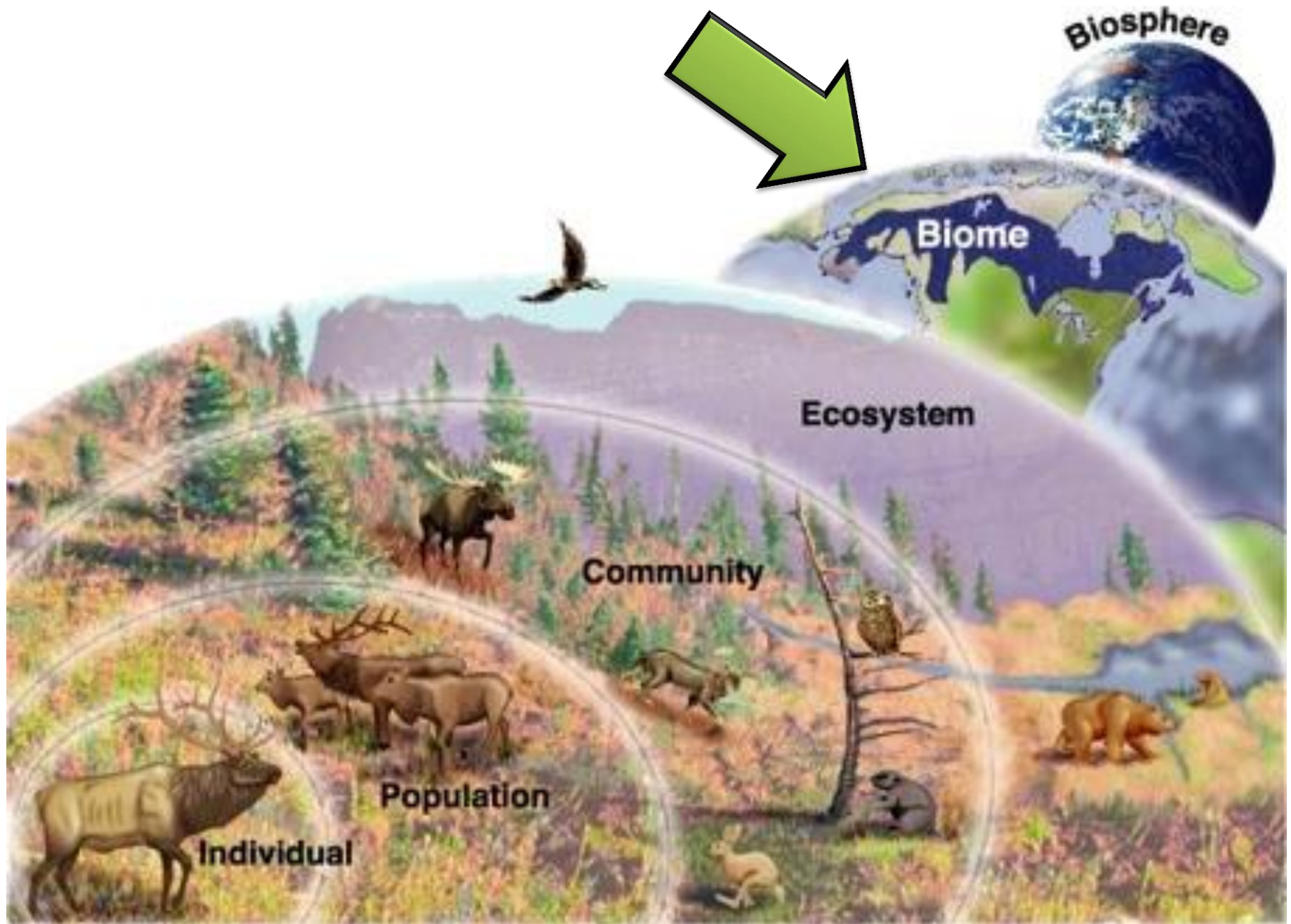


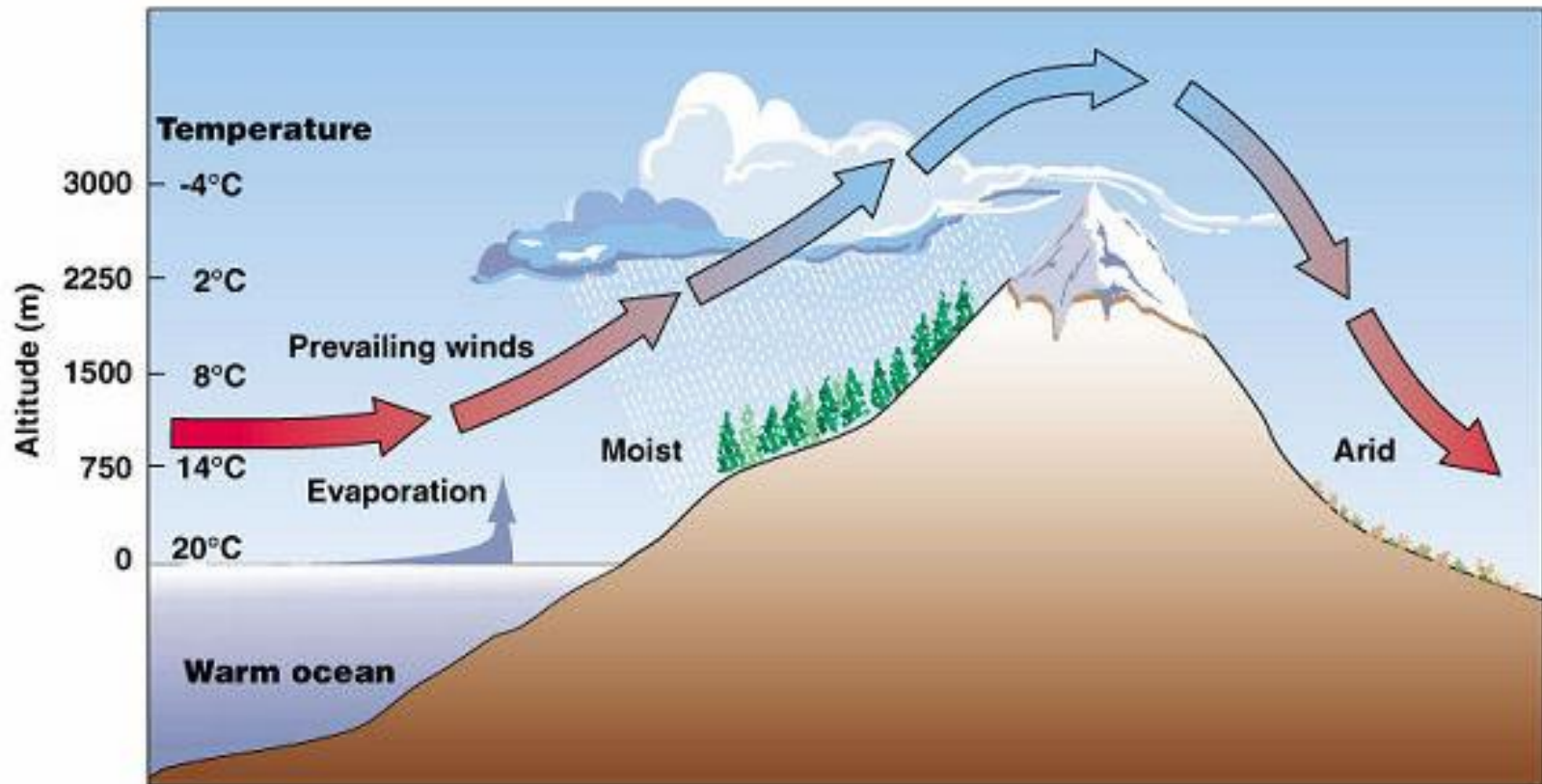
BIOMES

Chapter 4.4

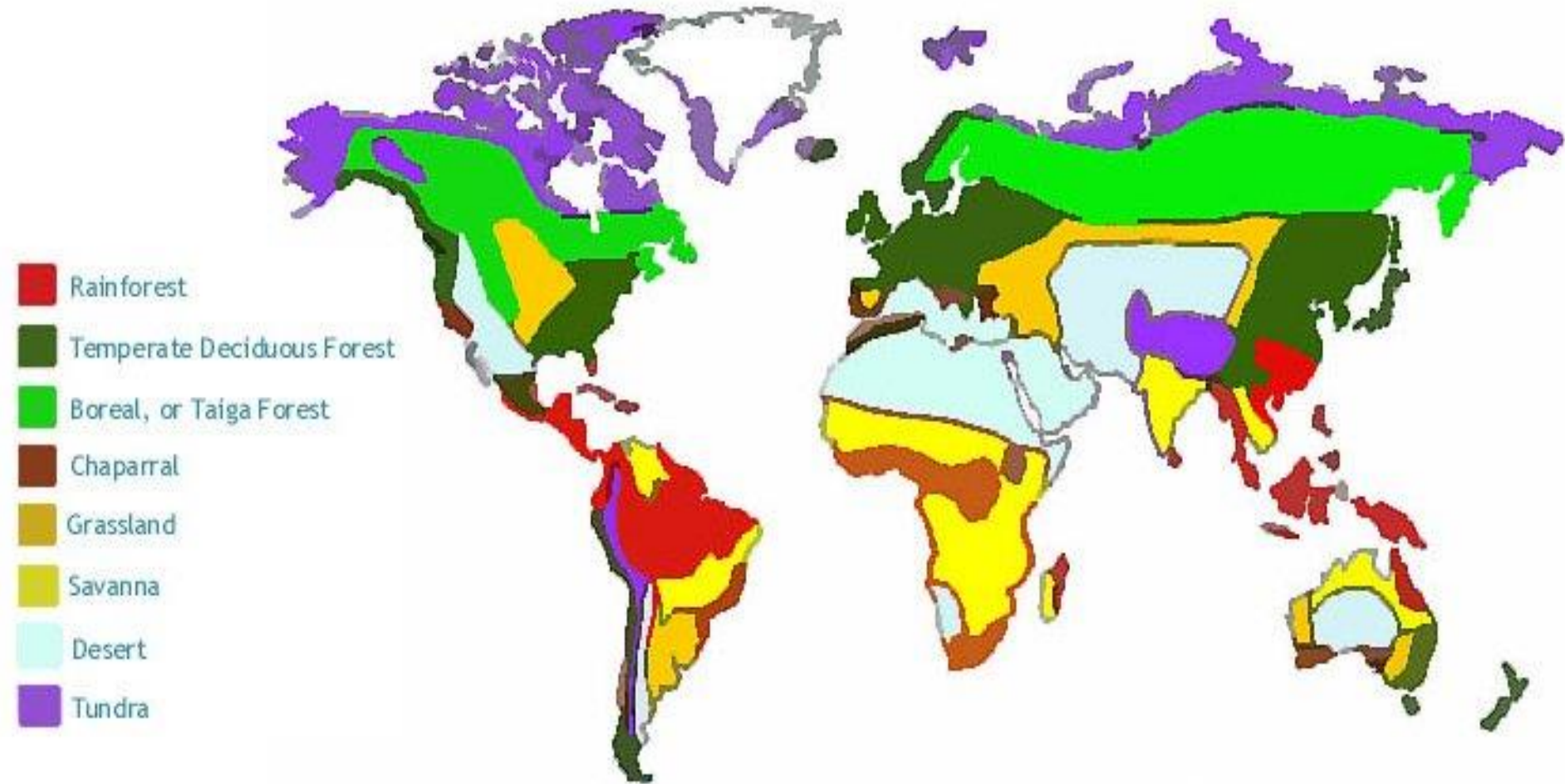


What is a biome?

- Biomes are described in terms of **abiotic** factors and **biotic** factors.
 - Each biome is associated with seasonal patterns of temperature and precipitation.

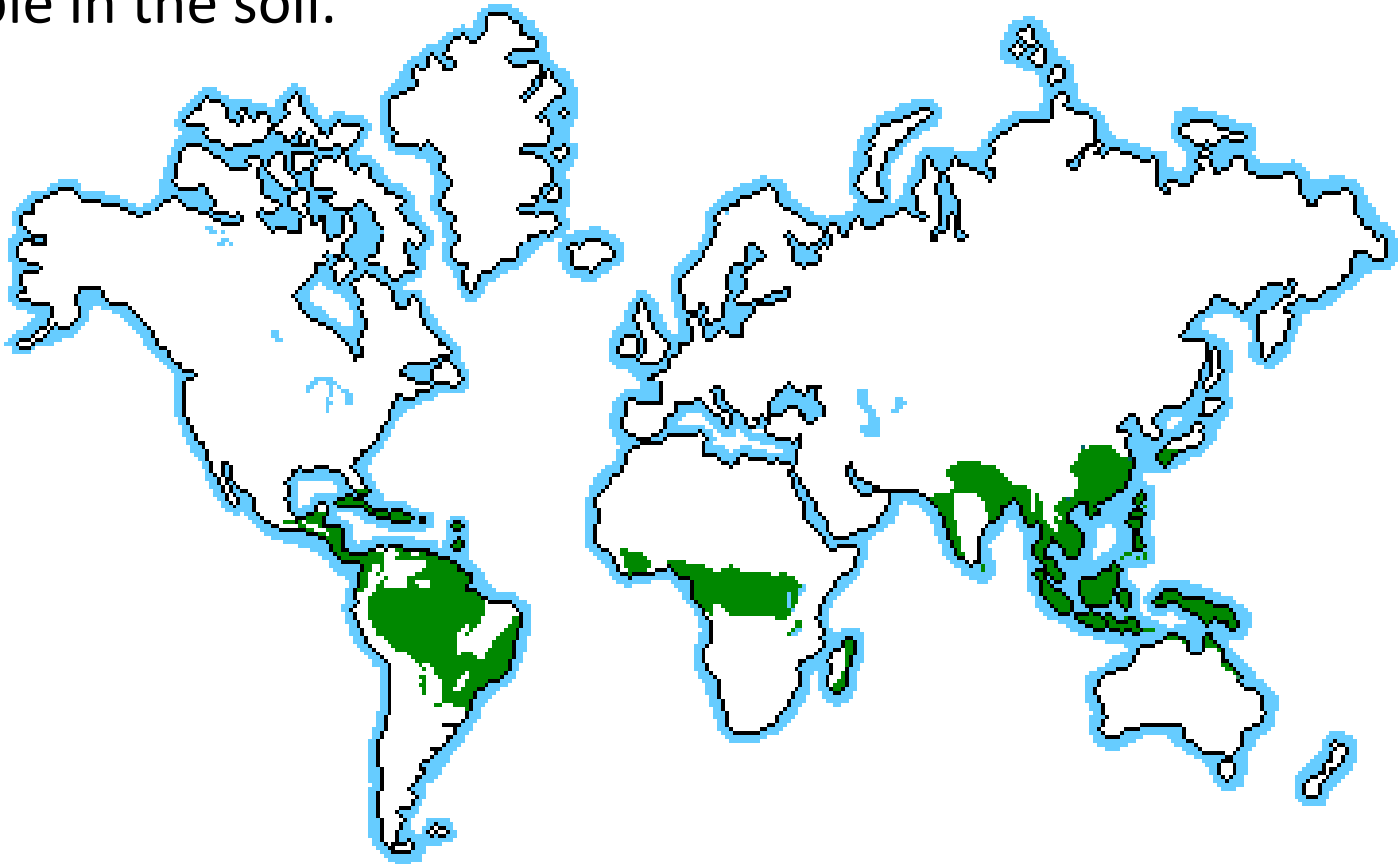


Major Biomes:



Tropical Rain Forest

- Average Temperature: 20°C - 34°C.
- Almost 2 meters of rain falls a year!
- Due to quick turnover of organic matter nutrients are not readily available in the soil.



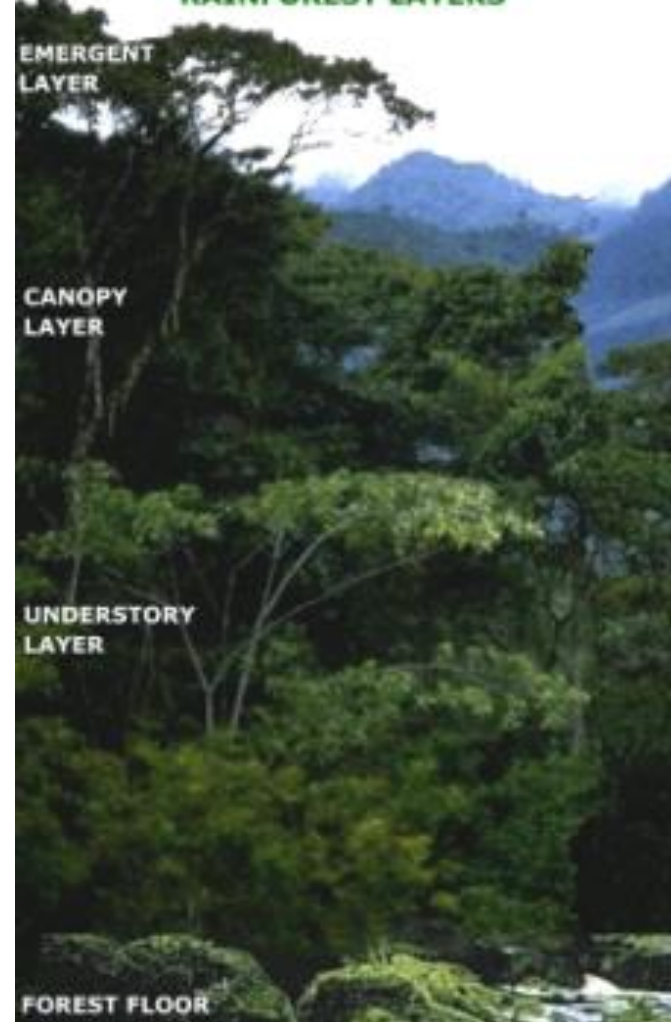
Tropical Rain Forest

Plant Life:

- High level of competition for sunlight and nutrients.
 - Canopy vs understory
 - High turnover of organic matter.

Examples:

- Vines
- Epiphytic plants
 - Orchids, bromeliads, tropical ferns



Tropical Rain Forest



Animal Life:

- Active year round
- Adaptations for climbing, jumping, and/or flight.
- Many species have some sort of camouflage to hide from predators

Examples:

- Parrots, monkeys, chimpanzees, gorillas, large insects, spiders, anaconda, emerald tree boa, jaguars, giant anteaters.



Tropical Savanna

- Average Temperature: 16°C - 34°C.
- Also called tropical grassland, shrubland, or savanna
- Seasonal rain fall (monsoon season = 6 months).
- Soil is compact, dry, porous, and low in nutrients.



Tropical Savanna

Plant Life:

- Adaptations: waxy leaf coverings, seasonal leaf loss, high silica content.
- Grasses grow from the bottom (not their tips)

Examples:

- Tall grasses
- Acacia Trees



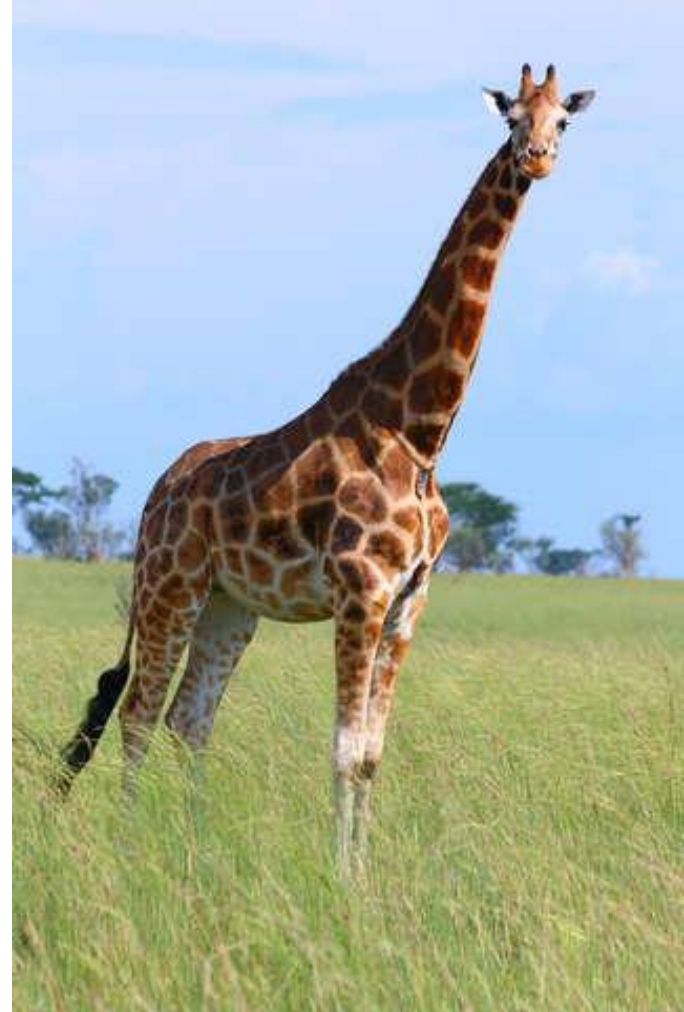
Tropical Savanna

Animal Life:

- Migratory animals
- Smaller animals burrow during dry season.

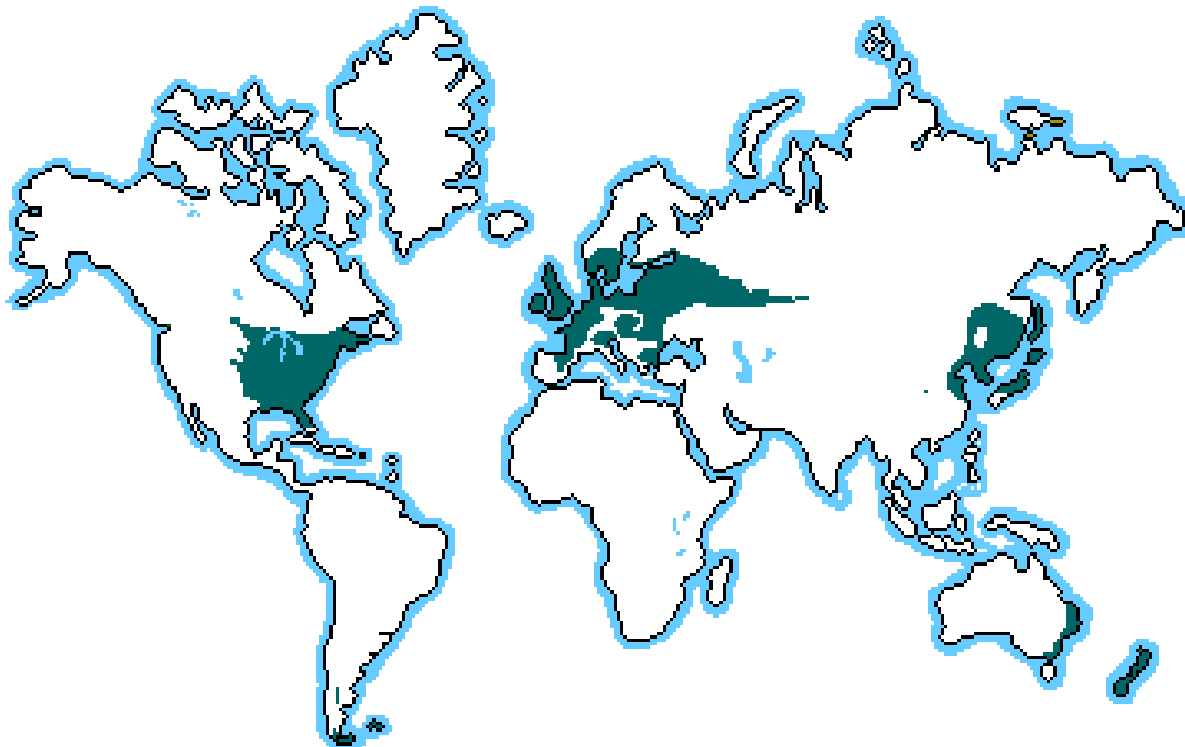
Examples:

- Giraffe, elephant, zebra, wildebeest, lions, hyenas, vultures, meerkats.



Temperate Forest

- Average Temperature: $^{\circ}6\text{C}$ - 28°C .
- Fertile soil, rich in humus (material formed from decaying leaves and organic matter).
- Four seasons
- Adequate rainfall to support tree growth (75-125 cm a year)



Temperate Forest

Plant Life:

- Mostly made up of deciduous and evergreen coniferous trees.

Deciduous = “falling off at maturity”

coniferous = seed bearing cones

Examples:

- Oaks, pecan, maples, hickories, willows.



Temperate Forest

Animal Life:

- Animals must cope with changing weather.
 - Hibernation
 - Migrate
 - Camouflaged fro the winter

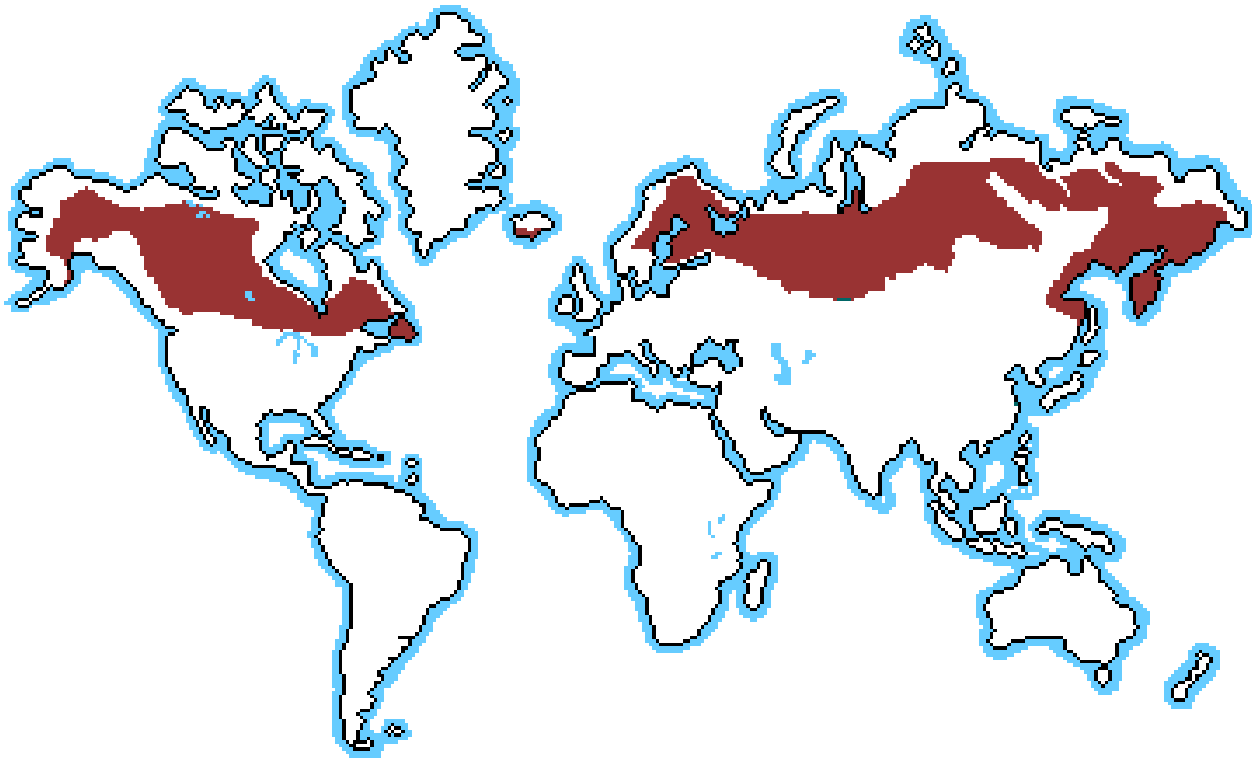
Examples:

- Squirrels, rabbits, white-tailed deer, songbirds, wild hogs, fox raccoon, coyotes, bears.



Taiga (Boreal Forest)

- Average Temperature: -10°C - 14°C .
- Boreal = “north”
- Soil is low in nutrient and acidic
- Winters are bitterly cold, summers are mild.
- Moderate precipitation (35cm-75cm)



Tagia (Boreal Forest)

Plant Life:

- Conifers are well suited for this environment.
 - Conical shape sheds snow, wax-covered needles, dark green color absorbs heat energy.

Examples:

- Pines, cedars, spruce, fir tree



Tagia (Boreal Forest)

Animal Life:

- Staying warm is a major challenge
 - Small extremities, fat layers, downy feathers, migration.

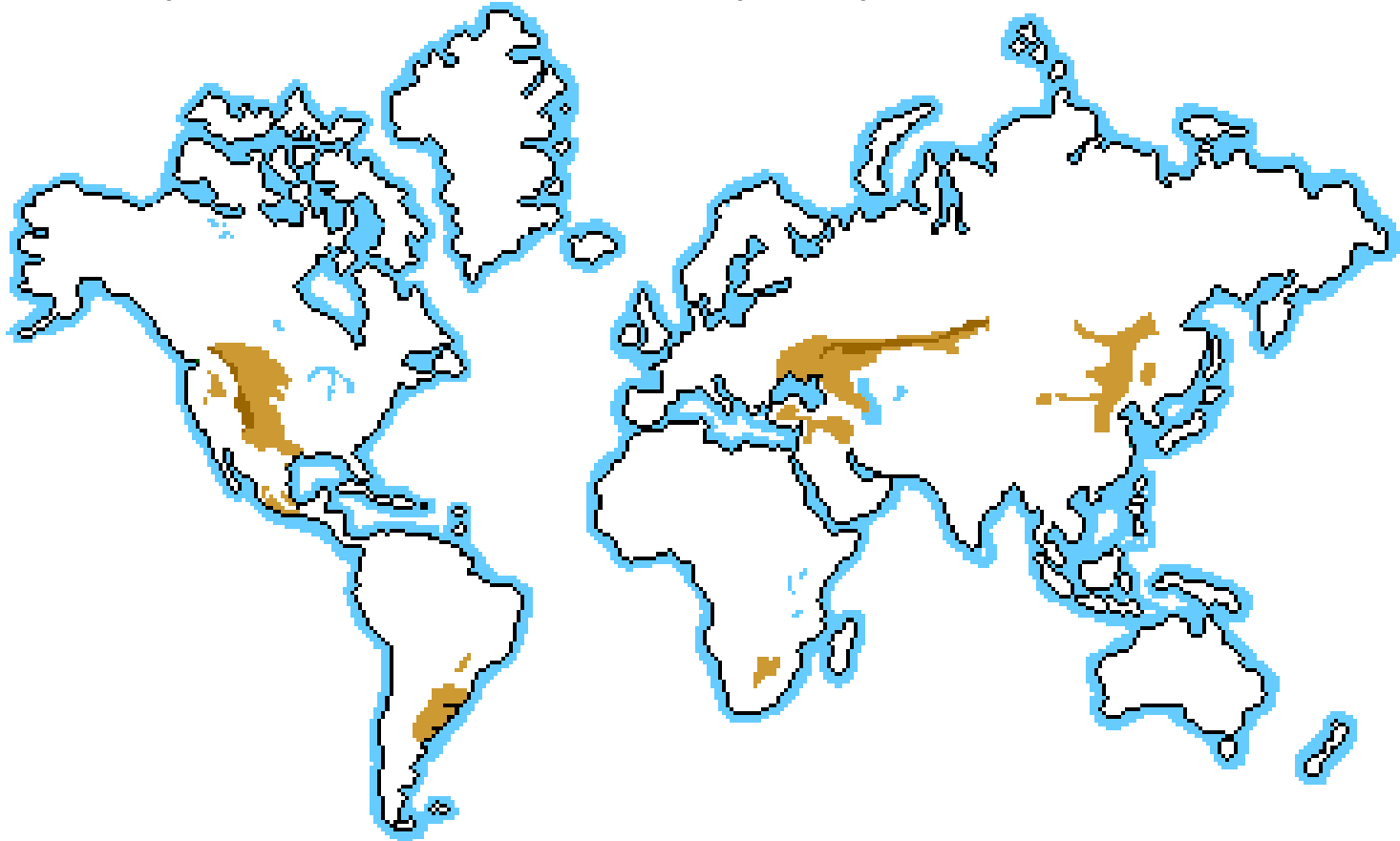
Examples:

- Moose, hares, geese, migratory waterfowl, bears, wolves, lynx



Temperate Grassland

- Average Temperature: 0°C - 25°C.
- Nutrient rich top soil (good for farming)
- Warm to hot summers and cool to cold winters
- Wet and dry seasons (25cm-75cm precipitation)



Temperate Grassland

Plant Life:

- Grassland plants (grow from the bottom) are resistant to grazing and fire.
- Wind dispersal of seeds.

Examples:

- Lush perennial grasses, few scattered trees.



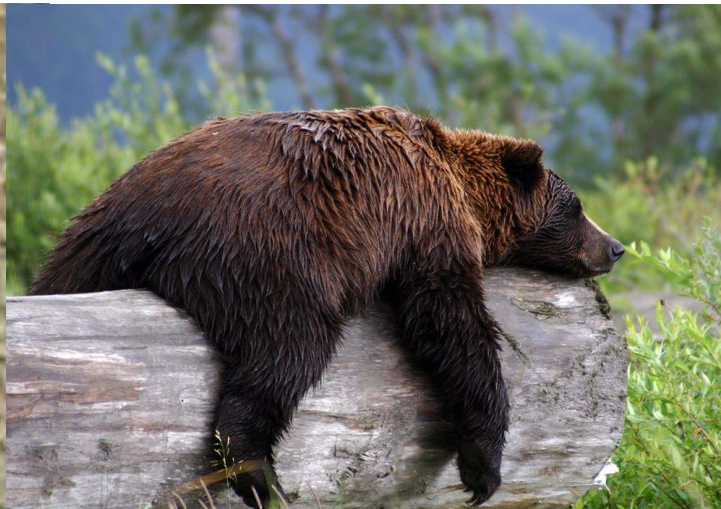
Temperate Grassland

Animal Life:

- Predation is a constant threat

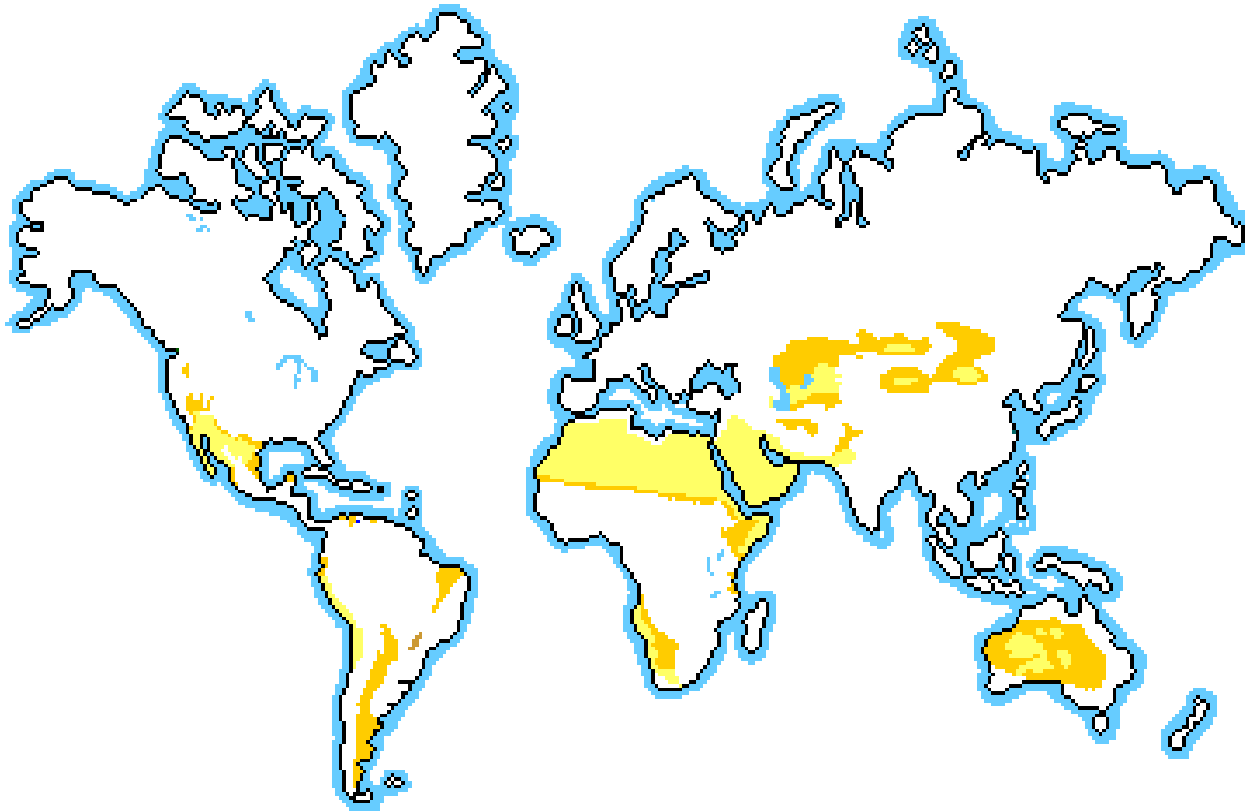
Examples:

- Deer, prairie dogs, buffalo, wolves, coyotes, badgers, grizzly bears, armadillo.



Desert

- Average Temperature: 7°C – 38°C.
- Very dry all year long (less than 25 cm precipitation)
- Hot during the day, cold at night.
- Dry, sandy soil, low in nutrients



Desert

Plant Life:

- Many plants store water in their tissues
- Small leaf surface area
- Special form of photosynthesis that enables them to open their leaf pores only at night.



Examples:

- Cacti, succulents, creosote bushes



Desert

Animal Life:

- Many get the water they need from their food.
- Many are nocturnal
- Large elongated ears and extremities help to regulate body temperature.

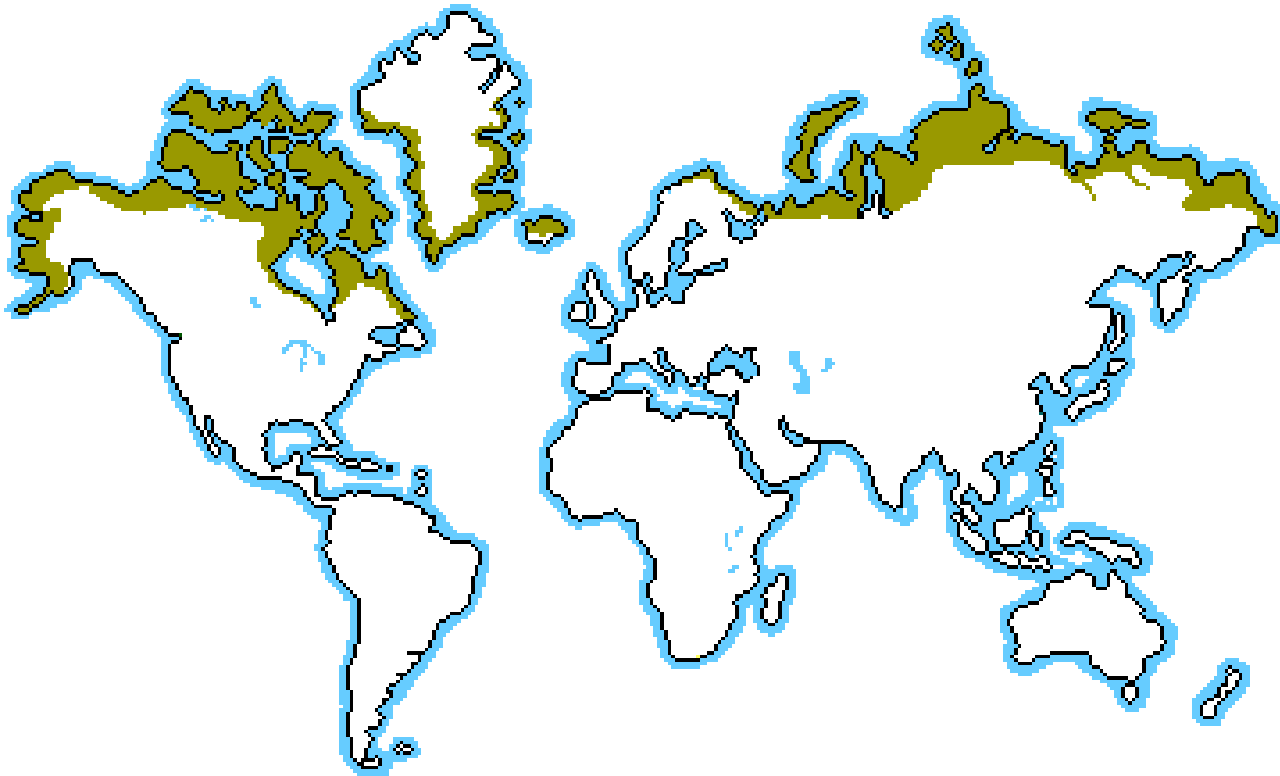
Examples:

- Lizards, tortoises, mule, deer, camels, roadrunners, peccary, rattlesnakes, kit fox.



Tundra

- Average Temperature: -26°C – 12°C .
- Dry all year (less than 25cm precipitation)
- Strong, cold winds, short soggy summers
- Permafrost
- Nutrient poor soil



Tundra

Plant Life:

- By hugging the ground plants can avoid strong winds.
- Plants are adapted for poor soil
 - Nitrogen-fixing bacteria attached to roots

Examples:

- Grasses, sedges, moss, lichens



Tundra

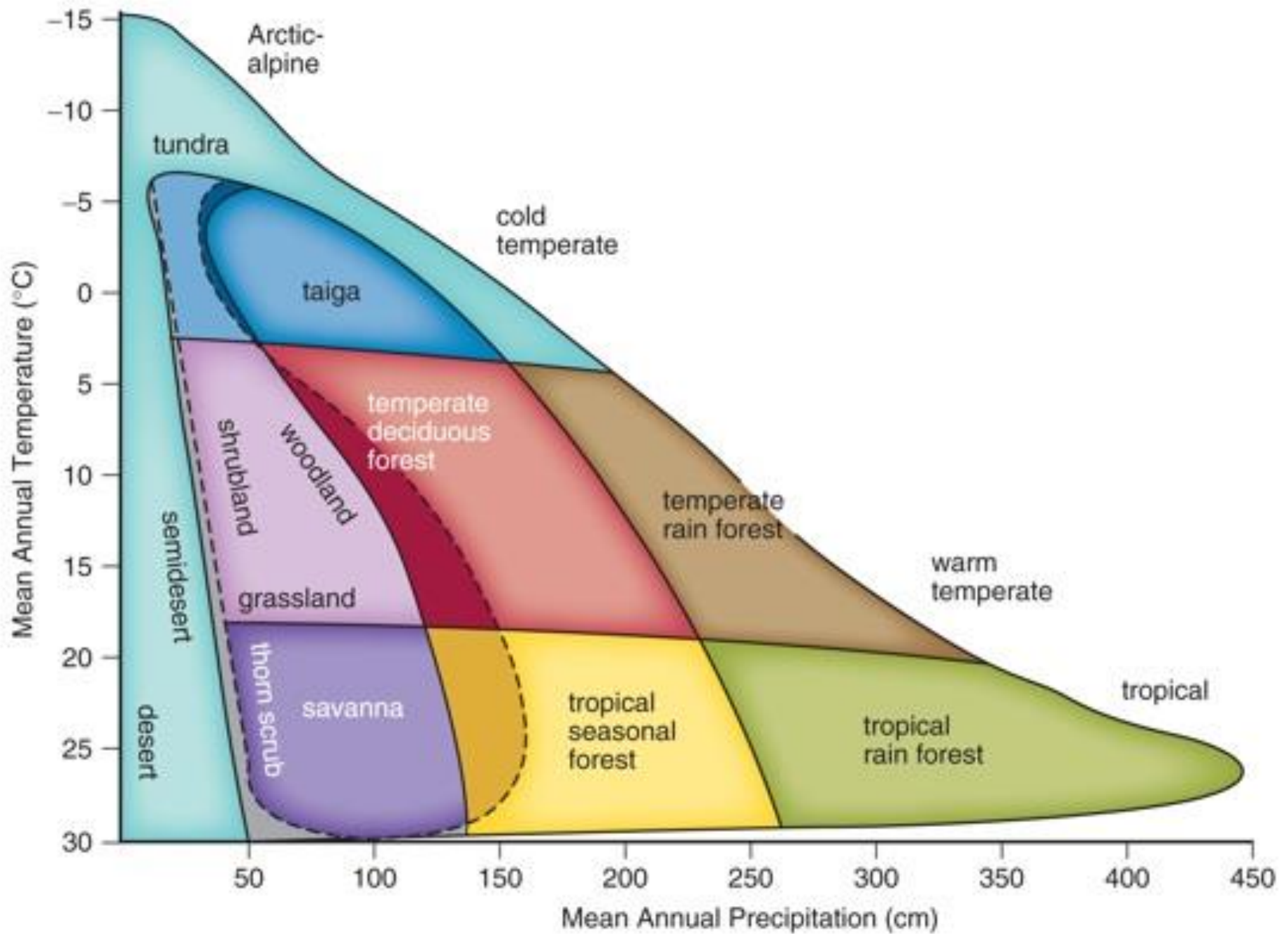
Animal Life:

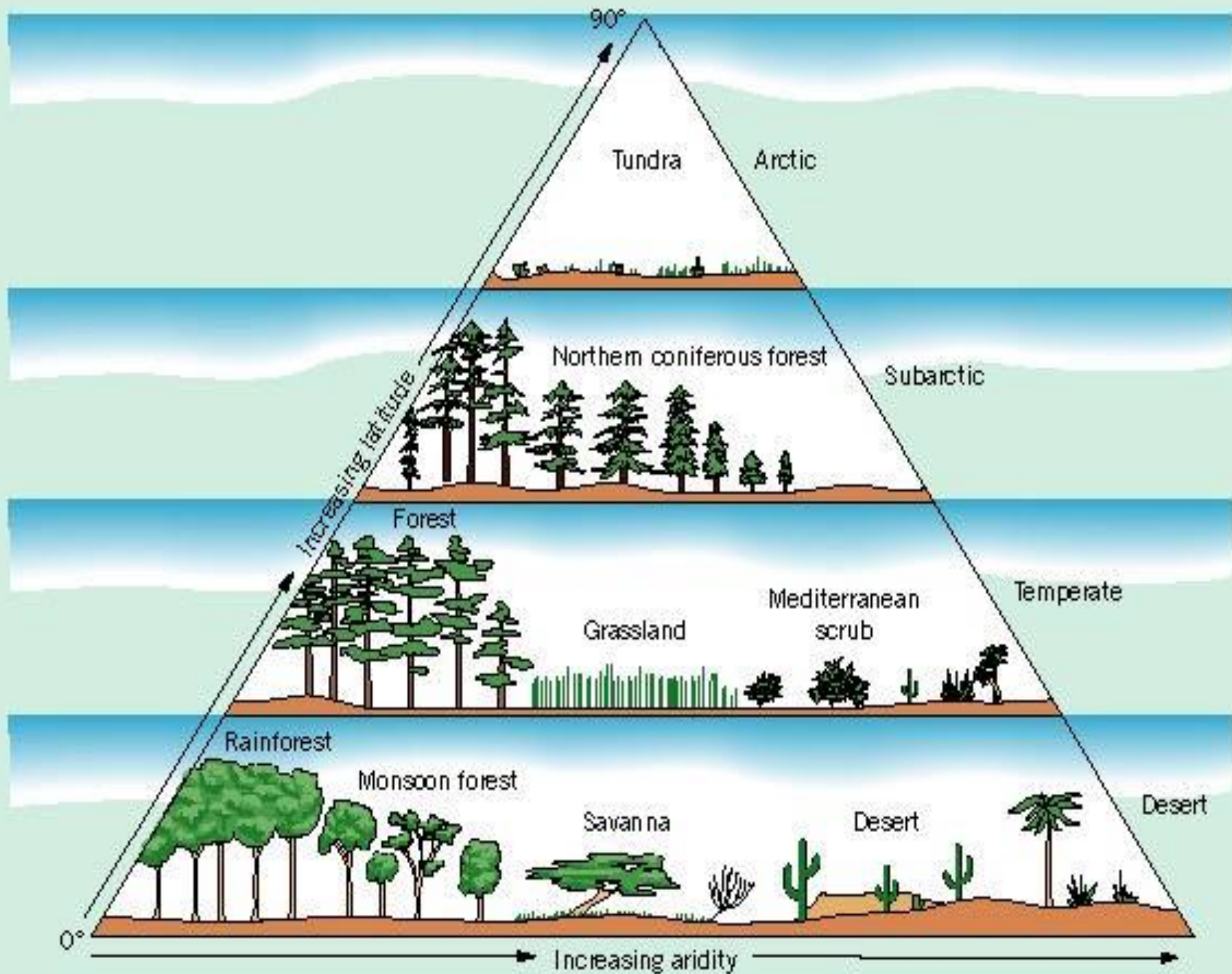
- Migration
- Adaptations for year round animals
 - Natural antifreeze, small extremities, varied diet

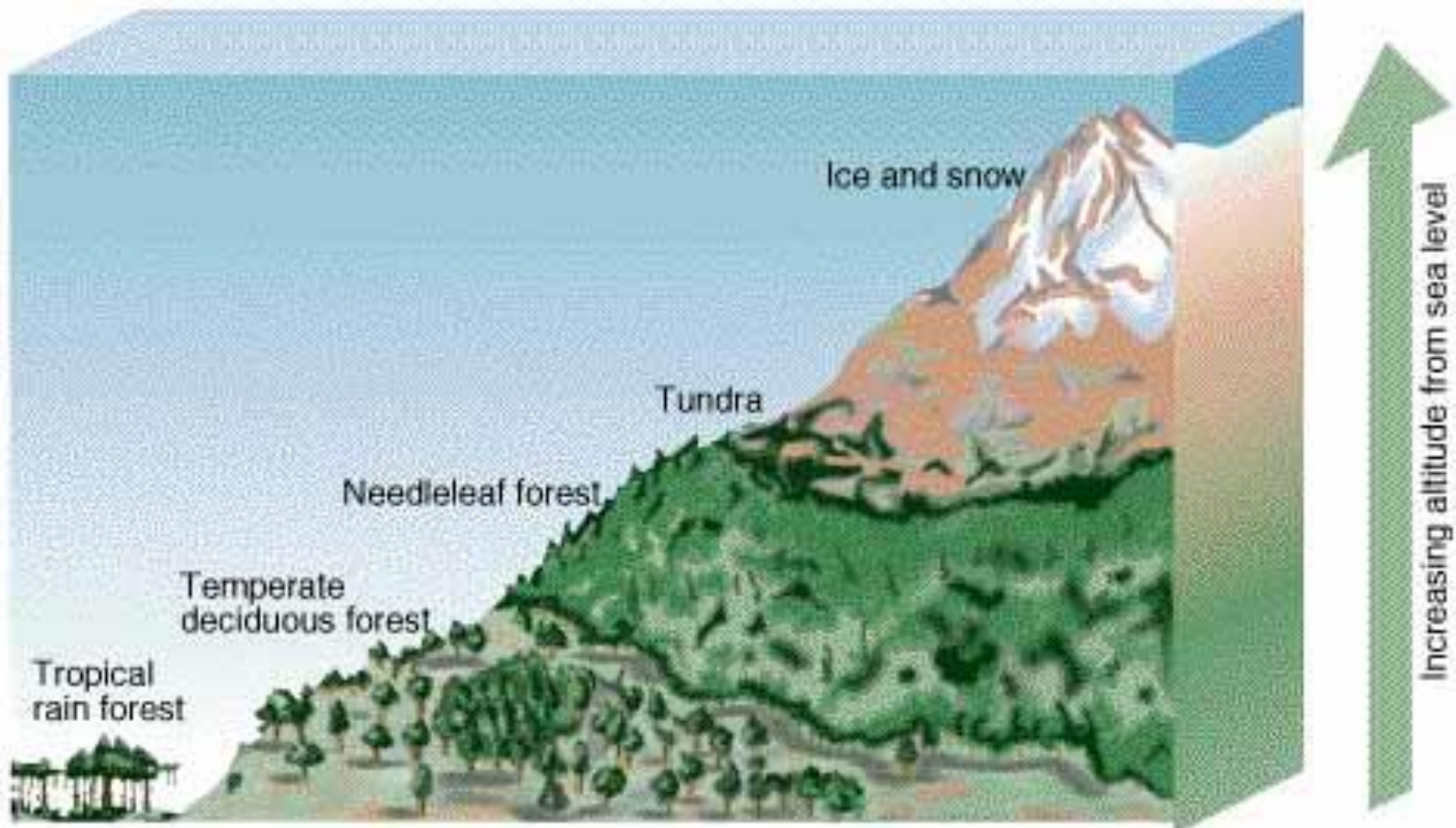
Examples:

- Lemmings, caribou, musk oxen, snowy owls, arctic foxes, migratory birds.









Tropical rain forest



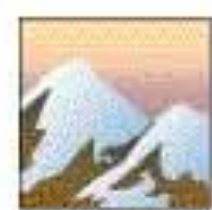
Temperate deciduous forest



Needleleaf forest



Tundra



Ice and snow

