

Earth's Biomes and their Climate

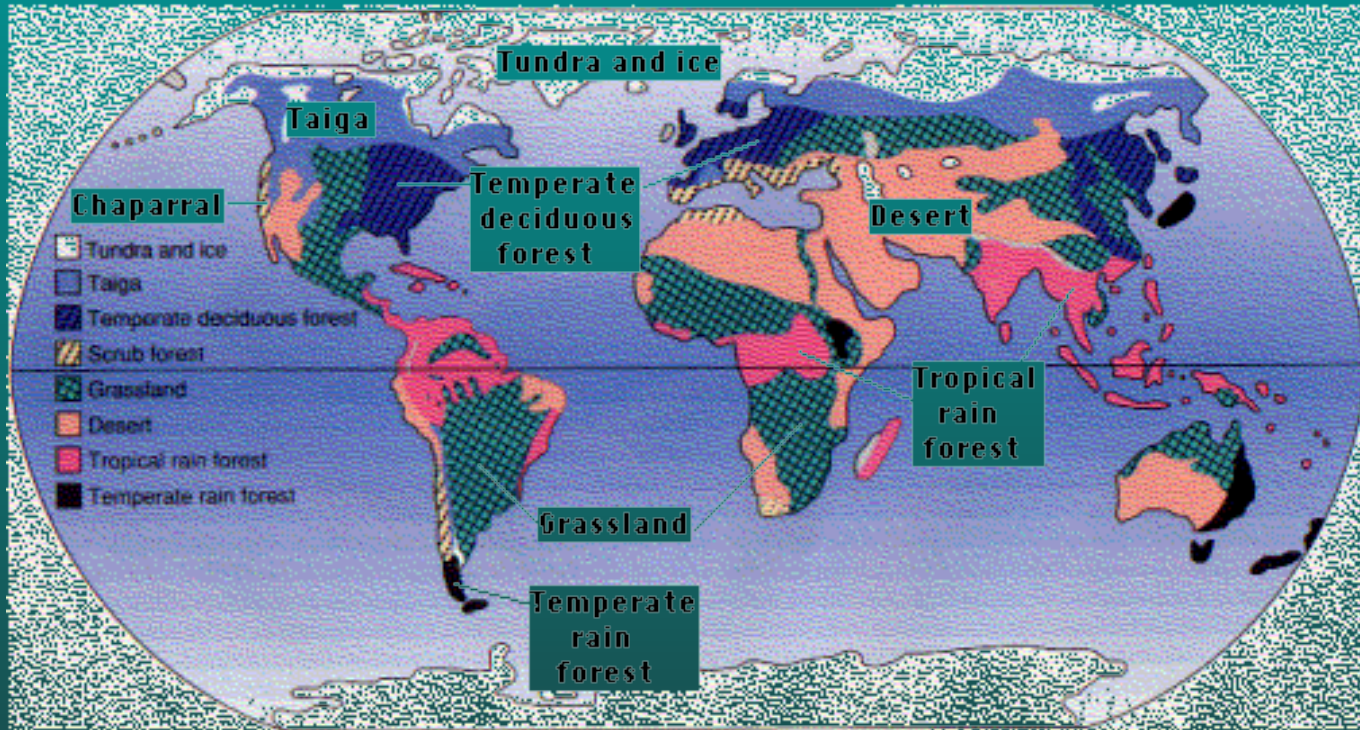
Sc 10: Unit D

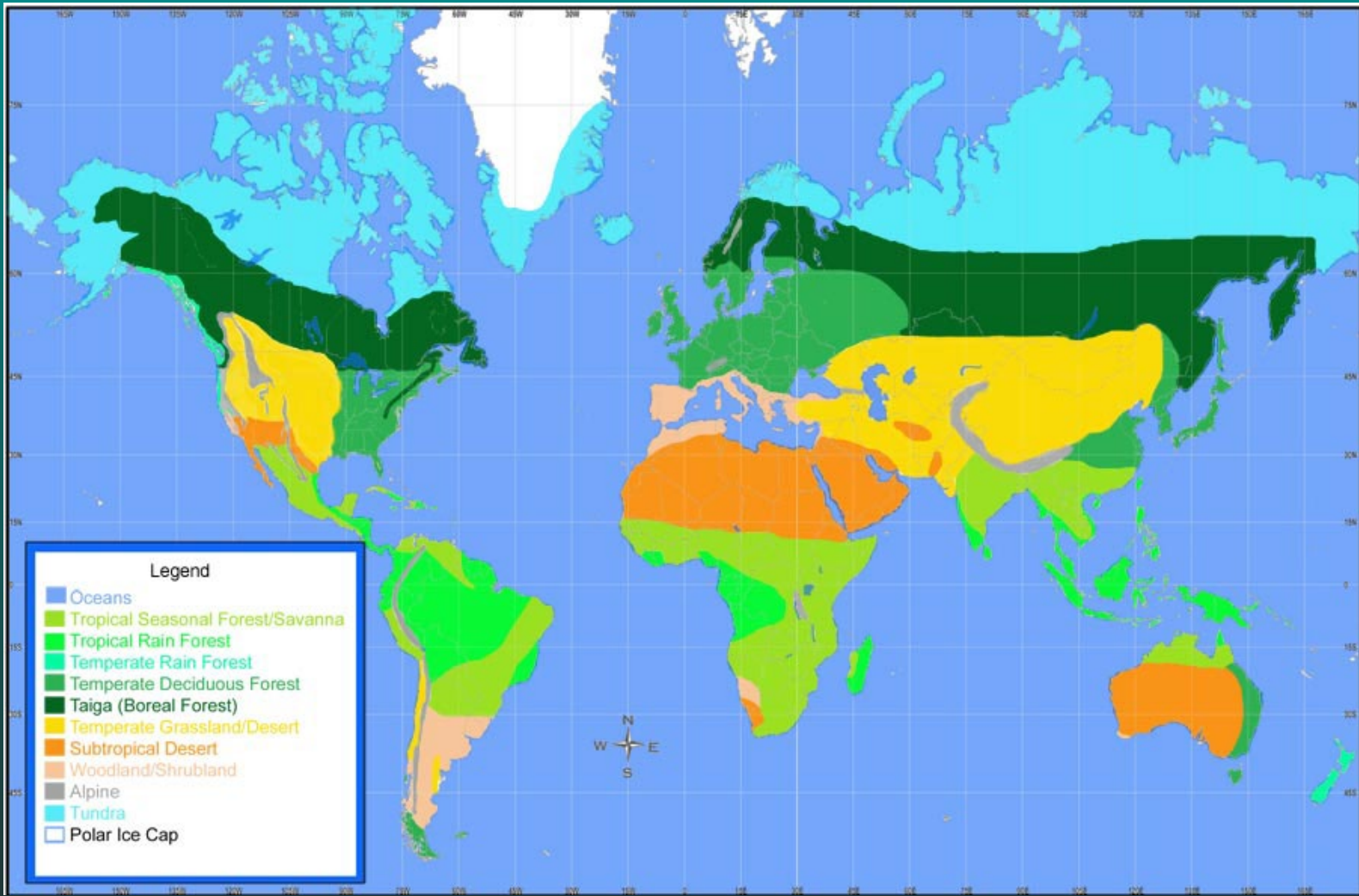
1. Biomes are open systems

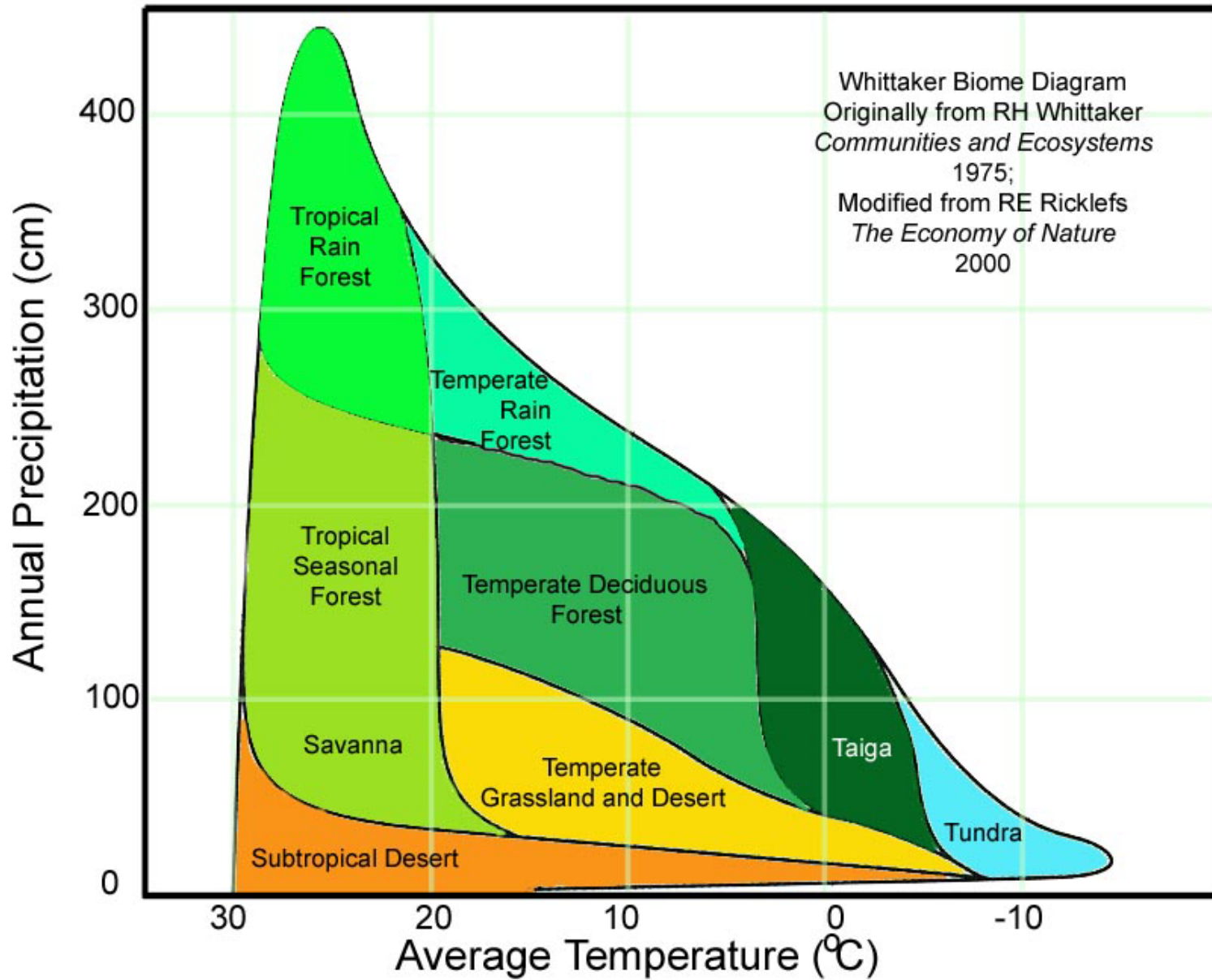
- Biomes function as a system, a set of interconnected parts with surroundings.
- They are open systems because they exchange matter and energy with the surroundings.
- Earth's hydrosphere is generally considered to be a closed system, why?

2. Earth's Biomes

- 6 different biomes.
- Defines a biotic community; characterized by the plant life. Vary because of precipitation, temperature, soil type, topography, etc.
- Dividing earth into Biomes helps scientists study and understand interactions between living and non-living things.







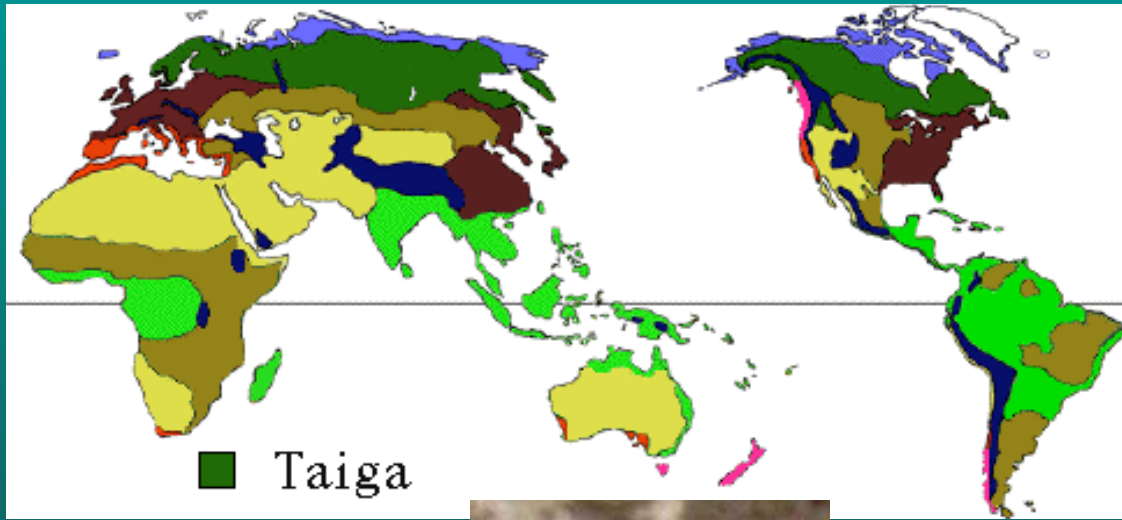
a. Tundra

- **Location:** arctic regions of North America and Eurasia.
- **Sunlight:** Varies from 24 hours (summer solstice) to 0 hours (winter solstice).
- **Soil:** Permafrost due to low insolation.
- **Plants:** very little precipitation so few plants---- lichens/mosses/shrubs.
- **Animals:** Caribou, polar bear, arctic fox.



b. Taiga/Boreal Forest

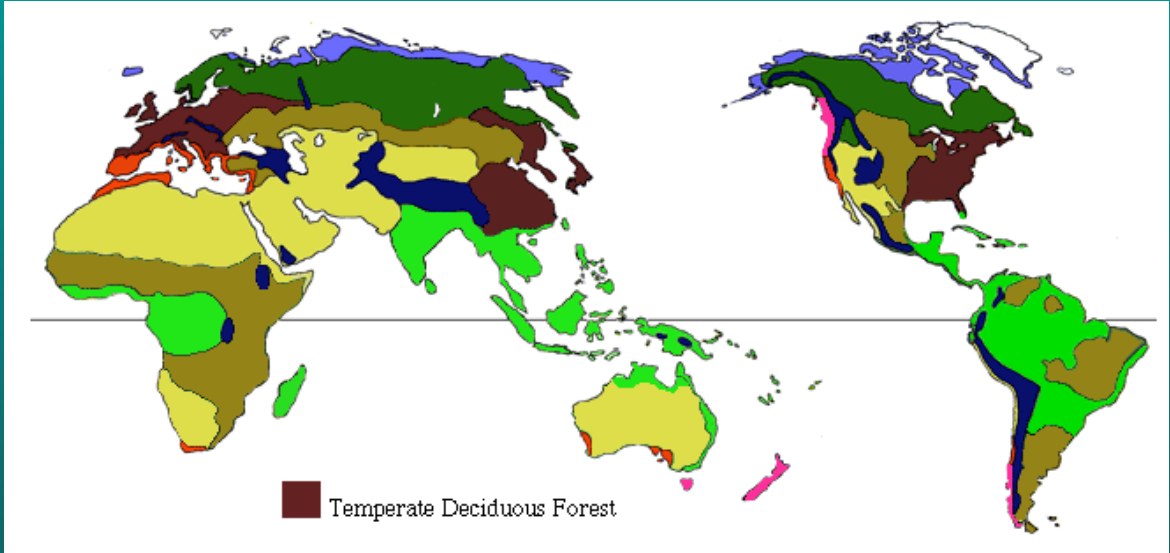
- **Location:** South of Tundra region.
- **Sunlight:** more sunlight year-round = longer growing season than Tundra.
- **Soil:** slightly acidic soil; supports lots of plants.
- **Precipitation:** low-moderate (more than Tundra)
- **Plants:** variety of plants/shrubs- mostly conifers (evergreens), fewer shrubs.
- **Animals:** woodpeckers, moose, bear.



Botanical Society of America
(photo by Isabel Ahlgren)

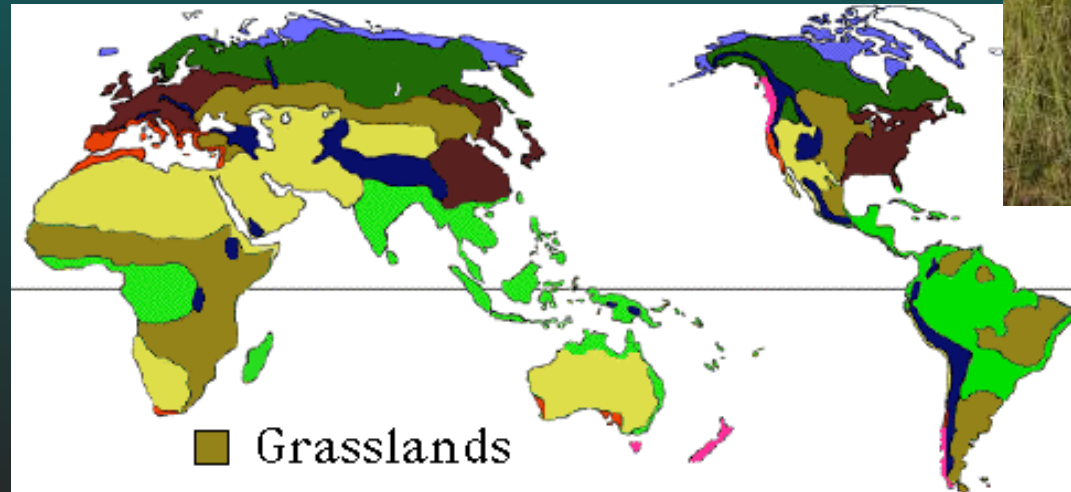
c. Deciduous forest/Mixed woodland

- **Location:** between 30-60°N latitude; all over world.
- **Sunlight:** more than Taiga; climate is more moderate.
- **Soil:** very fertile soil, lots of precipitation.
- **Plants:** huge variety of plants– sunlight hits floor for shrubs, flowers, deciduous trees.
- **Animals:** insects, birds, squirrels, rabbits, deer, fox.



d. Grassland

- **Location:** anywhere that has 45cm precipitation per year; prairies and savannah.
- **Sunlight:** lots of sunlight; more in summer.
- **Soil:** soil holds moisture, slightly acidic.
- **Plants:** mostly grasses, few shrubs.
- **Animals:** hawks, birds, insects, buffalo, deer---
savannah = cheetah, zebras.



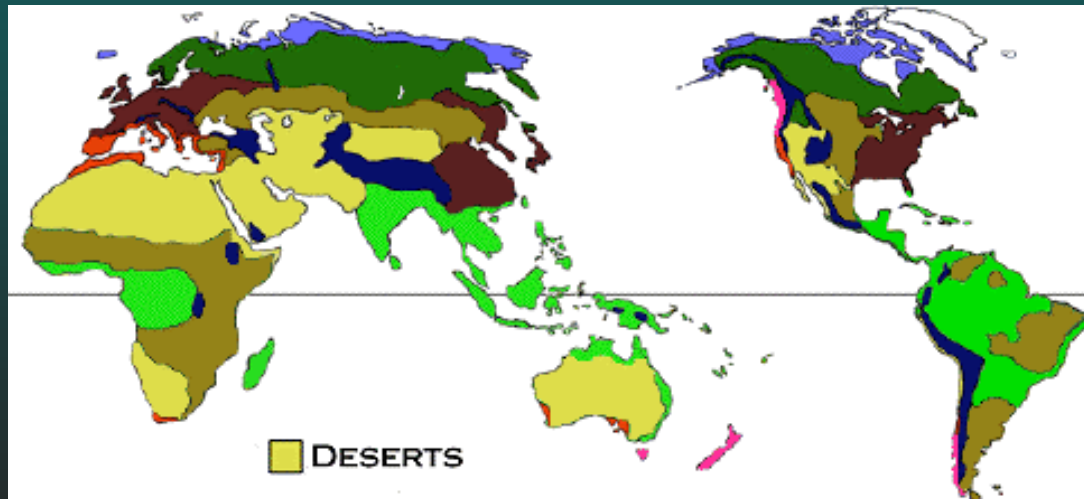
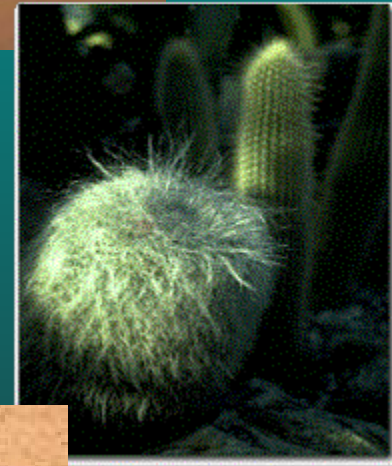
e. Rain forest

- **Location:** anywhere with 200cm/year precipitation and always warm.
- **Sunlight:** Lots of sunlight, 1 season.
- **Soil:** very fertile, supports most life of all biomes.
- **Plants:** Large, broad leaf trees, flowers, shrubs, vines...
- **Animals:** snakes, lizards, hummingbirds, monkeys, gorillas, tigers.



f. desert

- **Location:** anywhere with less than 25cm/year precipitation.
- **Sunlight:** hot during day due to high insolation levels.
- **Soil:** very thin, not very fertile, doesn't hold water.
- **Plants:** cacti, drought tolerant plants (sagebrush).
- **Animals:** lizards, snakes, antelope, bats, coyote.

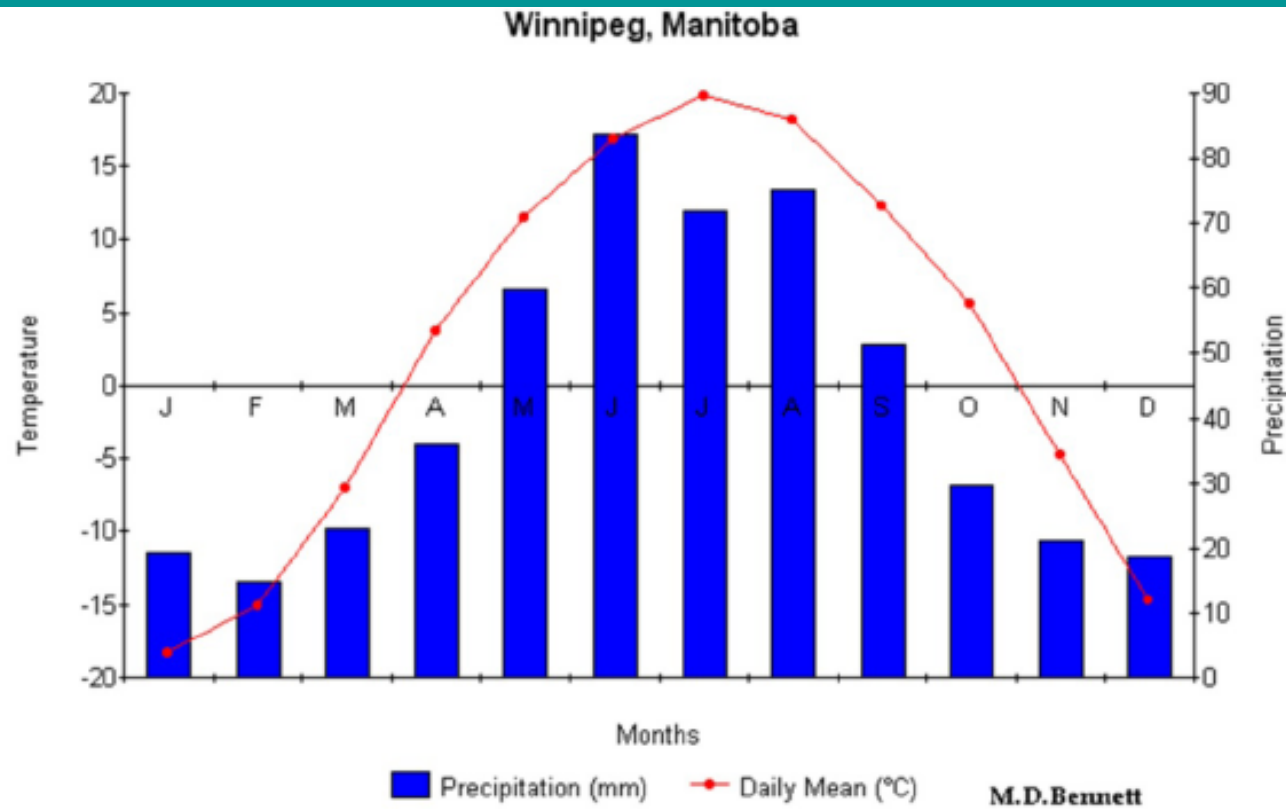


3. Biomes and Climate

- Climate determines the plants and animals that survive in the region.
- Includes: temperature and precipitation.

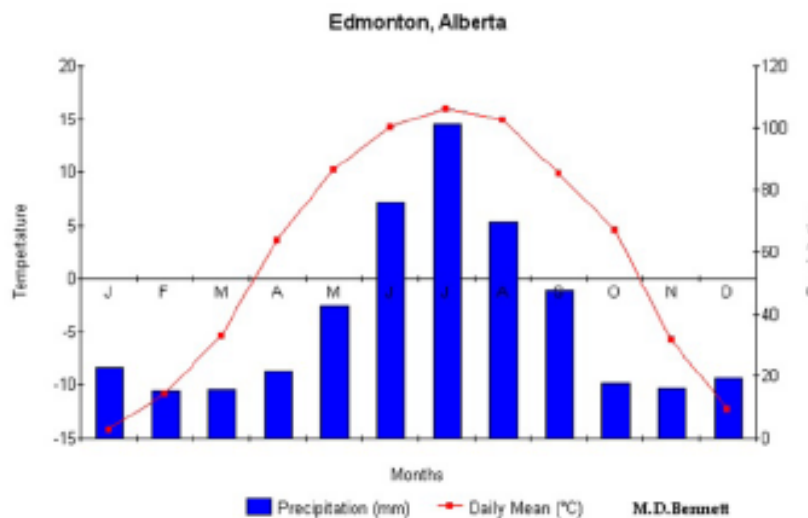
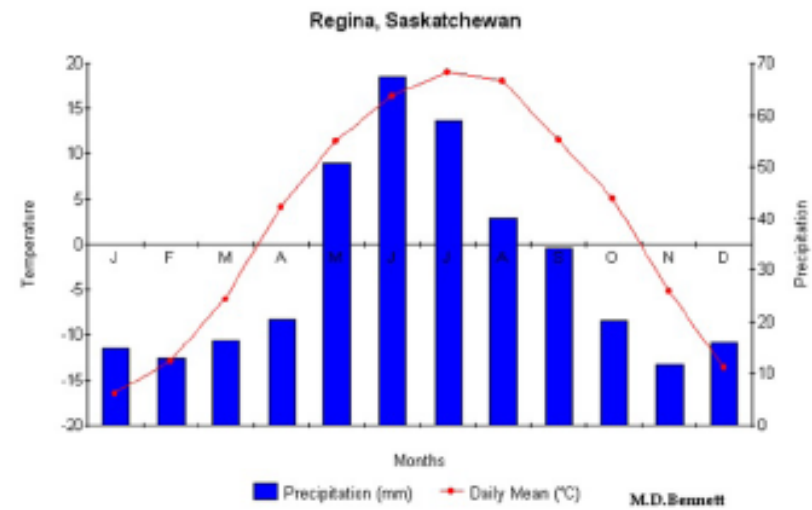
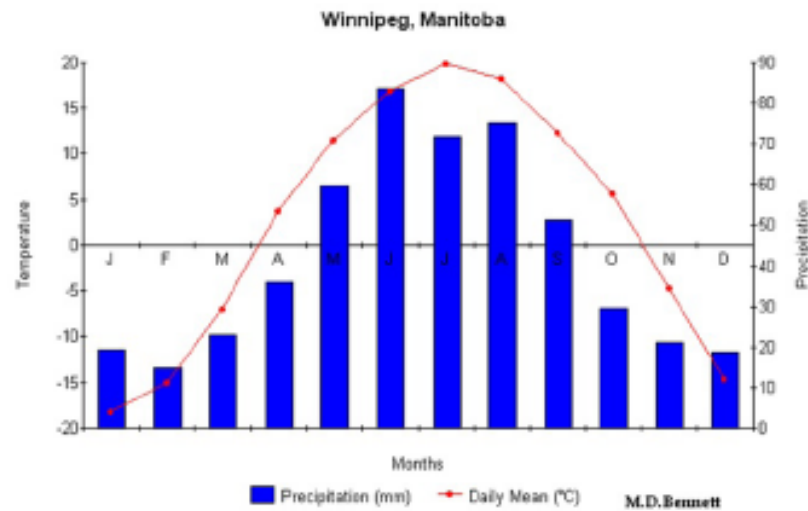
Water actually has a huge effect on climate. For example, let's look at the climate of a few places in Canada:



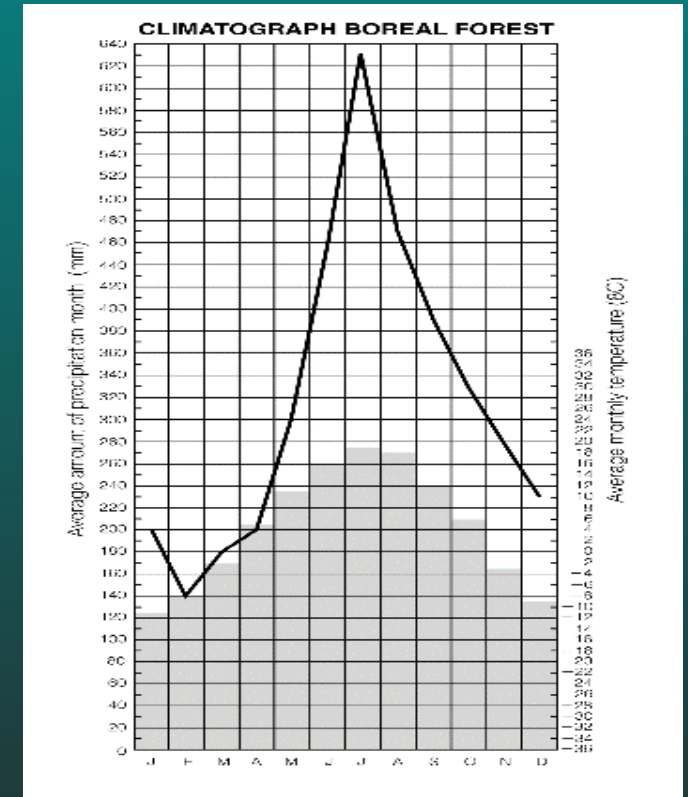
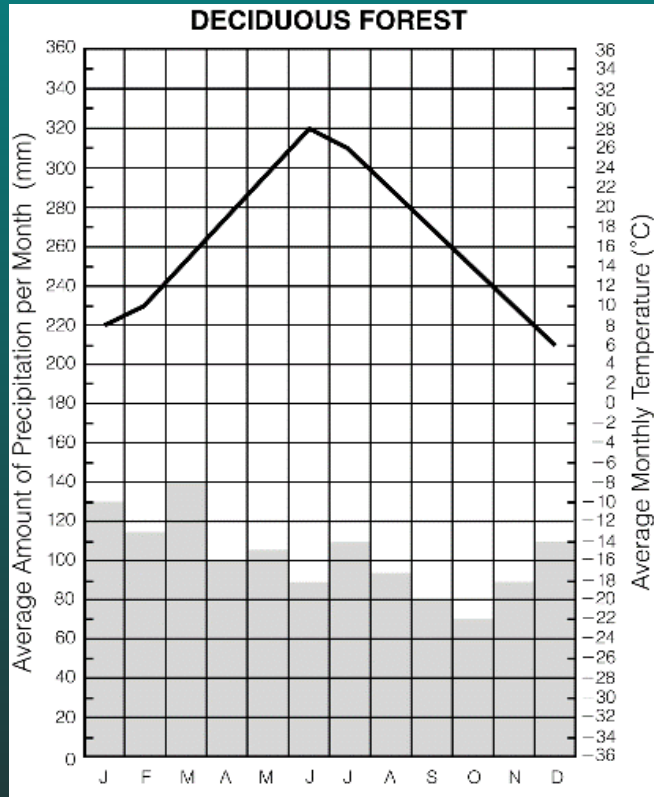
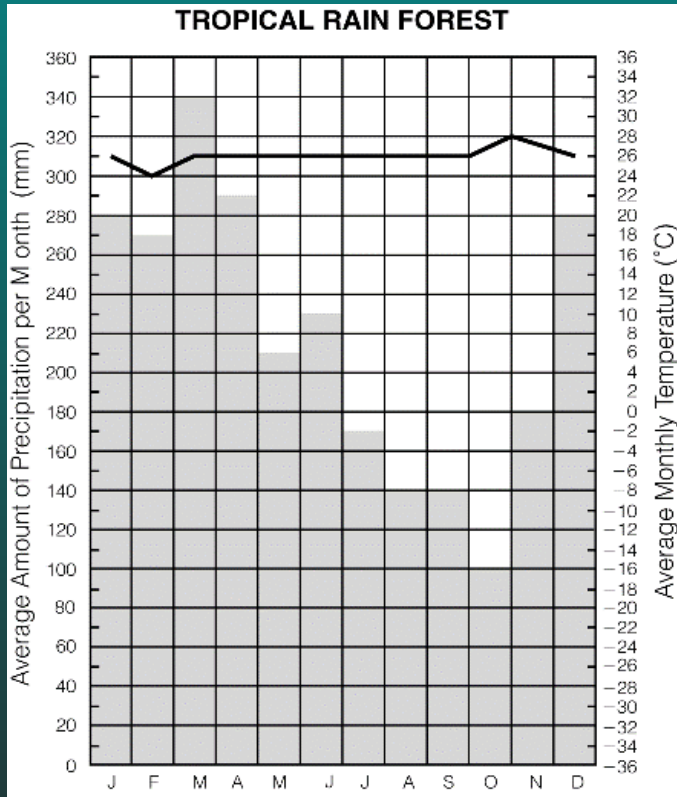


This is a climatograph for Winnipeg. A climatograph shows temperature averages and precipitation over the span of a year for a particular region.

Check out the climatographs for the four cities: what are the two main differences?



World Climatograms



World Climatograms

