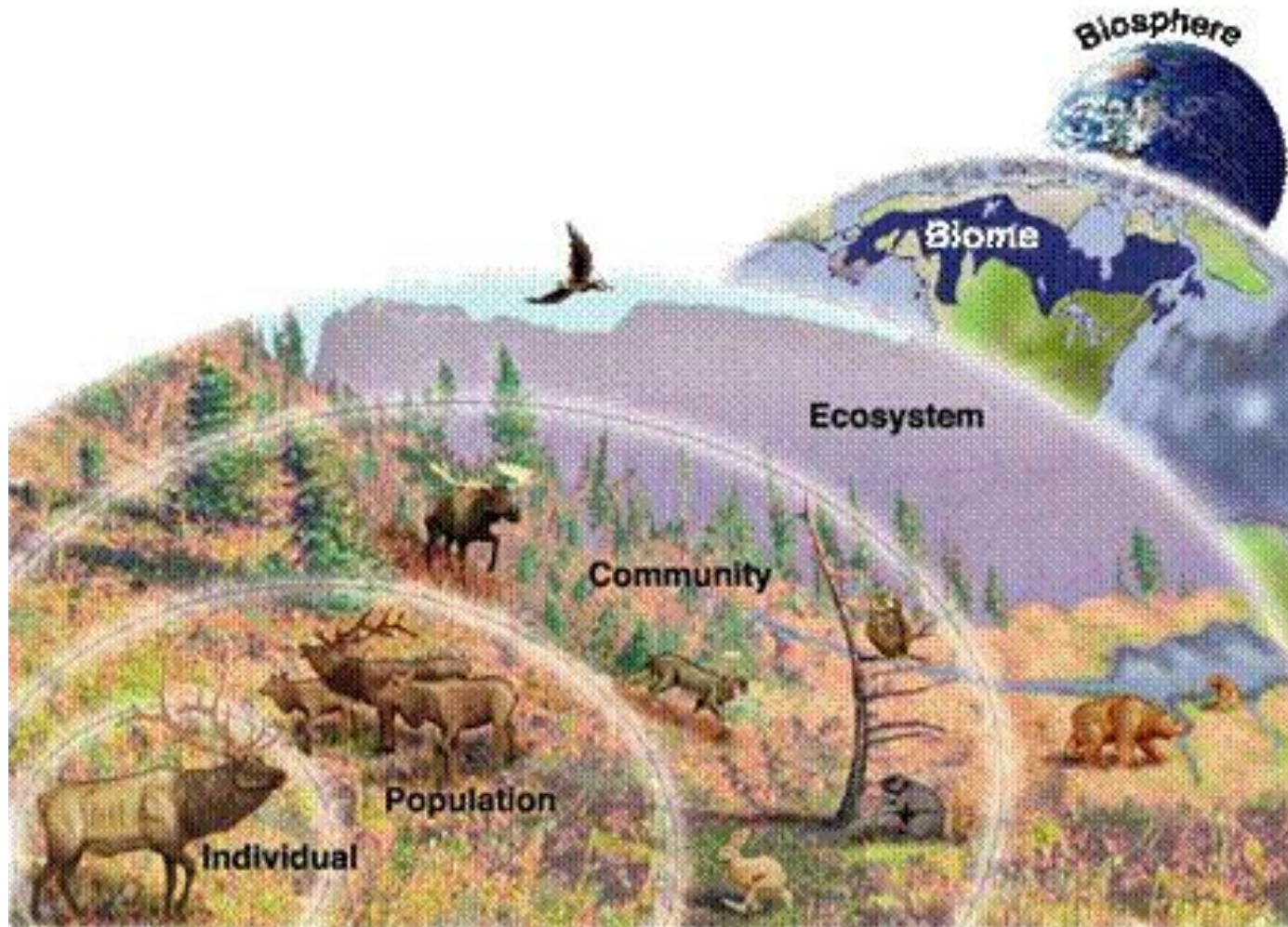


# BIOMES



# Biosphere Organization



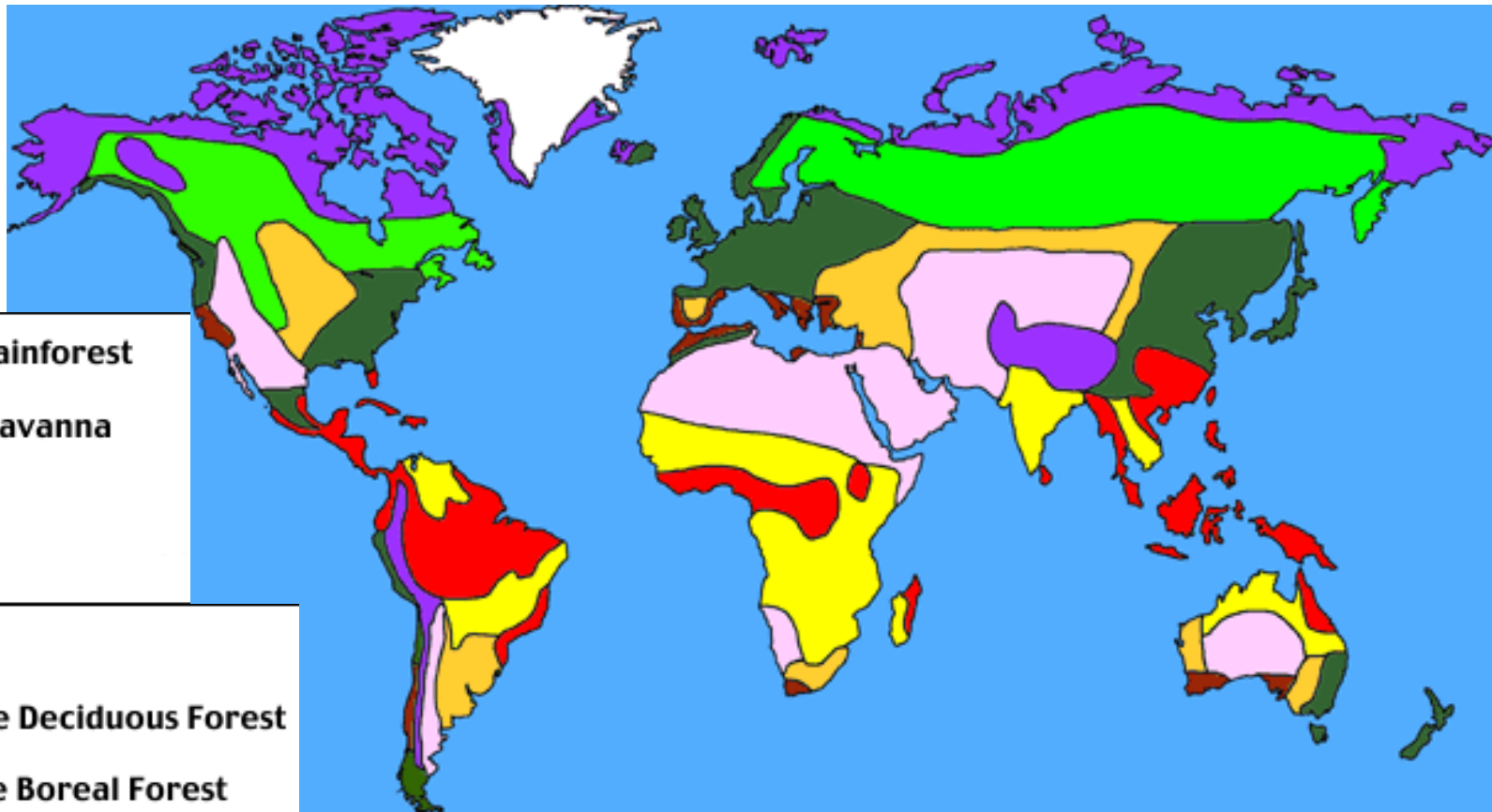


# What is a biome?

- **Biomes** refer to a large region or area characterized by the following:
  1. A particular climate pattern of the annual **temperature** and **precipitation** distribution, and
  2. The dominant **fauna** (animals) and **flora** (plants).
- In describing a biome, the focus is on its plant life, animal life, and **climate** of the region.



# Biomes occur on the same latitudes.



**Tropical Rainforest**

**Tropical Savanna**

**Desert**

**Chaparral**

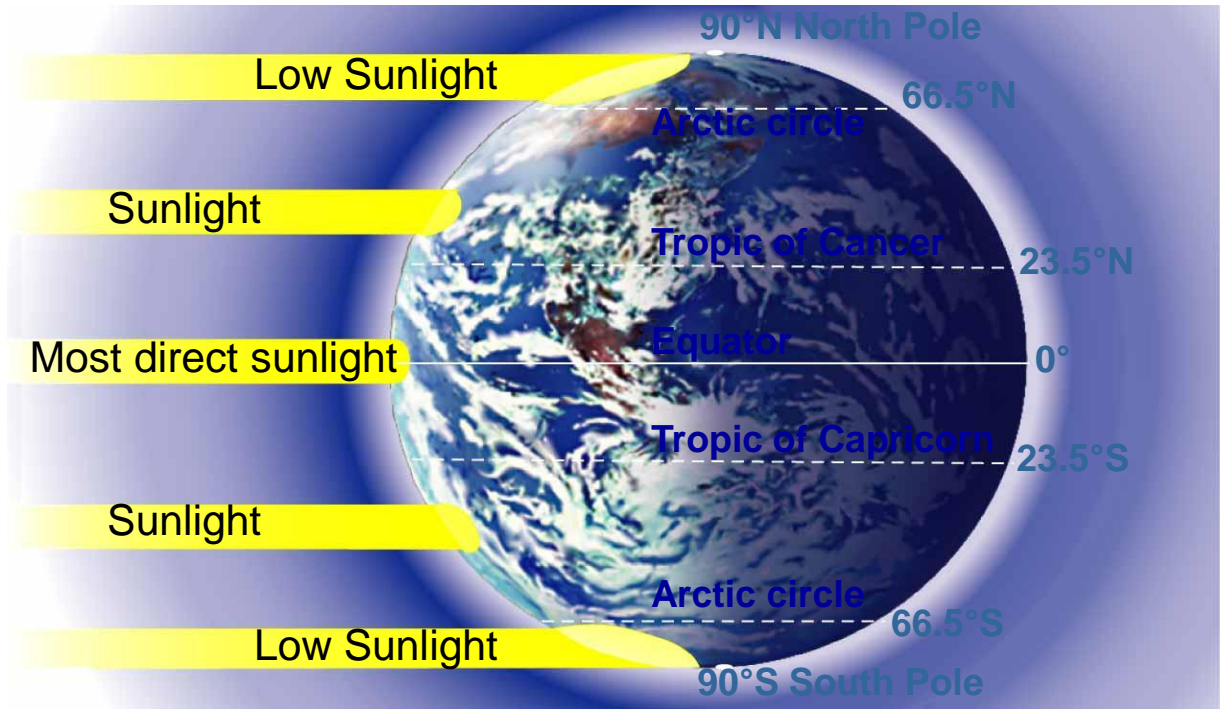
**Grassland**

**Temperate Deciduous Forest**

**Temperate Boreal Forest**

**Arctic and Alpine Tundra**

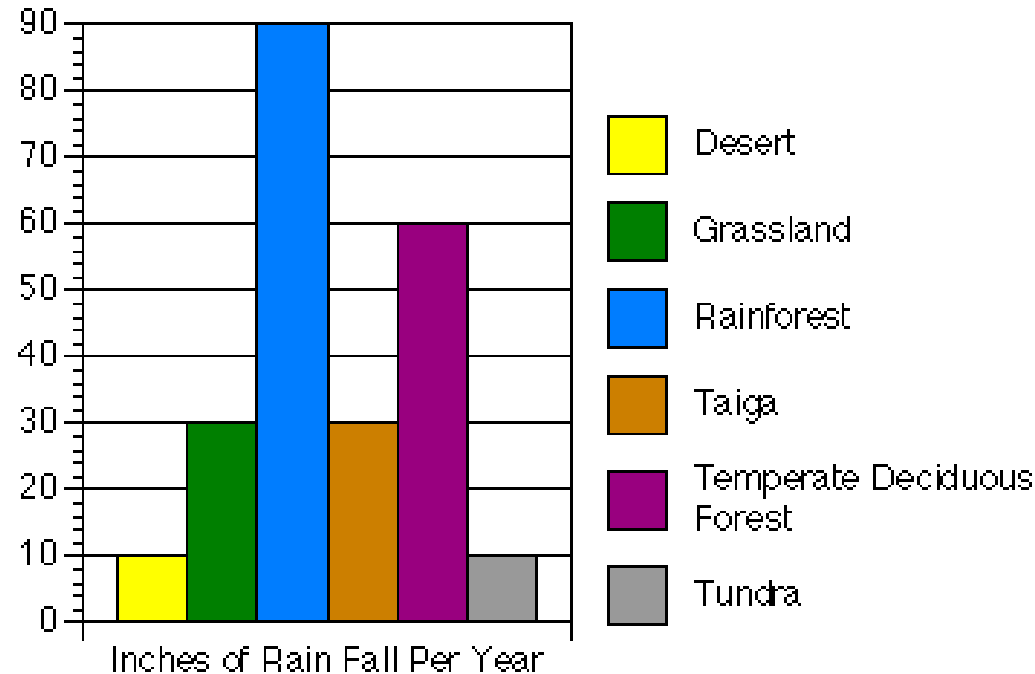
# Latitude



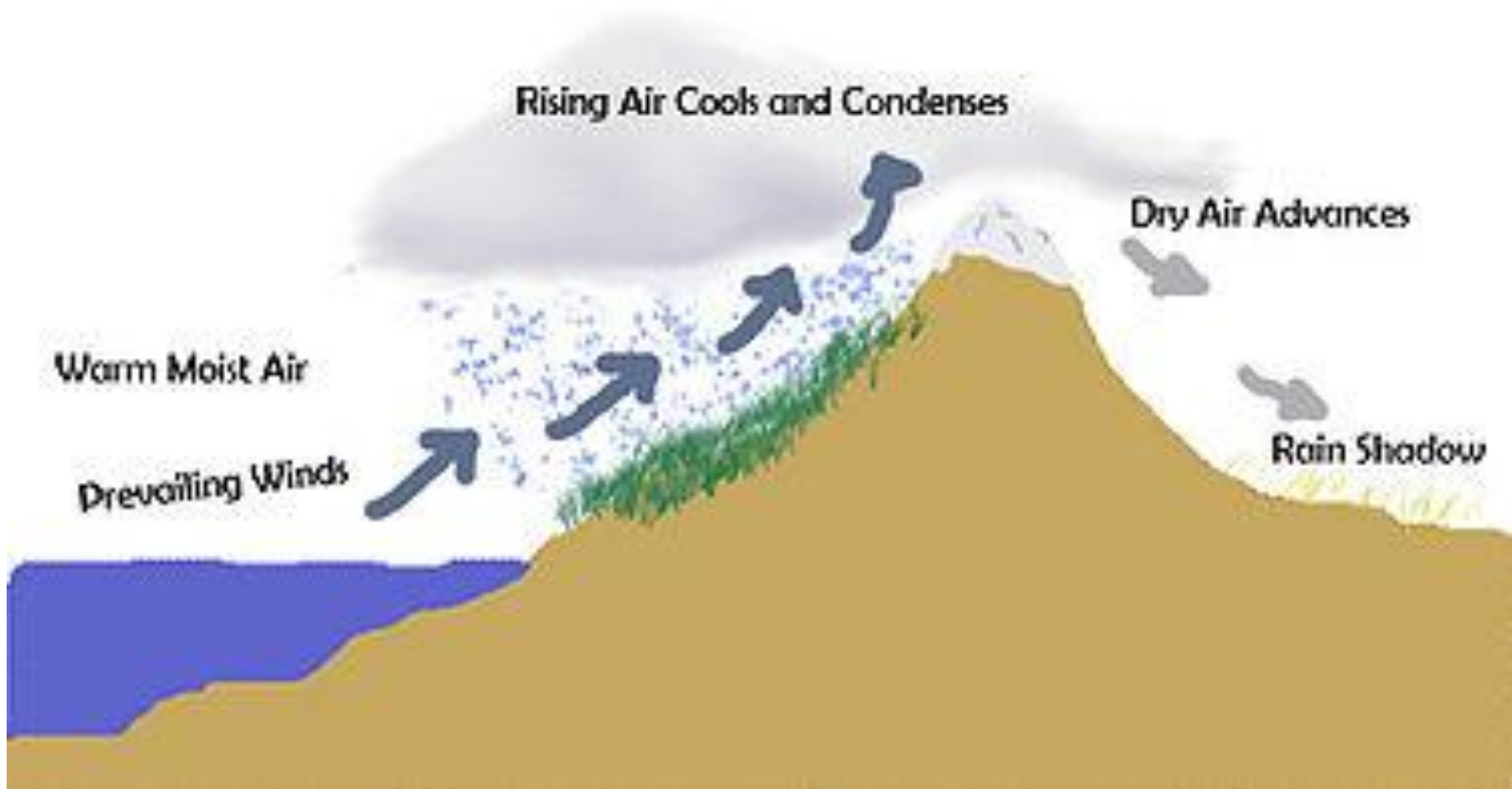
- The amount of direct light can affect the temperature.
- Remember that the equator gets the most sunlight, and polar regions gets the least.

# Precipitation

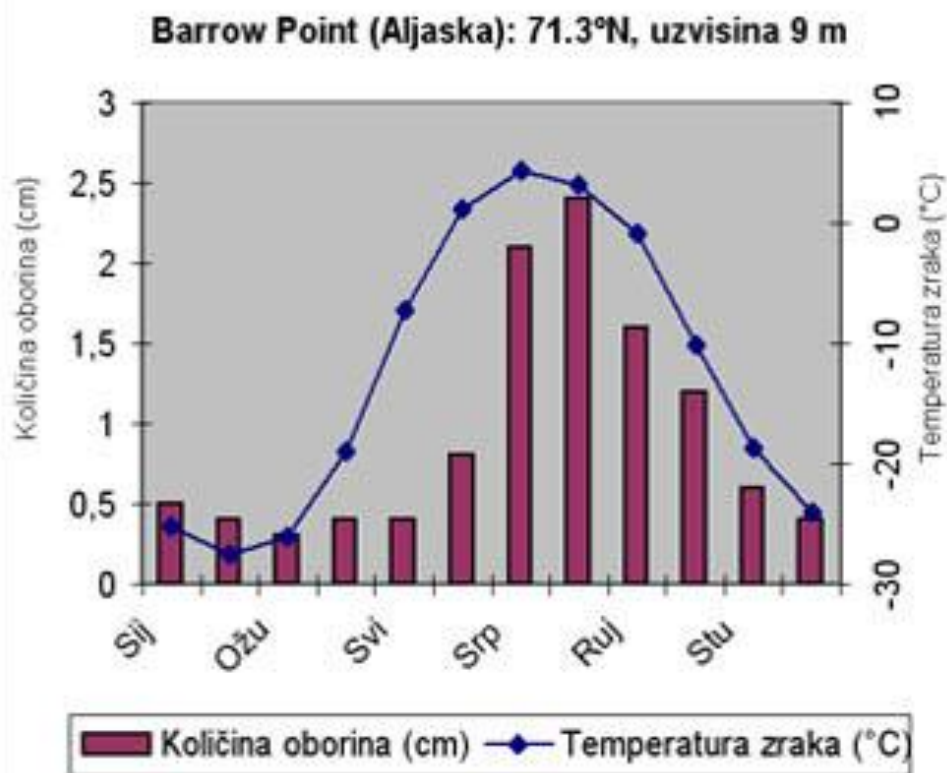
- The amount of water falling in the given area can greatly affect the type of climate
- Remember that precipitation falls at 0° and 60°



# Rain Shadow Effect



# Climatographs

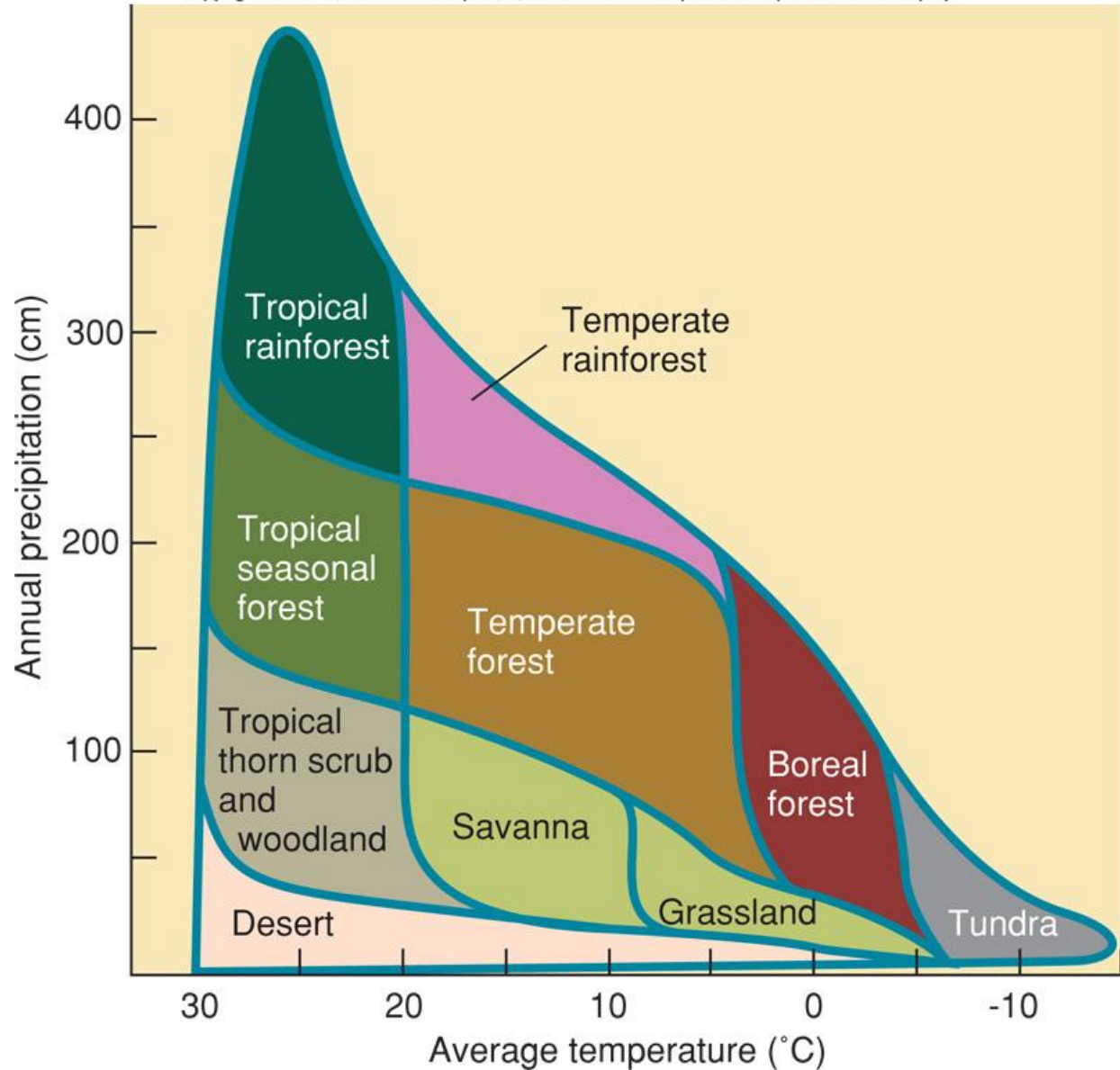


- A climatograph is a graph that shows average monthly values for two factors: temperature and precipitation.



# Biomes & Climate

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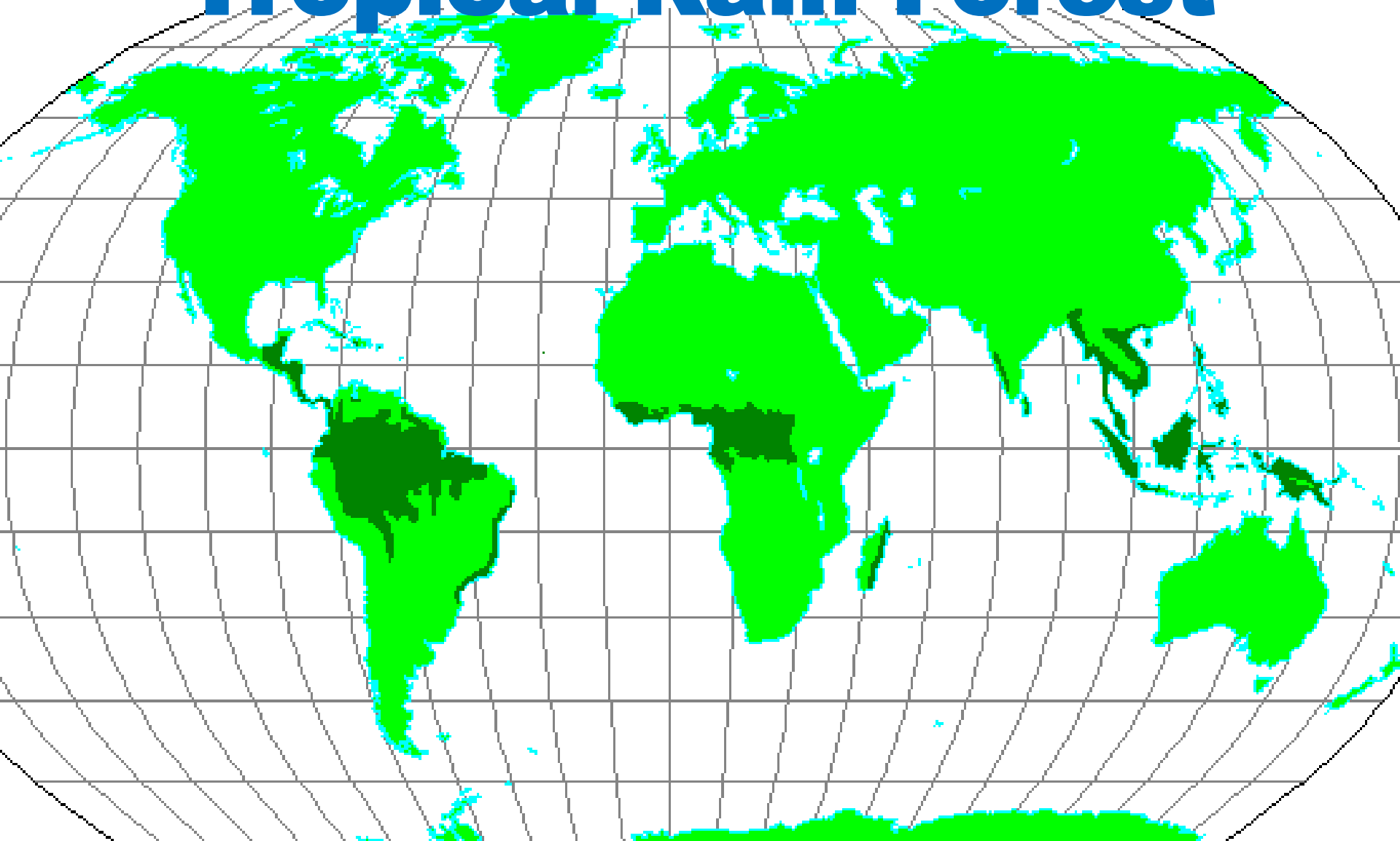


# Tropical Rainforest

- Typically found near the equator
- Receives more than 200 cm of rain annually
- Temperatures typically fall between 20°C and 25°C for the entire year
- As many as 50% of all the world's animal species may be found here
- Canopy trees up to 55 m tall
- Soil generally infertile, acidic



# Tropical Rain Forest

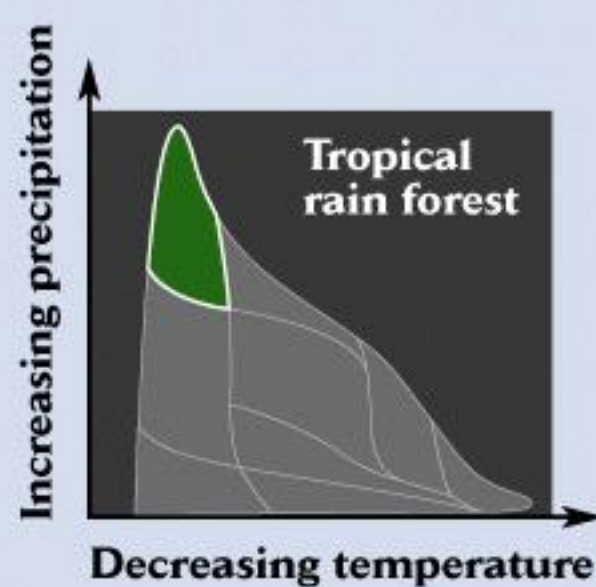
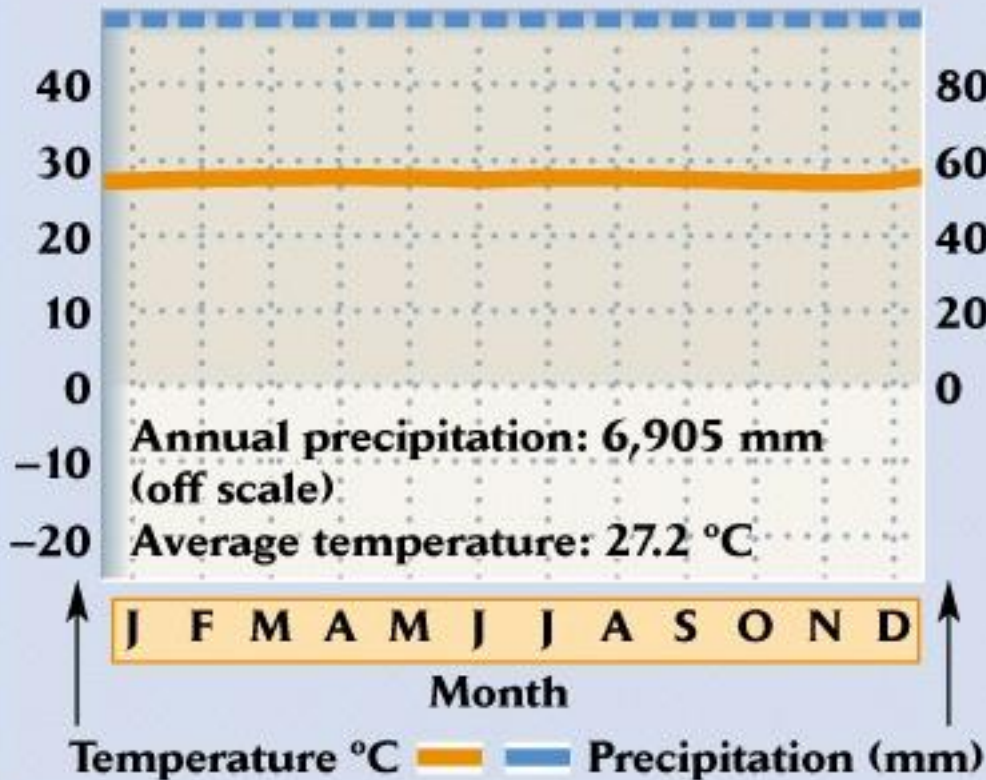


# Tropical Rain Forest

Andagoya, Colombia

Climate: Equatorial (I)

Elevation: 65 meters








# Tropical Rain Forest



**(a) Cloud forest during dry season, central Panama.**



**(b) Mid-elevation cloud forest, Jamaica, West Indies.**



BIOME:

TROPICAL  
RAIN FOREST



# Tropical Savanna

- Tropical grasslands with a few scattered trees
- Experience wet and dry seasons
- Hot temperatures
- Annual rainfall is between 50 and 127 cm
- More species of grazing mammals than any other biome



# Tropical Savanna



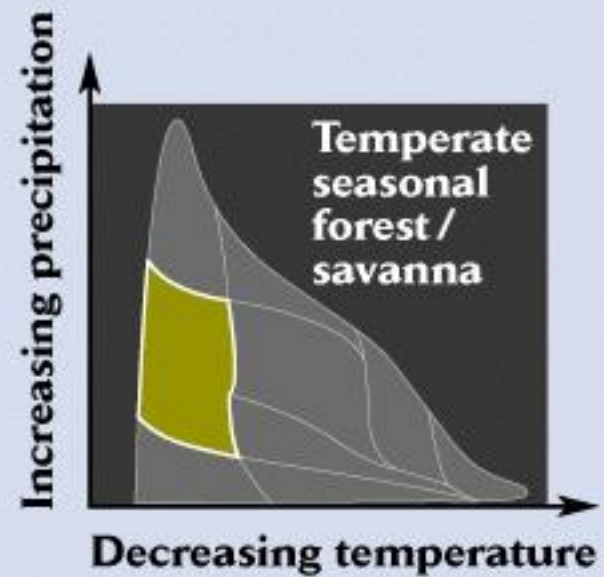
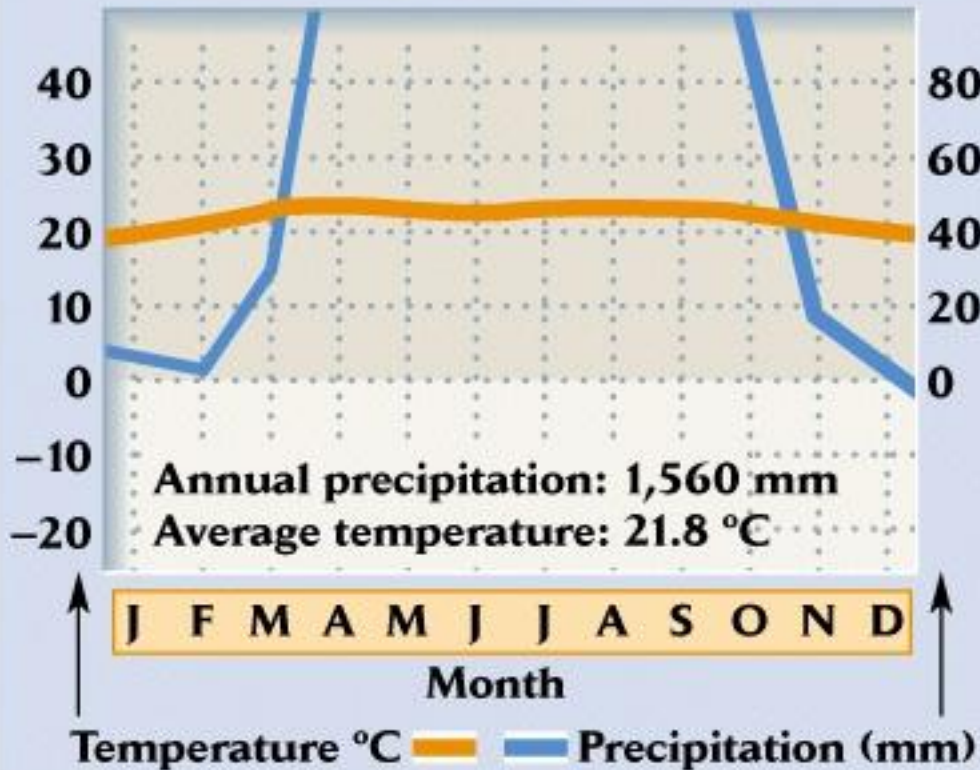


# Tropical Savanna

Brasília, Brazil

Climate: Tropical (II)

Elevation: 910 meters



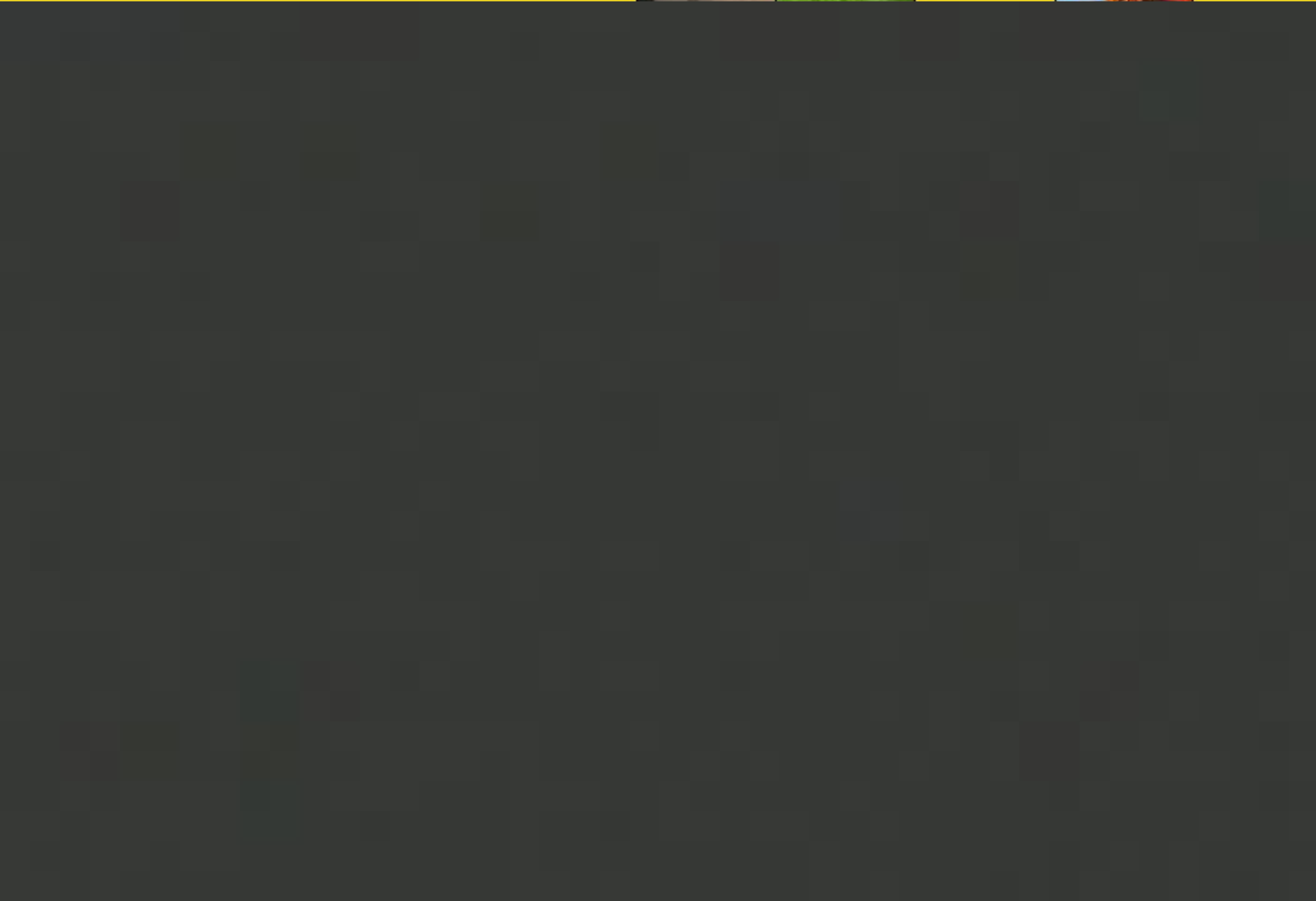
# Tropical Savanna



**(a) Acacia trees with weaverbird nests, Kenya, East Africa.**



**(b) Tropical savanna in Orinoco Basin of eastern Colombia.**



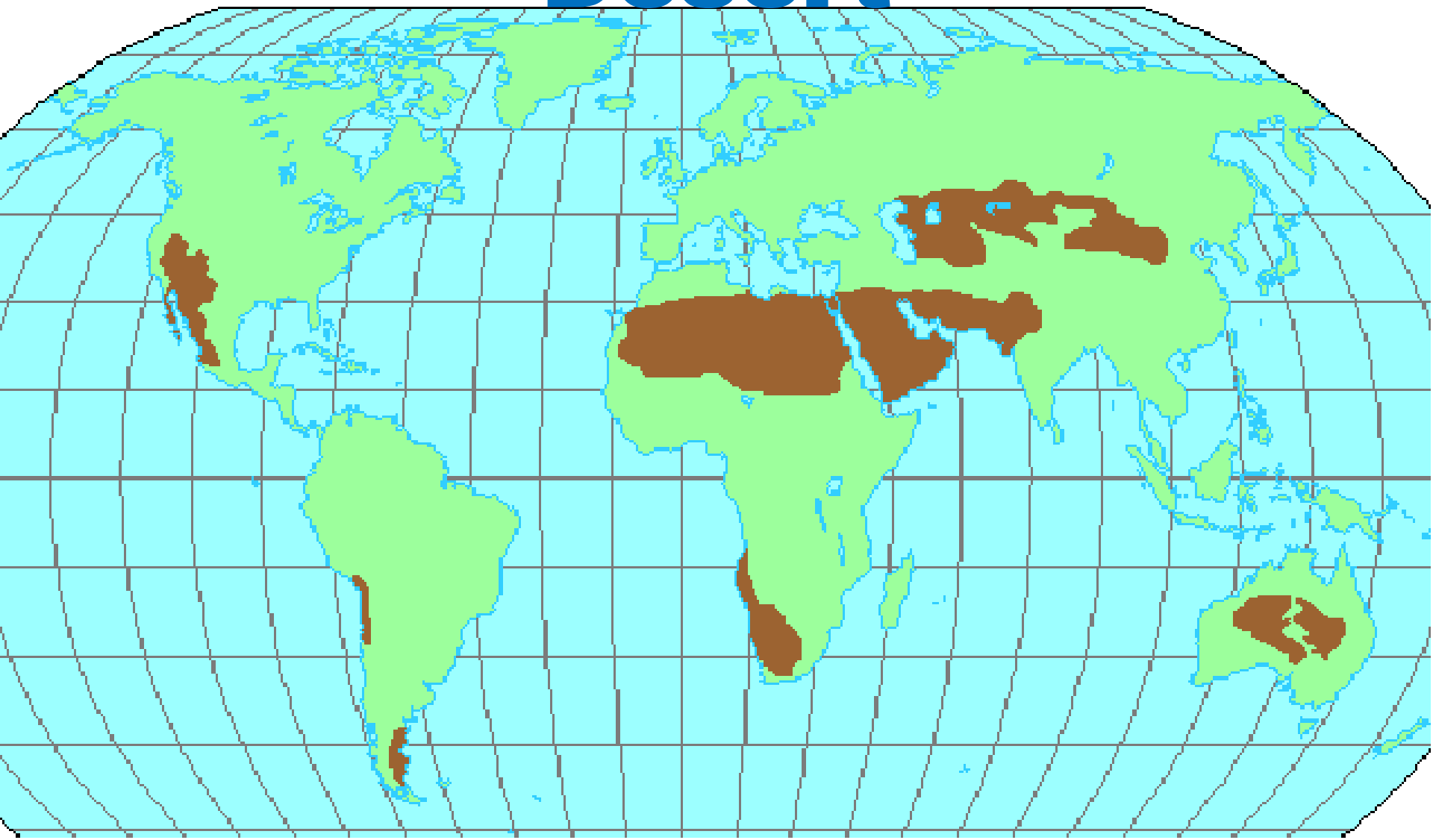
# Desert

- Hot and Cold Deserts
- Typically found between 25° and 40° latitude
- Less than 25 cm of rain annually
- Temperatures typically range between 20°C and 25°C but some extreme deserts can reach temperatures higher than 38°C and lower than -15°C
- Organisms have adaptations to conserve water- thorns, waxy cuticles, light colored coats
- Small, nocturnal animals





# Desert

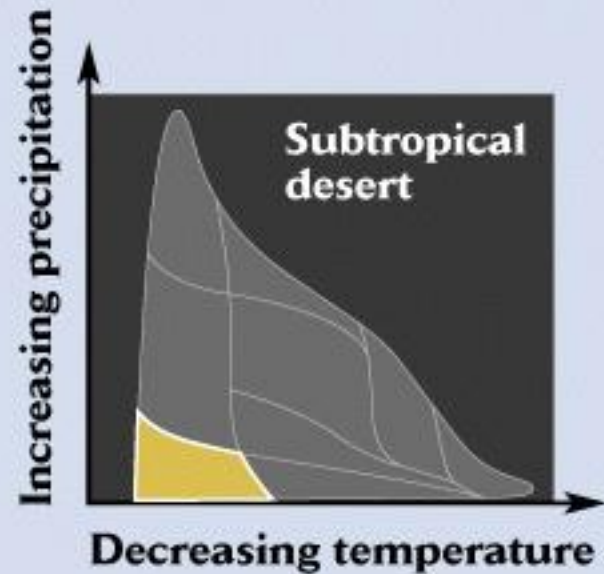
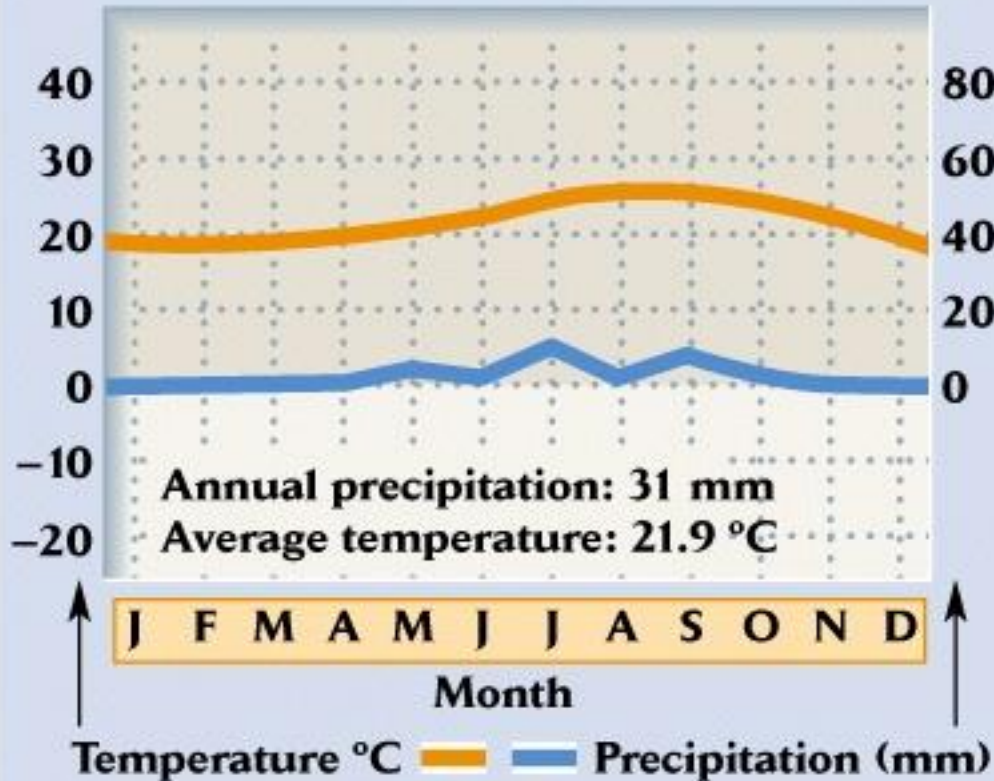


# Desert

Chiclayo, Peru

Climate: Subtropical (hot deserts) (III)

Elevation: 31 meters






# Desert



**(a) Cholla cactus in northern Sonora, Mexico.**



**(b) Saguaro cactus in southern Arizona.**



BIOME:

DESERT

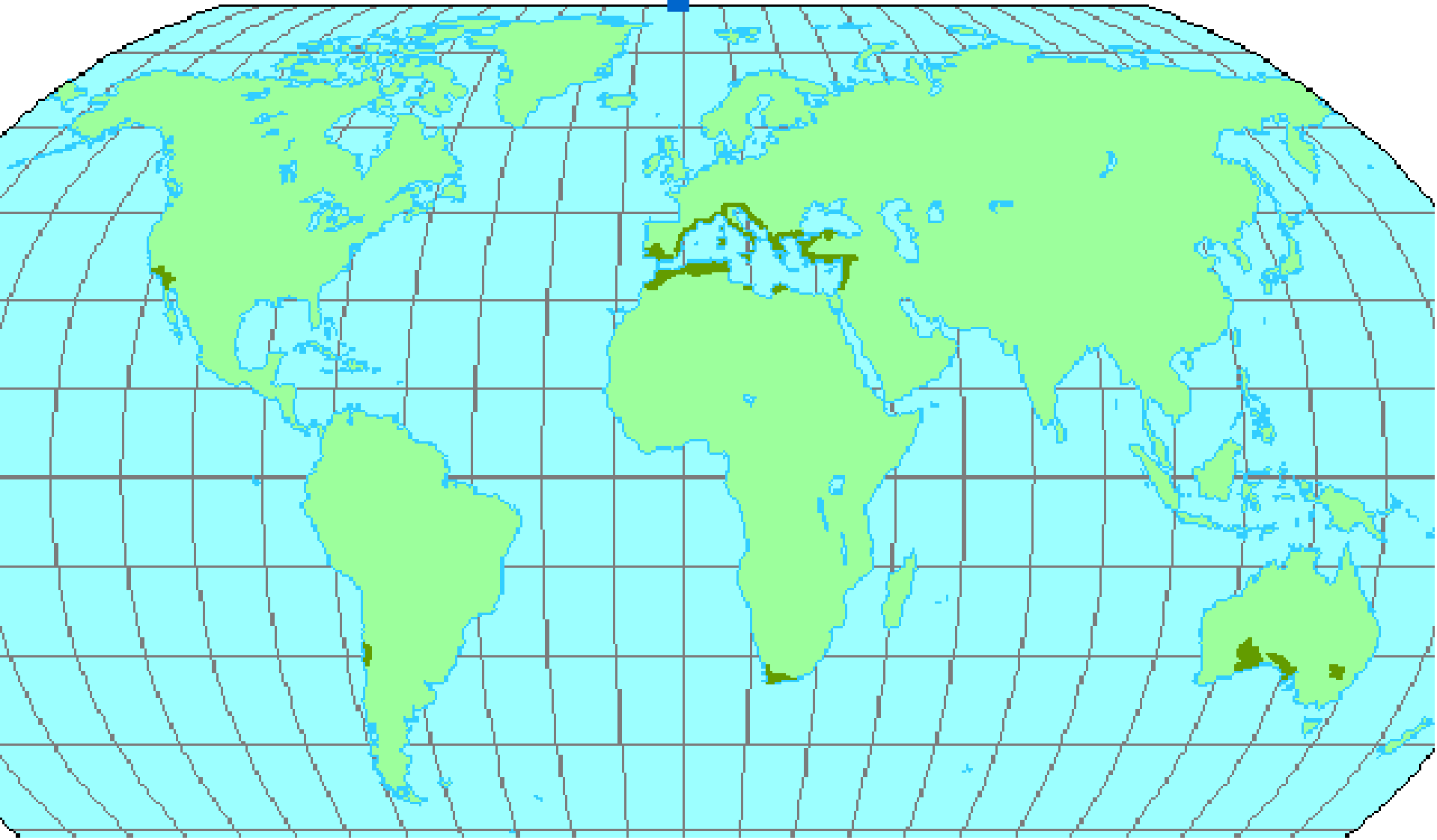


# Chaparral

- Found between 32° and 40° latitude on the west coast of continents
- Receives between 35 and 70 cm of rain, usually in the winter
- Summer drought
- Maritime influence- cold ocean currents, continental winds
- Extremely resistant to drought and weather events



# Chaparral

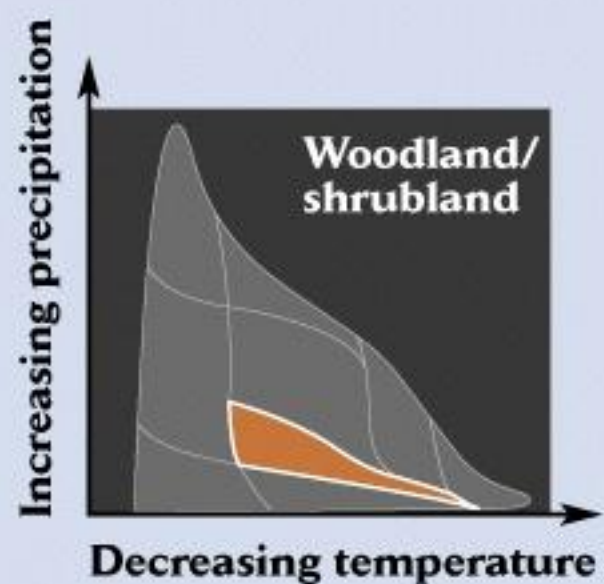
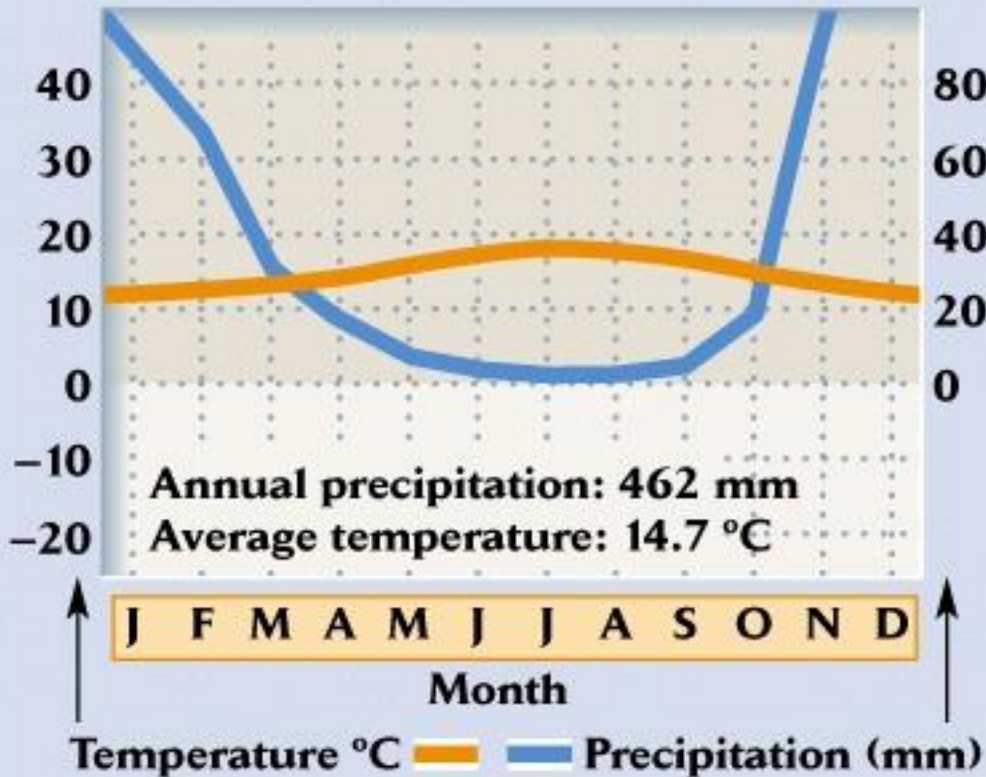


# Chaparral

Lisbon, Portugal

Climate: Mediterranean (IV)

Elevation: 41 meters





# Chaparral



**(a) Chaparral at wet site at low elevation with infrequent fire, southern California.**



**(b) Fynbos vegetation in the Cape region of South Africa.**



A large, semi-transparent globe of Earth is centered on the image. The globe shows the continents of North and South America in light brown and green, surrounded by blue oceans and white clouds. The text 'BIOME:' is overlaid on the upper part of the globe in a white, bold, sans-serif font with a black outline.

BIOME:

CHAPARRAL

# Temperate Grassland

- Similar to tropical savanna, but with colder winters
- Because of the dry climate, trees are found only near water sources such as streams
- Usually 50 to 90 cm of rainfall each year
- Summer temperatures up to 38°C, and winter temperatures to -40°C
- Fire & grazing by animals also contribute to predominance of grasses, scattered shrubs and trees



# Temperate Grassland

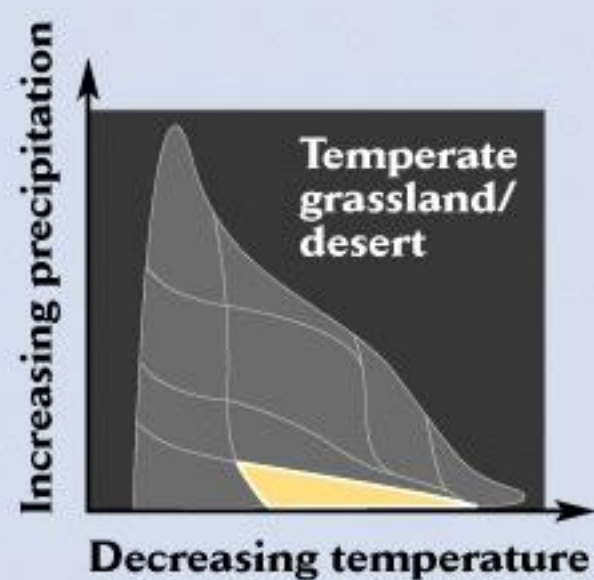
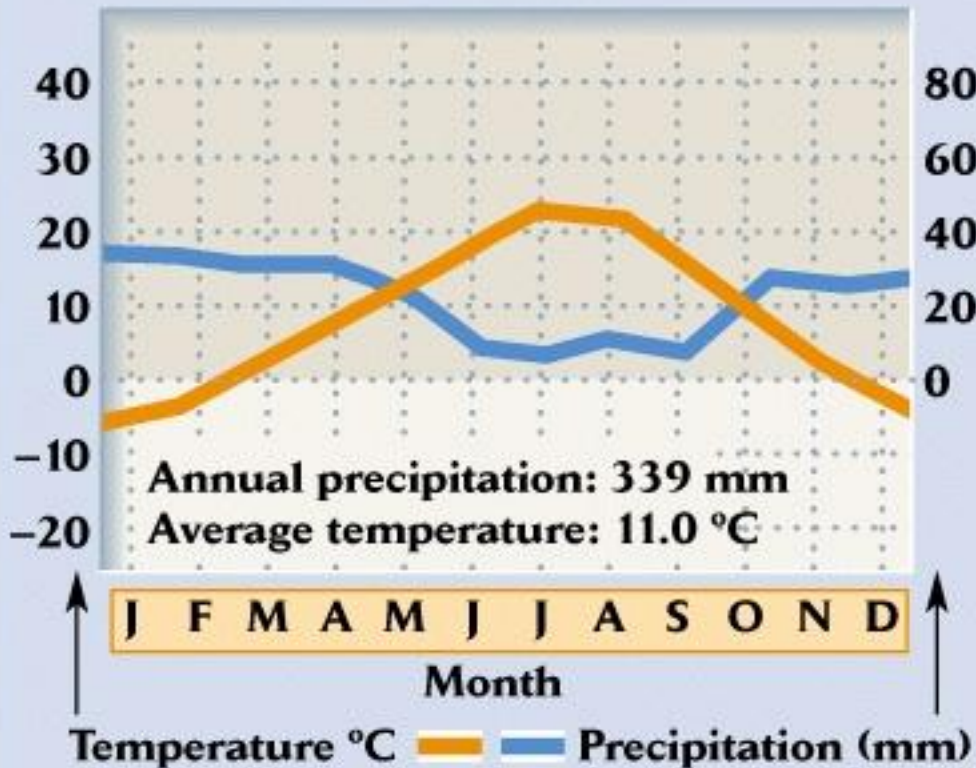


# Temperate Grassland

Salt Lake City, Utah

Climate: Continental (cold deserts) (VII)

Elevation: 1,329 meters






# Temperate Grassland



**(a) Great Basin grassland, western Colorado.**



**(b) Sagebrush, eastern Washington.**



BIOME:

**GRASSLAND**

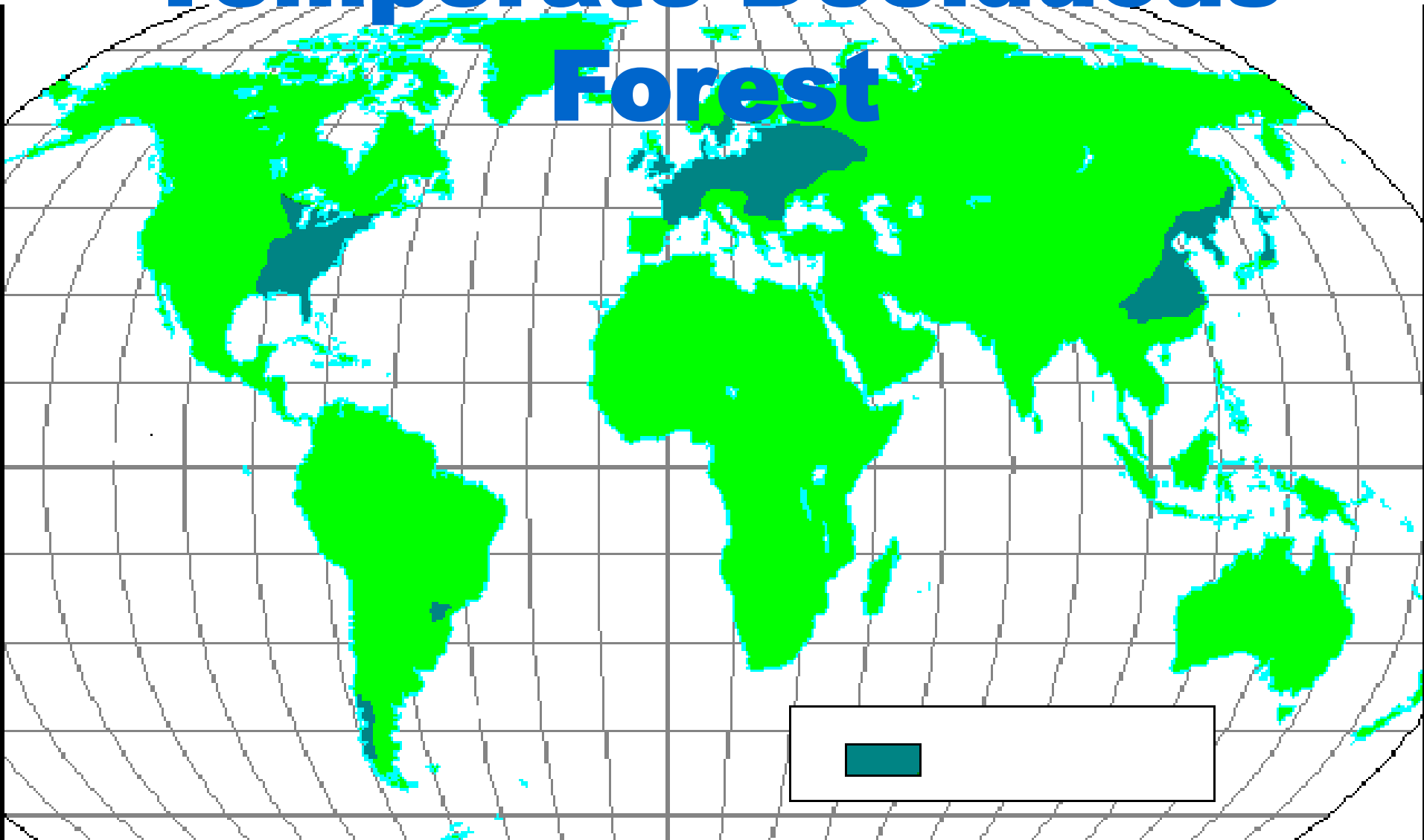


# Temperate Deciduous Forest

- Moderate climate- distinct winter season, frost a defining feature
- Summer season usually moist
- Most trees will lose their leaves in the winter (deciduous) and become dormant
- Temperatures range  $-10^{\circ}\text{C}$  and  $30^{\circ}\text{C}$
- Averages from 75 to 150 cm of precipitation
- Well developed understory



# Temperate Deciduous Forest



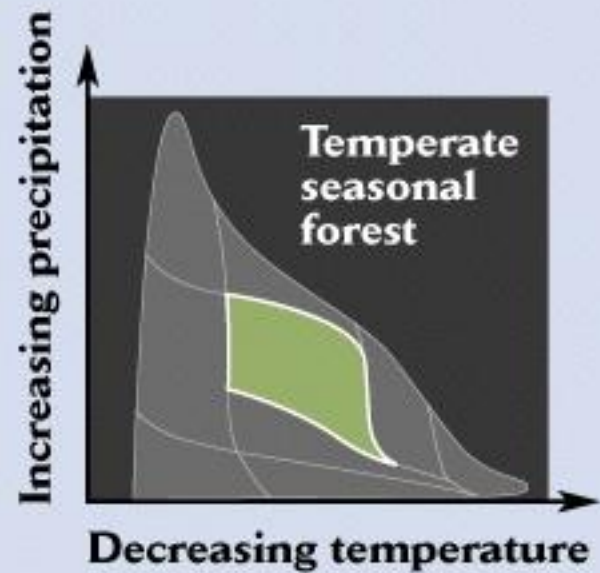
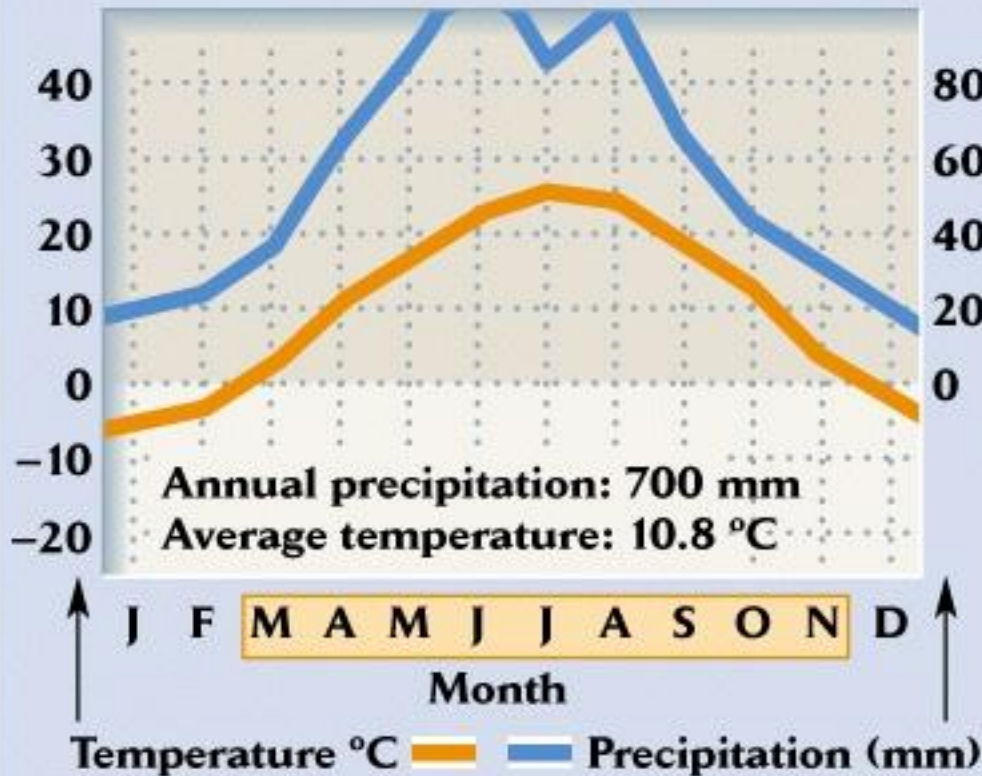


# Temperate Deciduous Forest

Omaha, Nebraska

Climate: Nemoral (VD)

Elevation: 337 meters



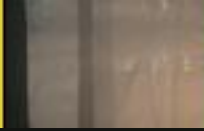
# Temperate Deciduous Forest



**(a) Beech–maple forest in fall, New York.**



**(b) Young deciduous forest in winter, Massachusetts.**



# Temperate Boreal Forest

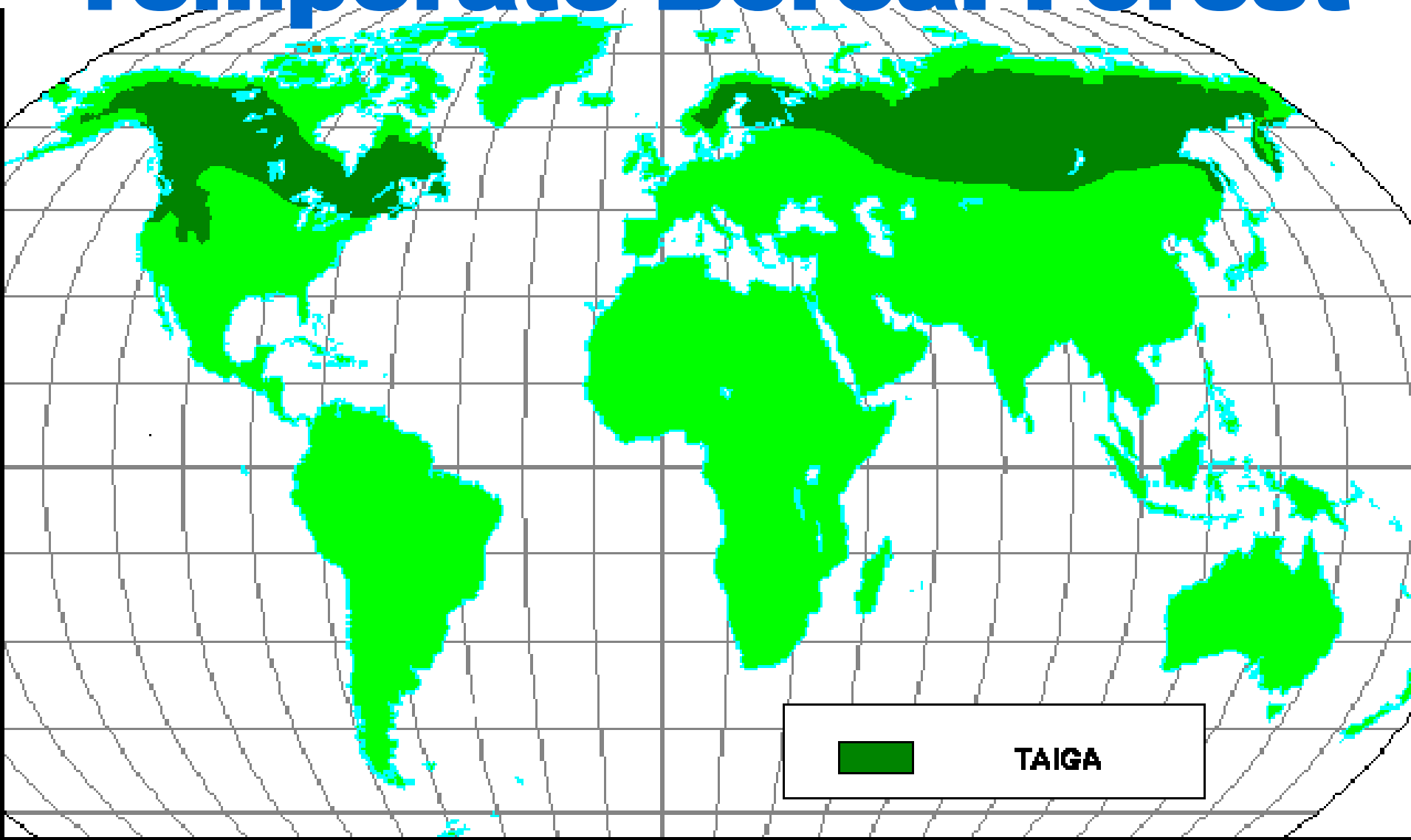
- Also known as “Taiga”
- Typically found between 45° and 60° North latitude
- Cold climate with summer rains
- Very few reptiles
- Limited understory
- Snow is primary form of precipitation (40 – 100 cm annually)
- 10-20 m trees evergreen needle and deciduous







# Temperate Boreal Forest

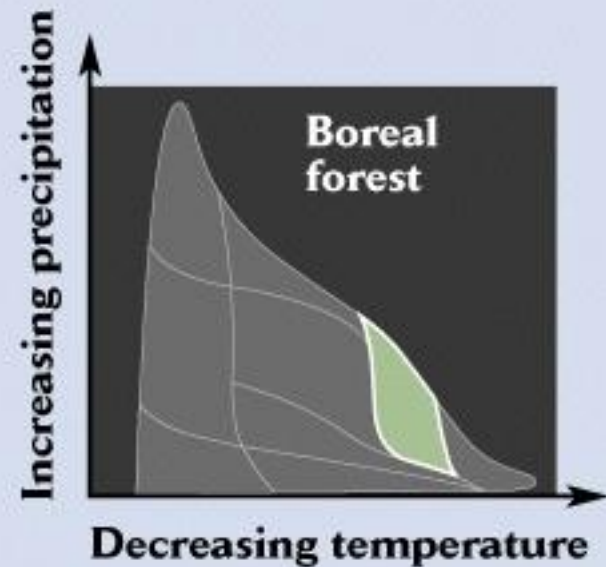
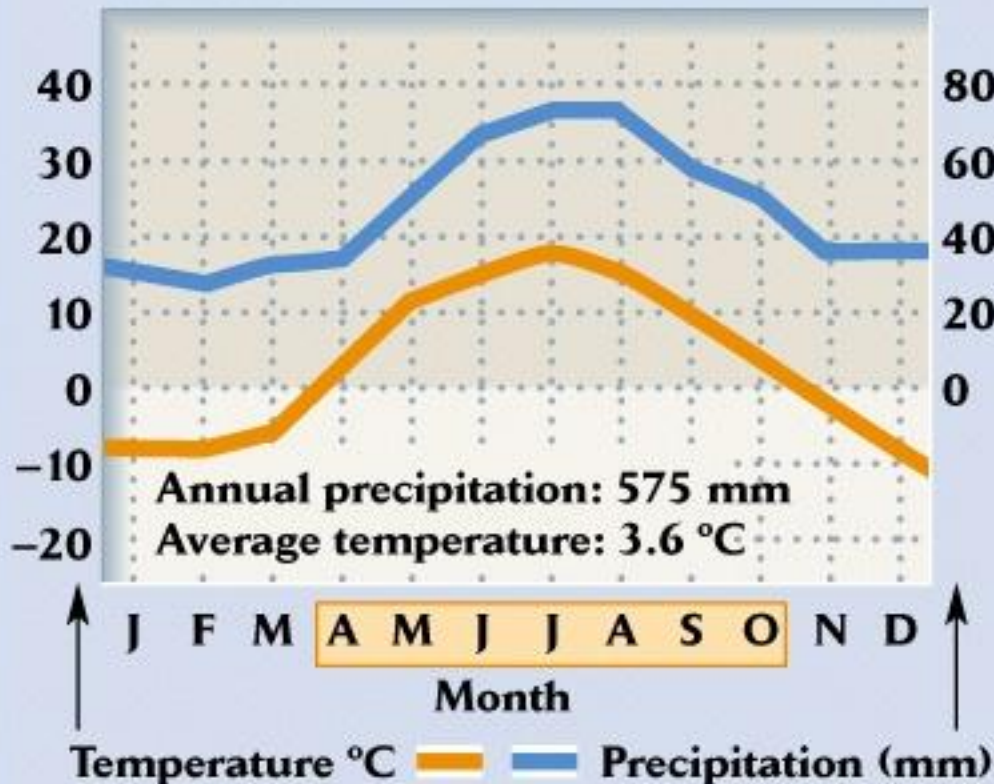


# Temperate Boreal Forest

Stockholm, Sweden

Climate: Boreal (VIII)

Elevation: 156 meters




# Temperate Boreal Forest



**(a) Boreal forest, near Fairbanks, Alaska.**



**(b) Boreal forest with willow scrub in fall, Denali National Park, Alaska.**



BIOME:

TAIGA

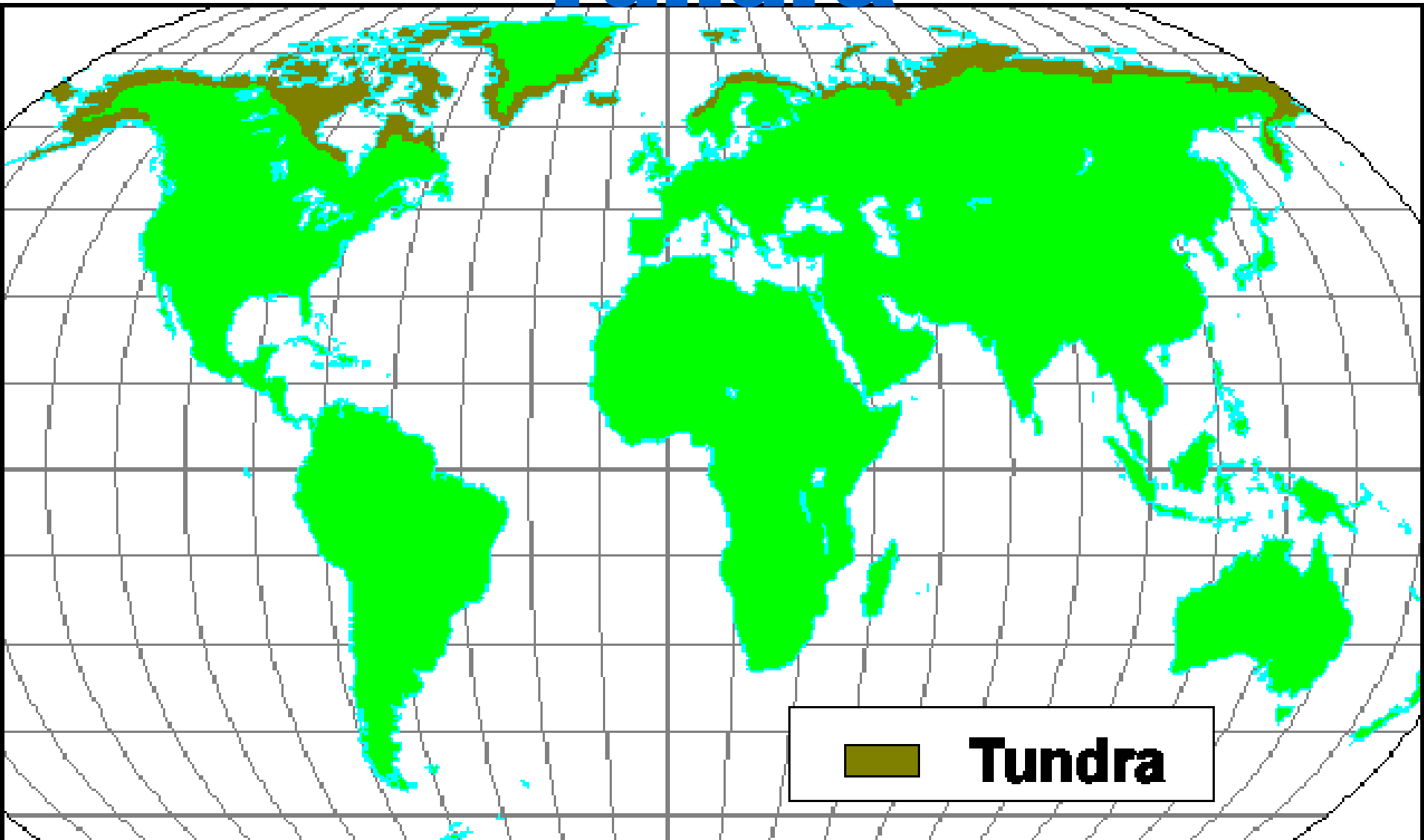


# Tundra

- Means treeless or marshy plain, moss, shrubs
- Permafrost – permanently frozen soil starting as high as a few centimeters below the surface – which severely limits plant growth
- Winter temperatures average – 34°C while summer temperatures usually average below 10°C
- Low precipitation (15–25 cm per year) but ground is usually wet because of low evaporation
- Short growing season



# Tundra

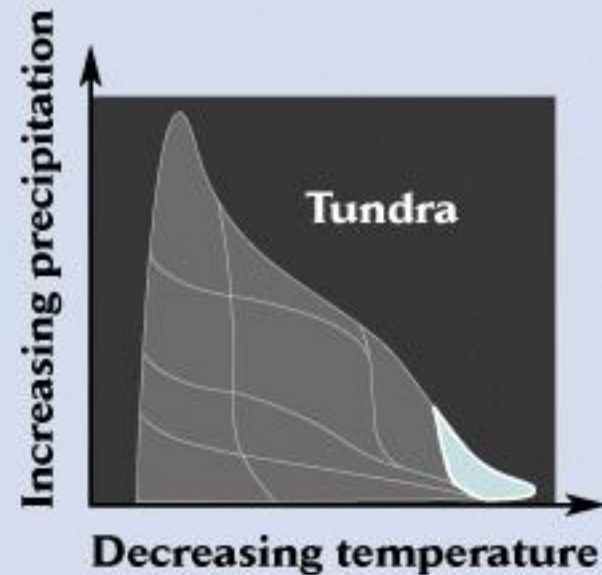
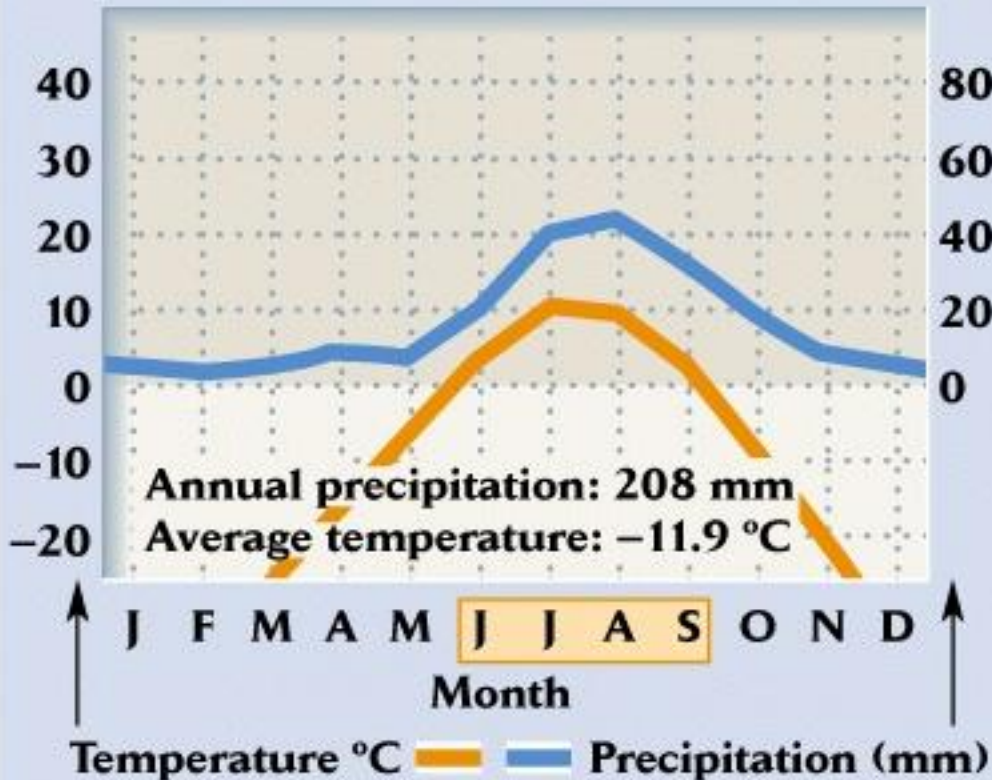


# Tundra

Baker Lake, Canada

Climate: Polar (IX)

Elevation: 4 meters





# Tundra




**(a) Wet tundra near Churchill, Manitoba, Canada.**



**(b) Close-up of tundra vegetation with lichens and dwarf rhododendrons.**



A globe of Earth is centered in the frame, showing the continents of North America, South America, and parts of Europe and Africa. The text 'BIOME:' is overlaid on the globe in a white, bold, sans-serif font with a black outline. The globe is set against a dark background.

**BIOME:**

**TUNDRA**

# Biome Comparison

- Compare and Contrast 2 Biomes

