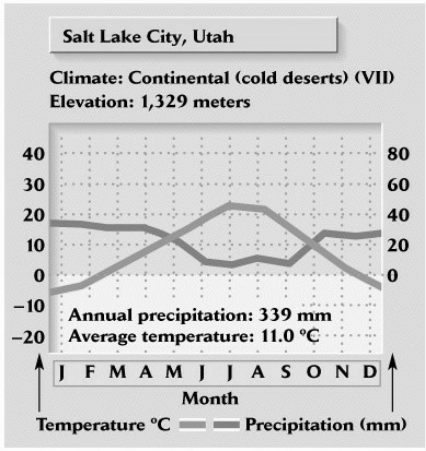
Tundra



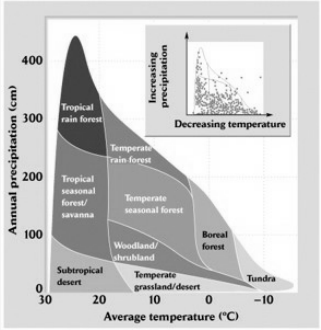
Temperate Grassland/Shrubland

Temperature	Temp line crosses precipitation line. Hot summers and cold winters
Precipitation	Some precipitation
Growing season	MAMJJASON
Plants	- Few trees, dominated by grasses - May become forest without disturbances when precipitation is high
Animals	- Bison - Kangaroo - Cheetah - Prairie dogs

Temperate Grassland/Shrubland



Graph



Patterns