



# Biomes

## Section 4-3



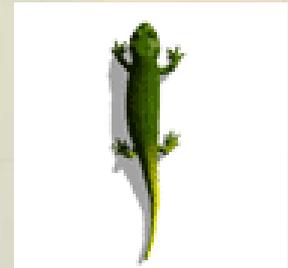
- ❖ A biome is a complex of terrestrial communities that covers a large area and is characterized by certain soil and climate conditions and particular assemblages of plants and animals.
- ❖ Species vary in their adaptations different conditions.

- An adaptation is an inherited characteristic that increases an organism's ability to survive and reproduce
  - spines on a cactus minimize water loss
  - desert rodents have adaptations in their kidneys that help conserve water



- Plants and animals also exhibit variations in tolerance.

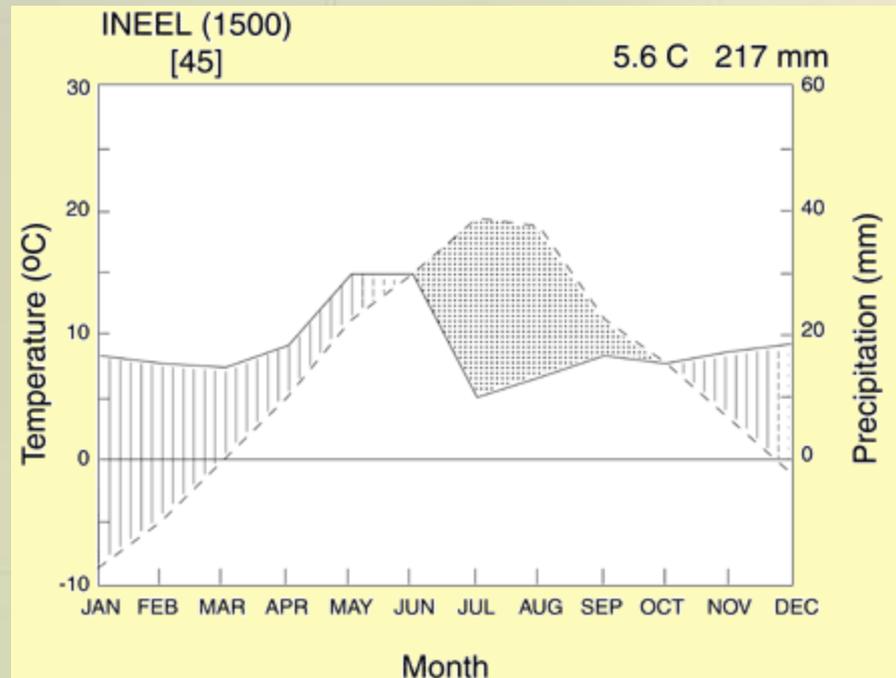
- Tolerance is the ability to survive and reproduce under conditions that differ from their optimal conditions.
  - Plants and animals in the desert can tolerate temperatures that range from blistering hot to below freezing.



# Biomes and Climate

- The climate of a region is an important factor in determining which organisms can survive there.
- A microclimate is the climate in a small area that differs from the climate around it.
  - Certain streets in San Francisco are often blanketed in a fog while the sun shines brightly just a few blocks away.

- Two main components of climate – temperature and precipitation – can be summarized in a graph called a climate diagram.



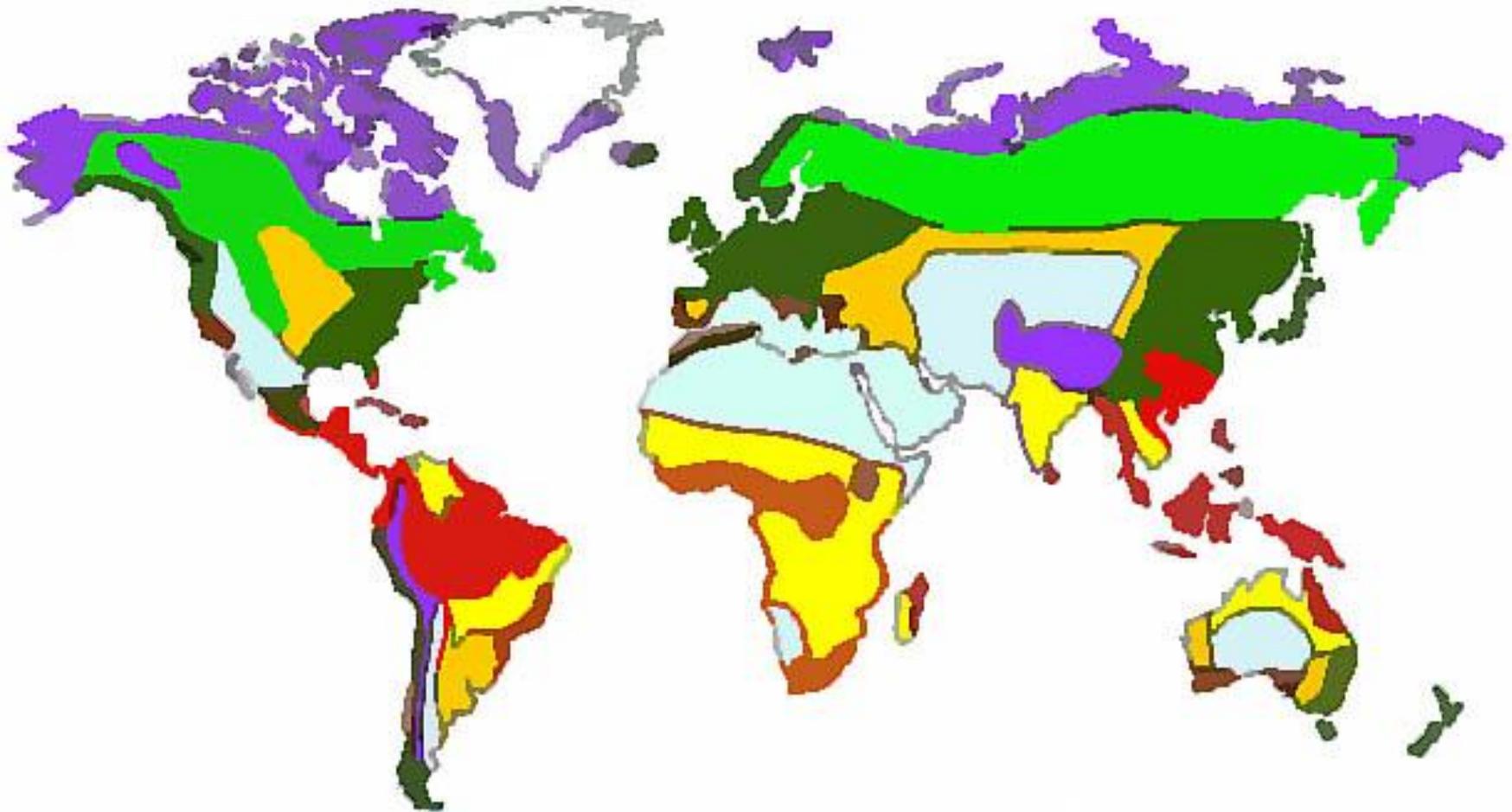
# The Major Biomes

- Ecologists recognize at least 10 different biomes.
  - Tropical rain forest
  - Tropical dry forest
  - Tropical savanna
  - Desert
  - Temperate grassland
  - Temperate woodland and shrubland
  - Temperate forest
  - Northwestern coniferous forest
  - Boreal forest
  - Tundra
- Each of the biomes is defined by a unique set of abiotic factors - particularly climate - and a characteristic assemblage of plants and animals.

- There is often ecological variation within a biome.
  - Changes in microclimate caused by differences in exposure or elevation above sea level.
  - Local soil conditions or the presence of rock outcroppings.
- Boundaries between biomes on a map appear to be sharp, there are often transitional areas in which one biome's plants and animals become more common.
- The characteristics and locations of biomes relate to the patterns of global winds and ocean currents.

# World Biomes

- Rain forest
- Temperate Deciduous Forest
- Boreal, or Taiga Forest
- Chaparral
- Grassland
- Savanna
- Desert
- Tundra



# Other Land Areas

## Mountain Ranges

- Mountain ranges can be found on all continents.
- Abiotic and biotic conditions vary with elevation.
- Plants and animals change as you move up the mountain.
  - Grasslands on the bottom, open woodland pines, forest of spruce and conifers, wildflowers and stunted vegetation resembling the tundra, ice fields occur at the peaks



## Polar Ice Caps

- Icy polar regions border the tundra are cold year round.
- Mosses and lichens are the limited vegetation there.
- In the north polar region, polar bears, seals, insects and mites are the dominant animals.



- In the south polar region, the dominant wildlife includes penguins and marine animals.