

EKOLOGI

TEMA 10

BIOMA (BIOME)



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What is difference of this picture ??????

Why are they different ??????

Have you ever gone there ??????

Main goal Biome

- To Describe terrestrial ecosystem.
- To identify type of Biome.

Biome

**a major regional terrestrial
community with its own type of
climate, vegetation, and animal life**

Biome

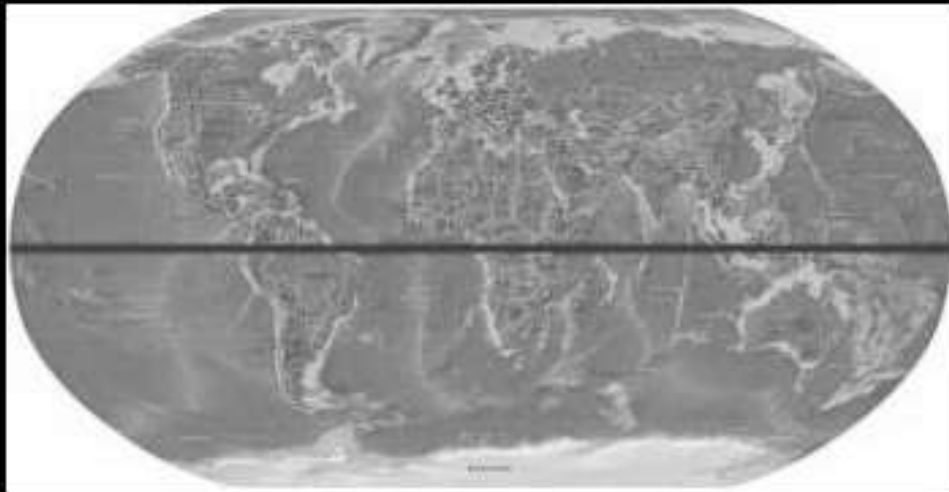
a large geographical area with distinctive plant and animal groups.

– Climate and geography determine what type of biome will exist in a particular location.

- **Climate:** the average weather conditions in an area over a period of years. Climate includes temperature, rainfall, and wind velocity.
- **Geography:** the features on the earth's surface; ex: mountains, rivers, and valleys.

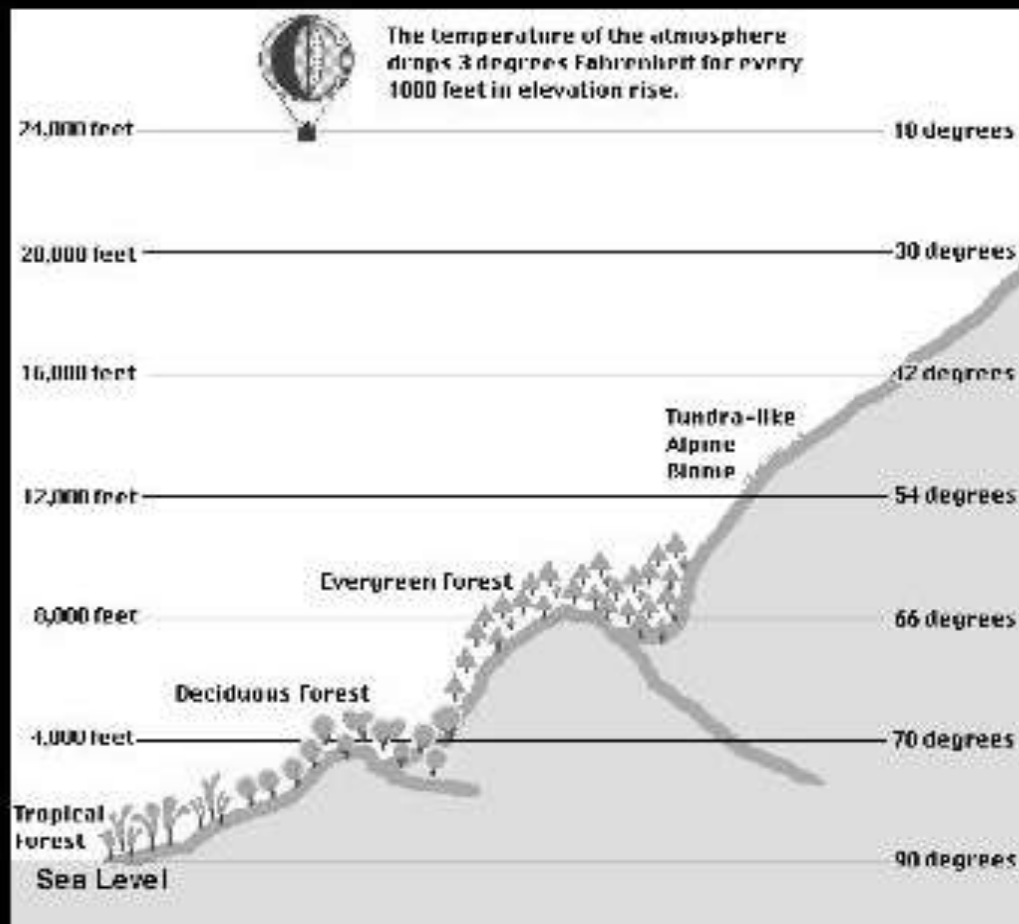
What factors affect the type of biome that will exist in a region?

1. **Latitude:** the location of a place on earth, north or south of the equator.

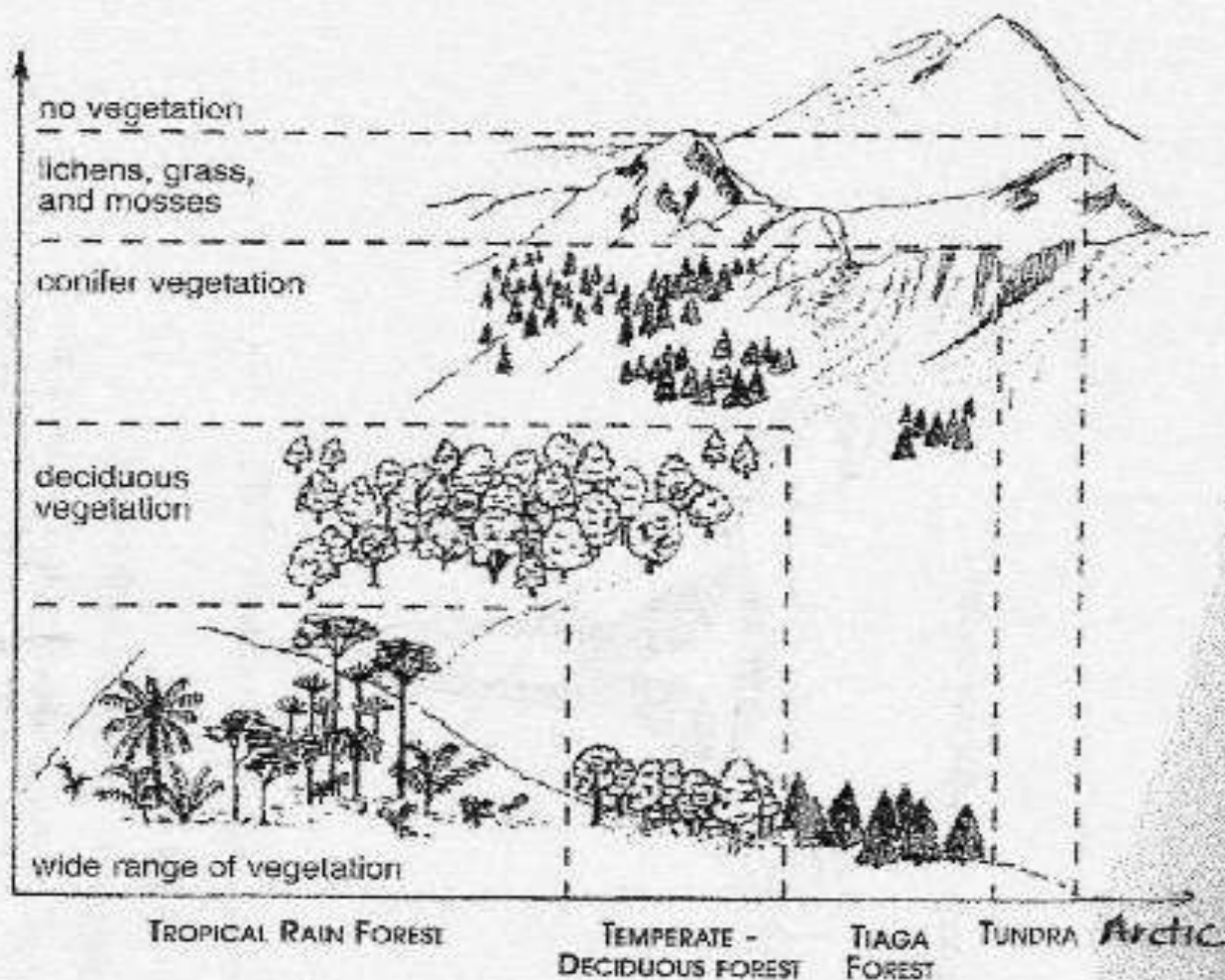


What factors affect the type of biome that will exist in a region?

2. Altitude: the elevation of a point above sea level.



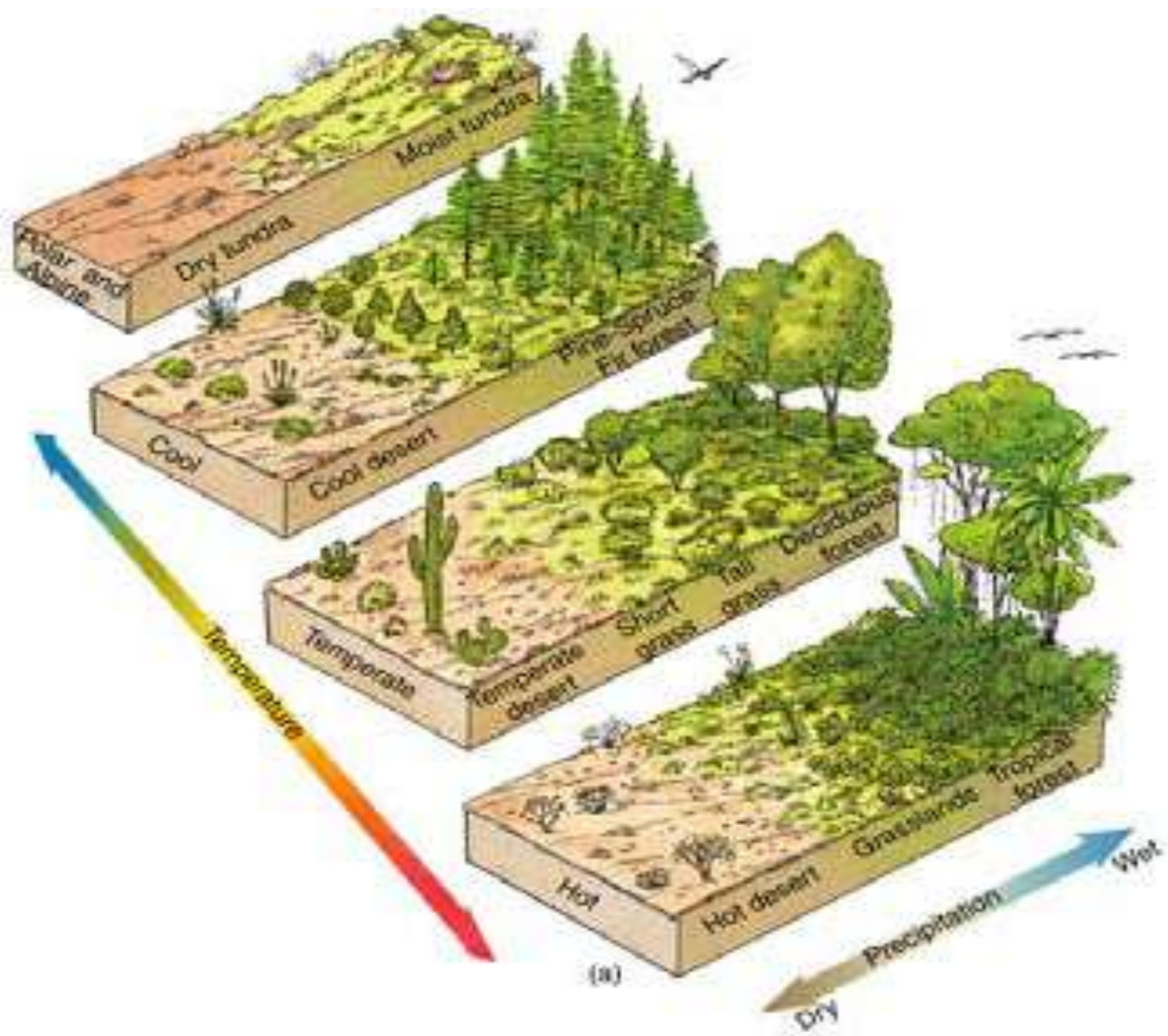
In general, the amount of rain and average temperature decrease as the altitude and distance from the equator increase.

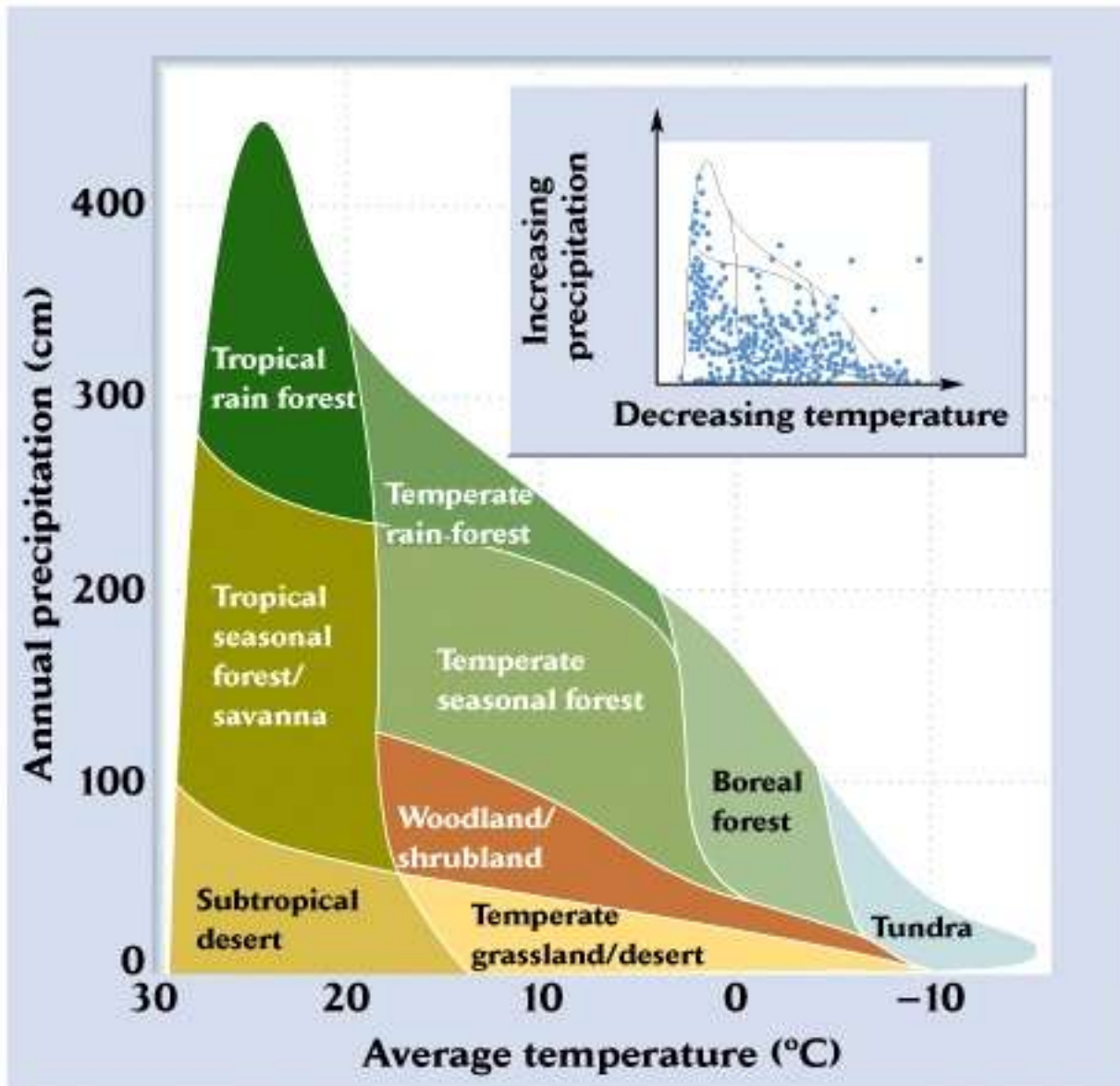


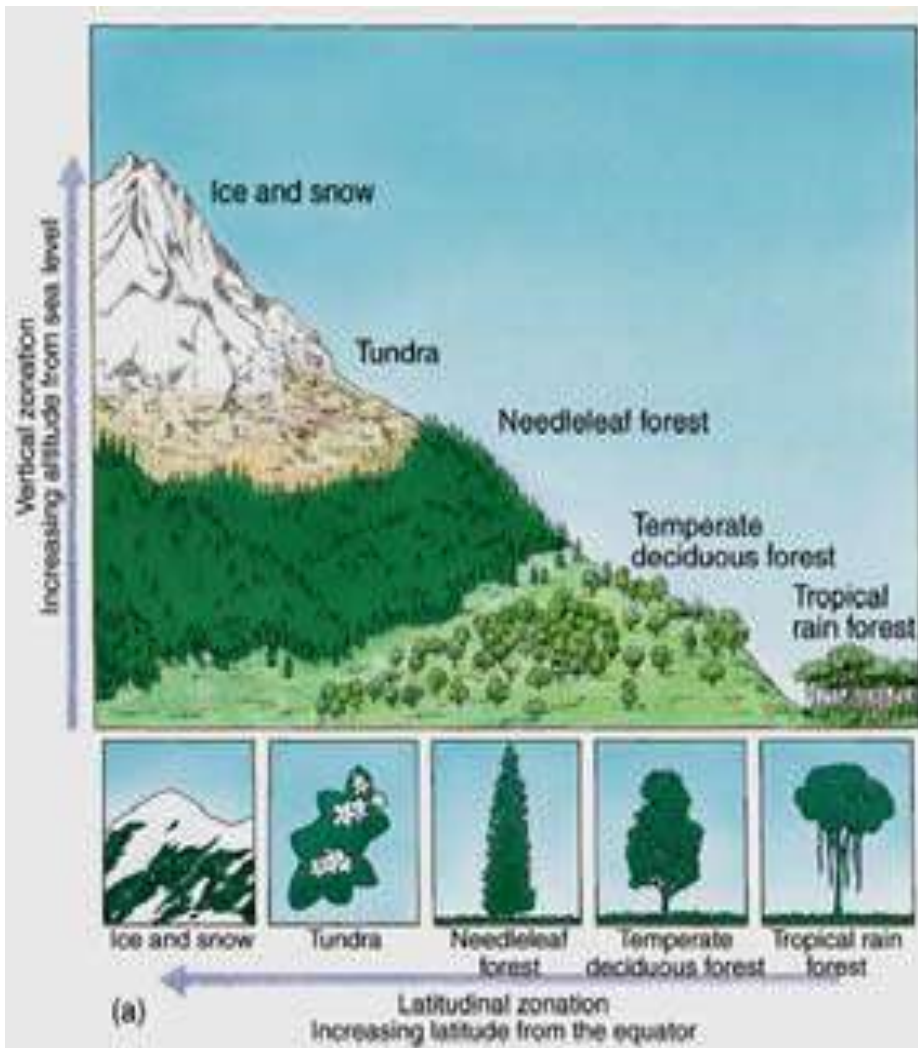
ALTITUDE AND LATITUDE COMPARISON
(BIOME FORMATION)

- Gets colder the higher up you go (altitude)
- Gets colder the farther north/south of the equator you go (latitude)
- Most of food on Earth is grown between 30-60 degrees north and south of the equator
- -- Do we live in this latitude??--

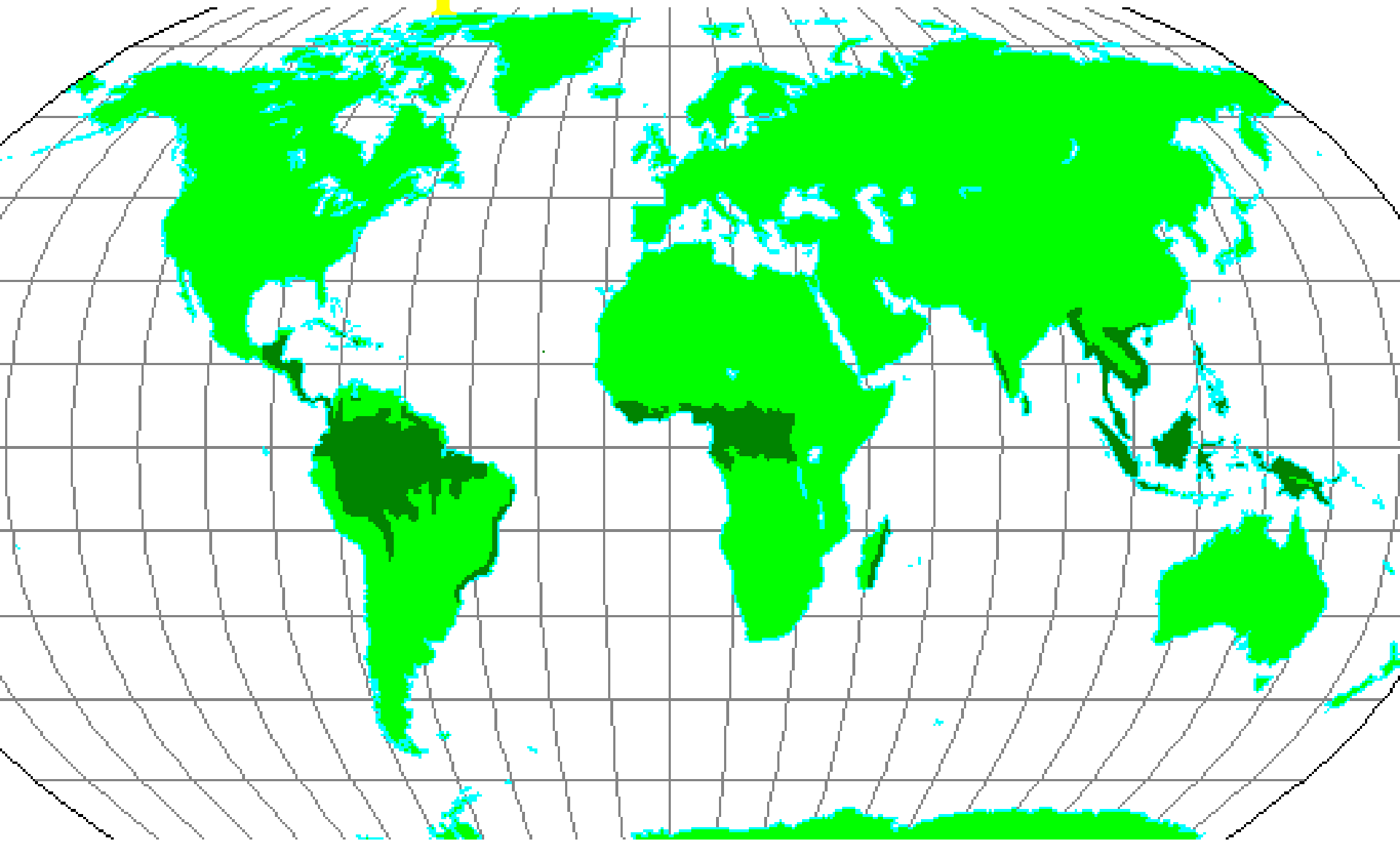
- A climatogram is a graph that shows average monthly values for two factors: temperature and precipitation.
- Temperature is expressed in degrees Celsius and is plotted as a smooth curve.
- Precipitation values are given in centimeters and are plotted as a histogram.







Tropical Rain Forest

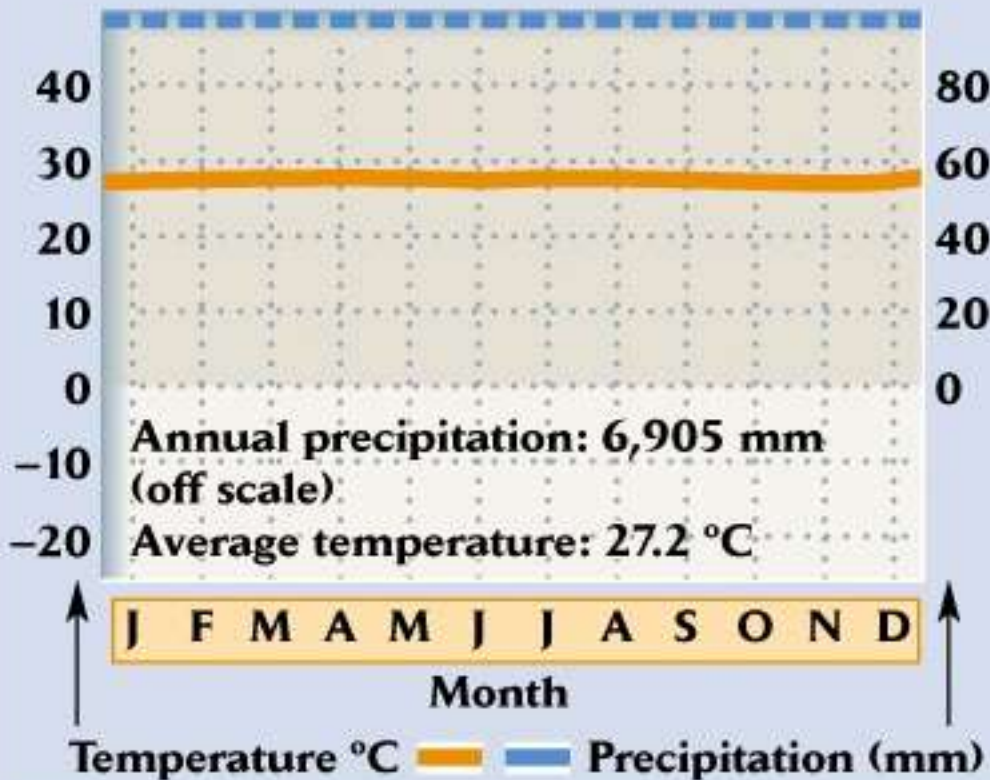


Tropical Rain Forest

Andagoya, Colombia

Climate: Equatorial (I)

Elevation: 65 meters



-found near the equator

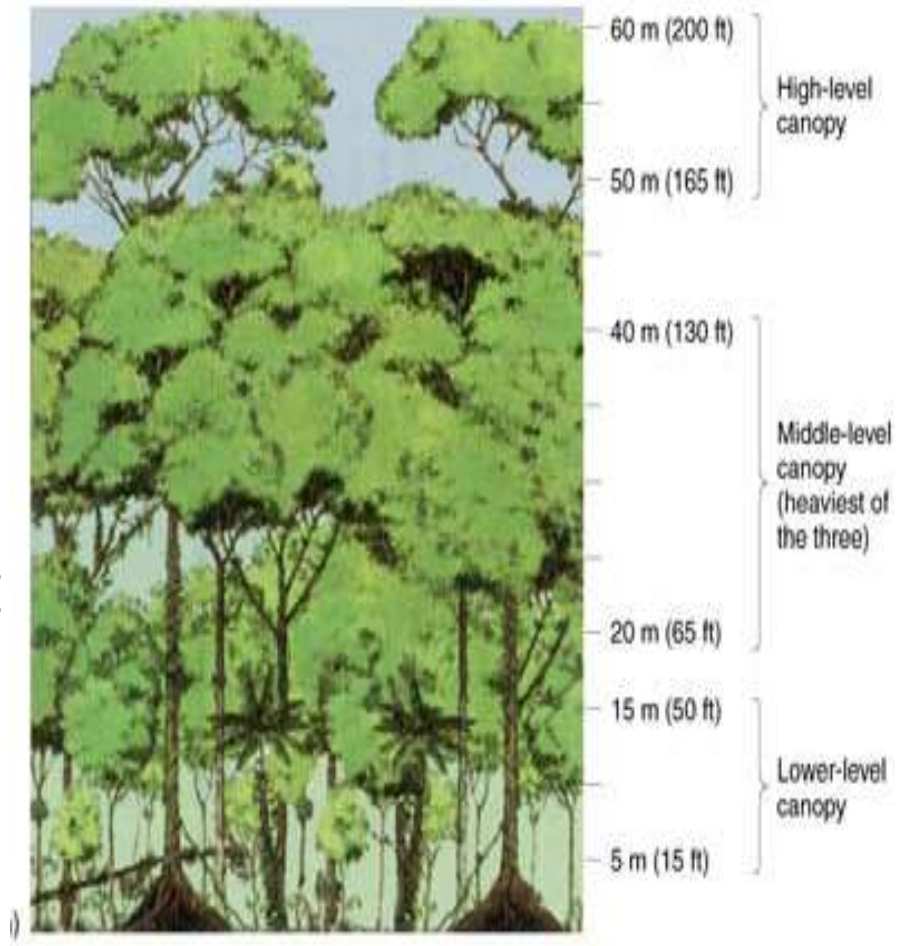
-temperature varies little from approximately 23° C

-the length of daylight varies from 12 hours by less than one hour

-rainforest > 2000mm

Layers:

- Top – Emergent layer – tallest trees above rest of forest
- Next – canopy – top of normal trees
- Lower canopy – epiphytes – plants that grow on tree trunks – not soil - because light is so far from ground.
- Understory – lowest level, much darker



Tropical Rain Forest



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



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

- canopy trees up to 55 m tall
- largest biome, on an area basis

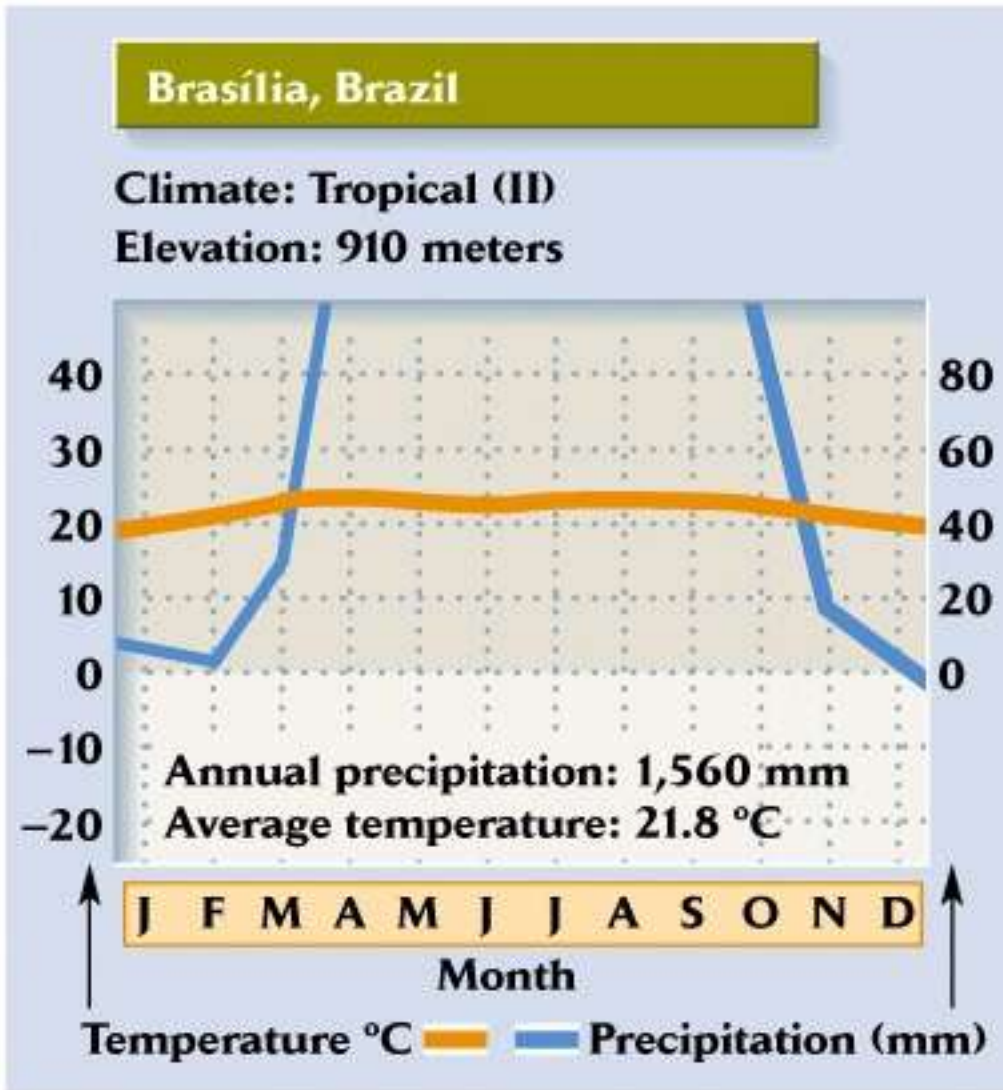
- soils are generally unfertile
- nutrients and carbon stored in plant biomass, not soils
- over half of the world's plant and animal species live here.

Tropical Savanna/Seasonal Forest

Biome: Tropical seasonal forest/savanna



Tropical Savanna/Seasonal Forest



-found in the tropics (but
> 10° latitude)

-pronounced dry season
with <5 cm rainfall in
some months

- Found near equator between tropical rain forest and desert biomes
- Grass, scattered trees, shrubs, many with thorns
- Many grazing animals
- Have a wet and dry season
- Plants and animals most active during wet season.



Tropical Savanna/Seasonal Forest

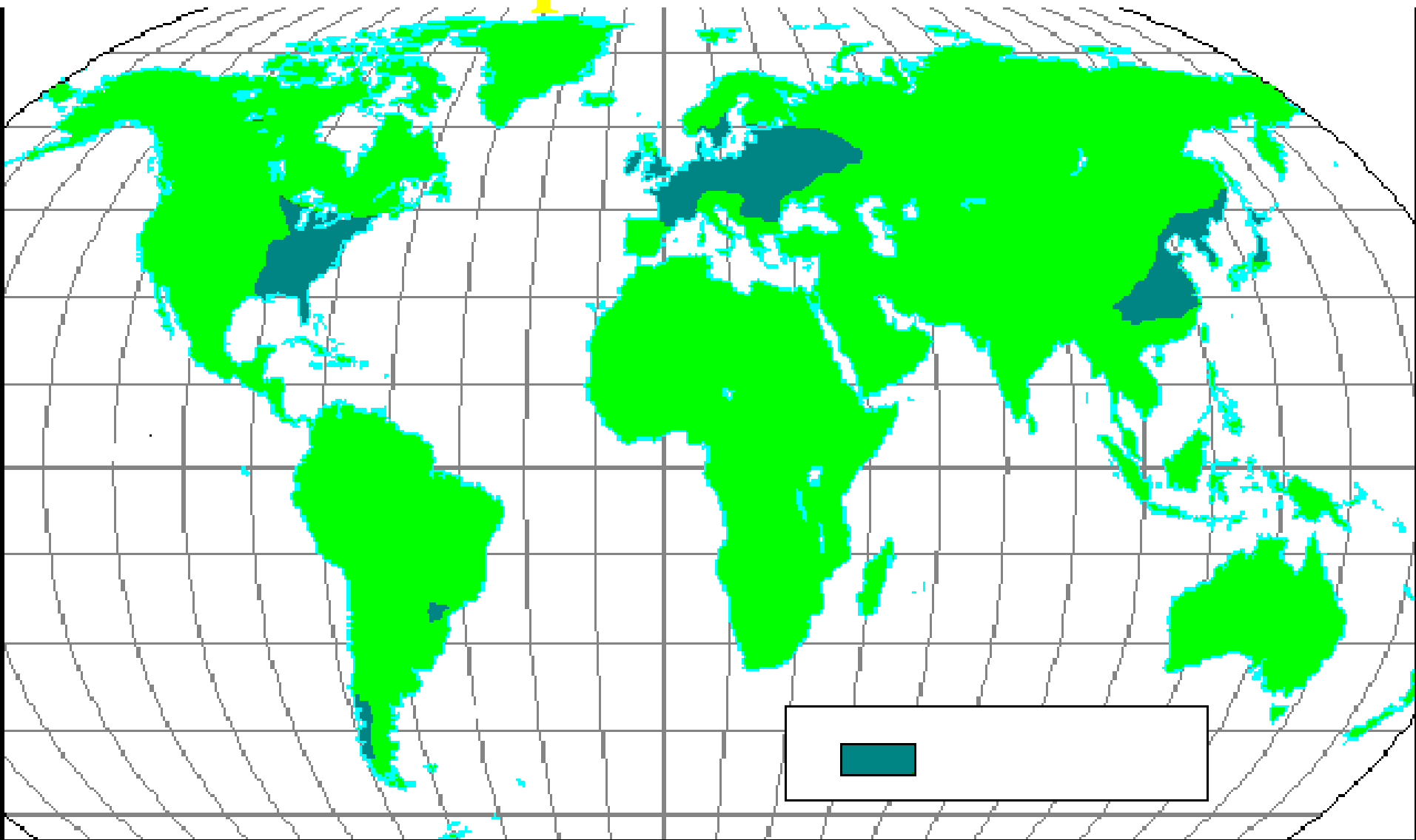


(a) Acacia trees with weaverbird nests, Kenya, East Africa.



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

Temperate Forest

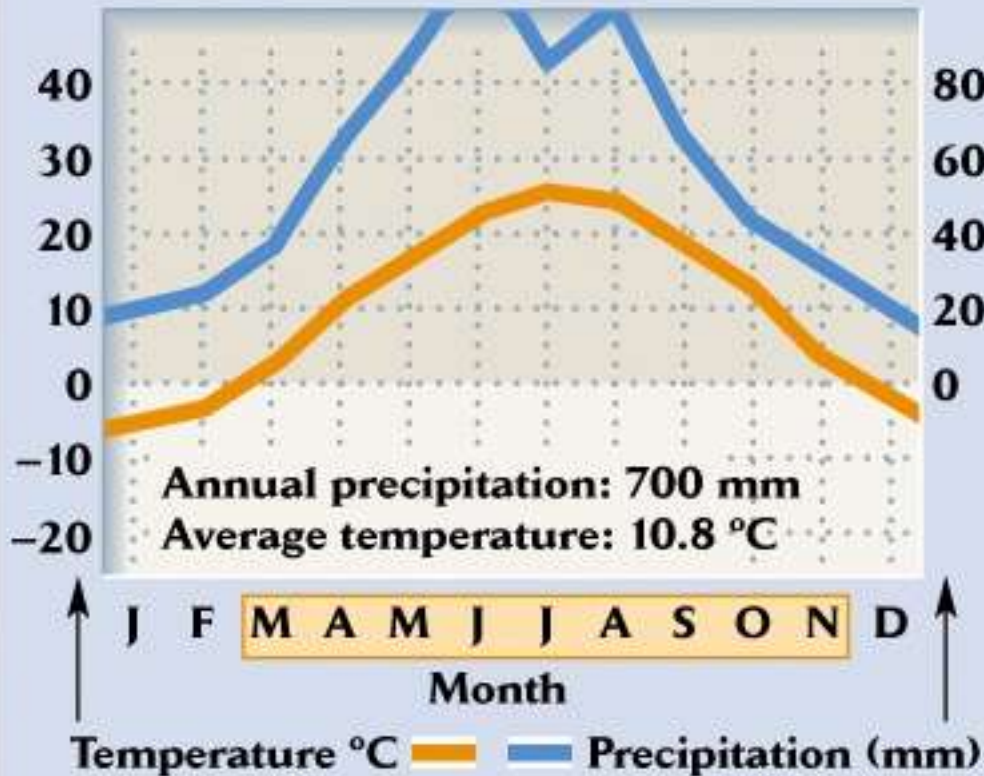


Temperate Forest

Omaha, Nebraska

Climate: Nemoral (VI)

Elevation: 337 meters



-distinct winter season,
frost a defining feature

-summer season usually
moist with
 $ppt > evapotranspiration$

Temperate Forest



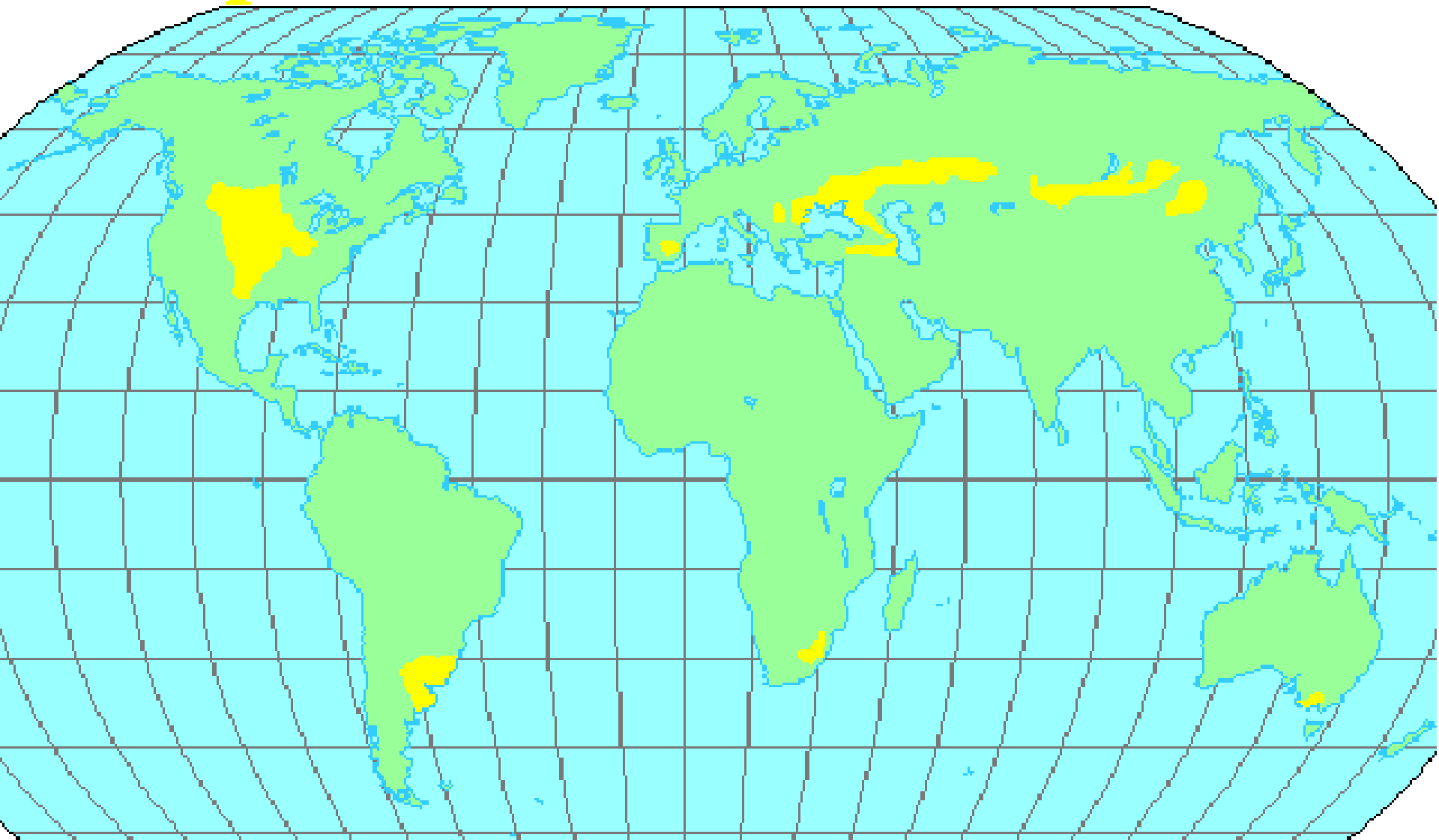
(a) Beech–maple forest in fall, New York.



(b) Young deciduous forest in winter, Massachusetts.



Temperate Grassland/Shrubland

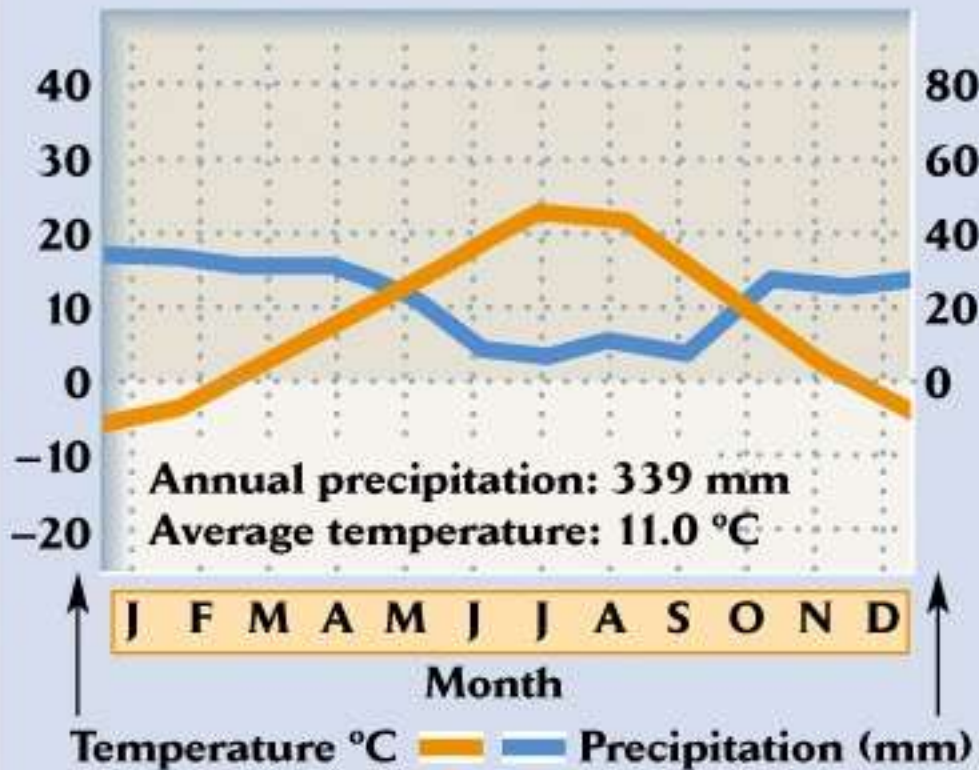


Temperate Grassland/Shrubland

Salt Lake City, Utah

Climate: Continental (cold deserts) (VII)

Elevation: 1,329 meters



-similar to tropical savanna, but with cold winter

-relatively hot summer

-potential evapotranspiration > pp

Temperate Grassland/Shrubland



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



(b) Sagebrush, eastern Washington.

Desert

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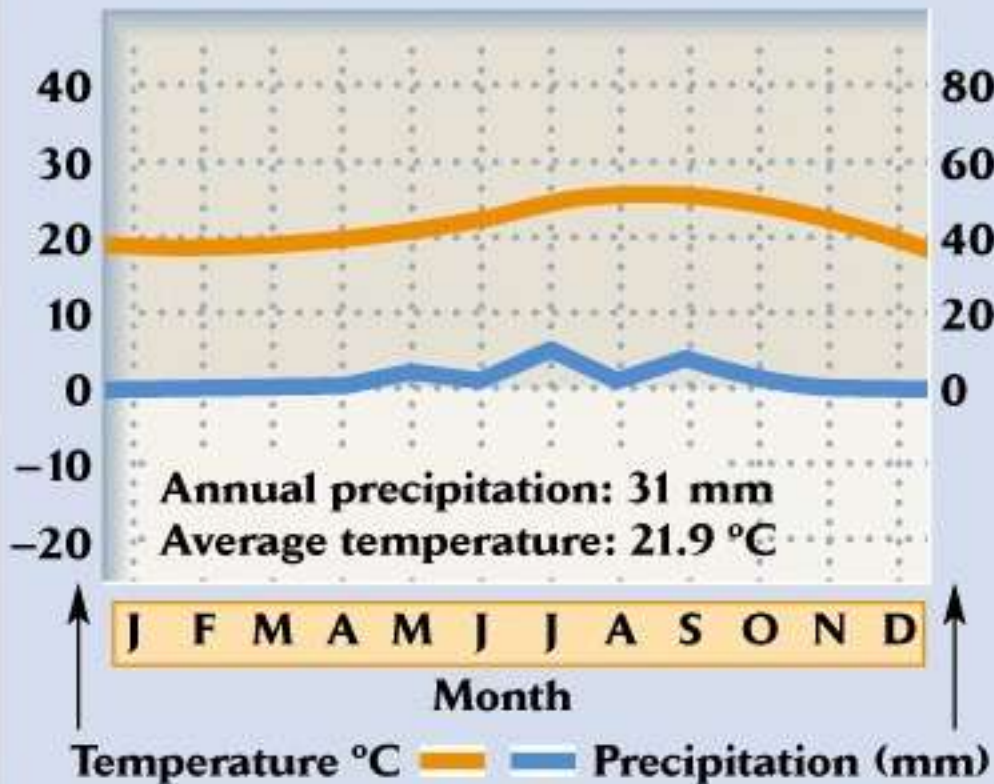


Desert

Chiclayo, Peru

Climate: Subtropical (hot deserts) (III)

Elevation: 31 meters



-hot or cold deserts exist

-low precipitation <25cm
sporadic

-potential
evapotranspiration > ppt

Desert

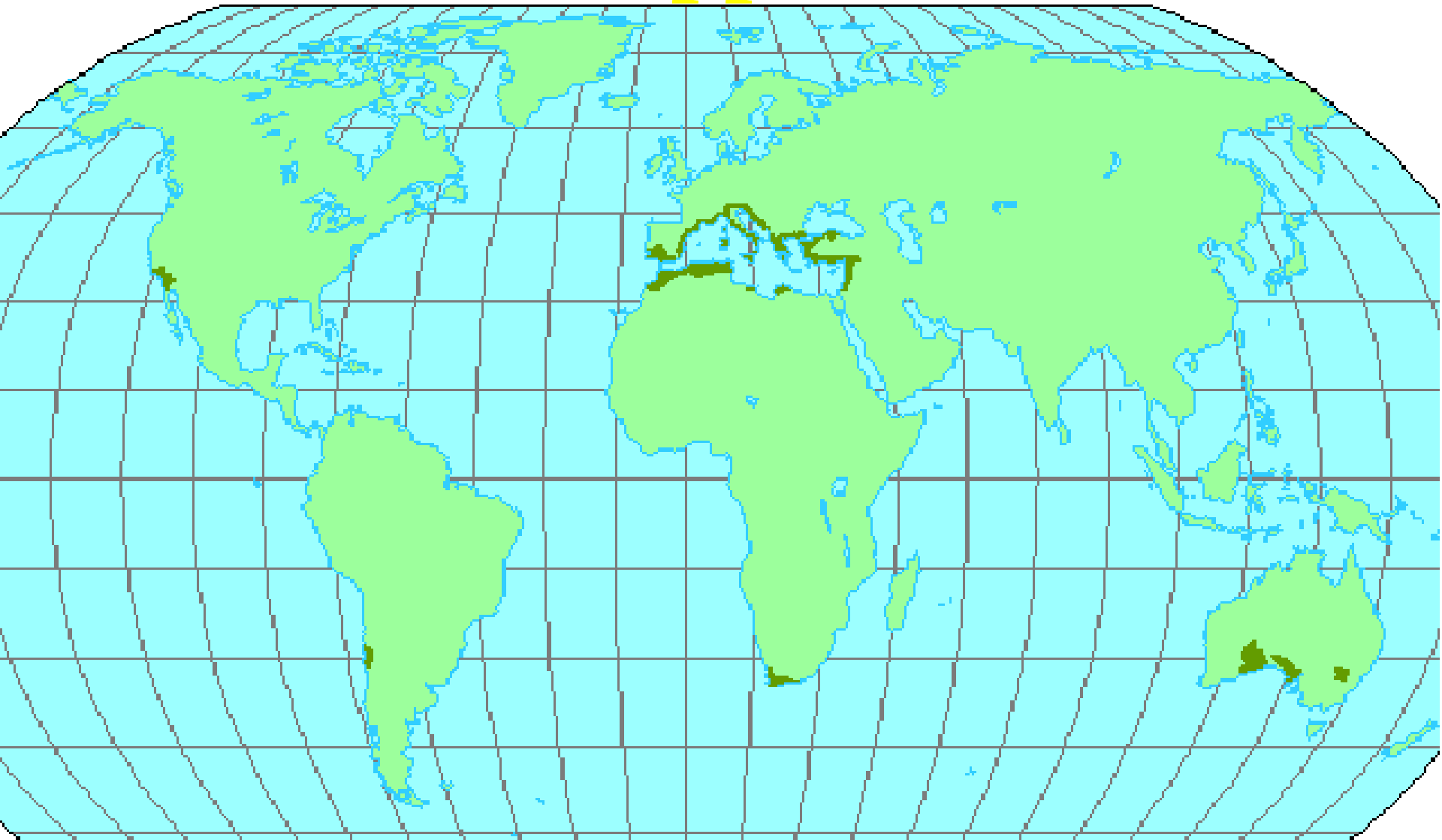


(a) Cholla cactus in northern Sonora, Mexico.



(b) Sahuaro cactus in southern Arizona.

Chapparal



smallest biome.

grows between
forest and
grassland, or
between desert and
grassland biomes.

Many plants and trees
have leathery
leaves, gnarled bark,
and intimidating
thorns.

Often called
“scrub”

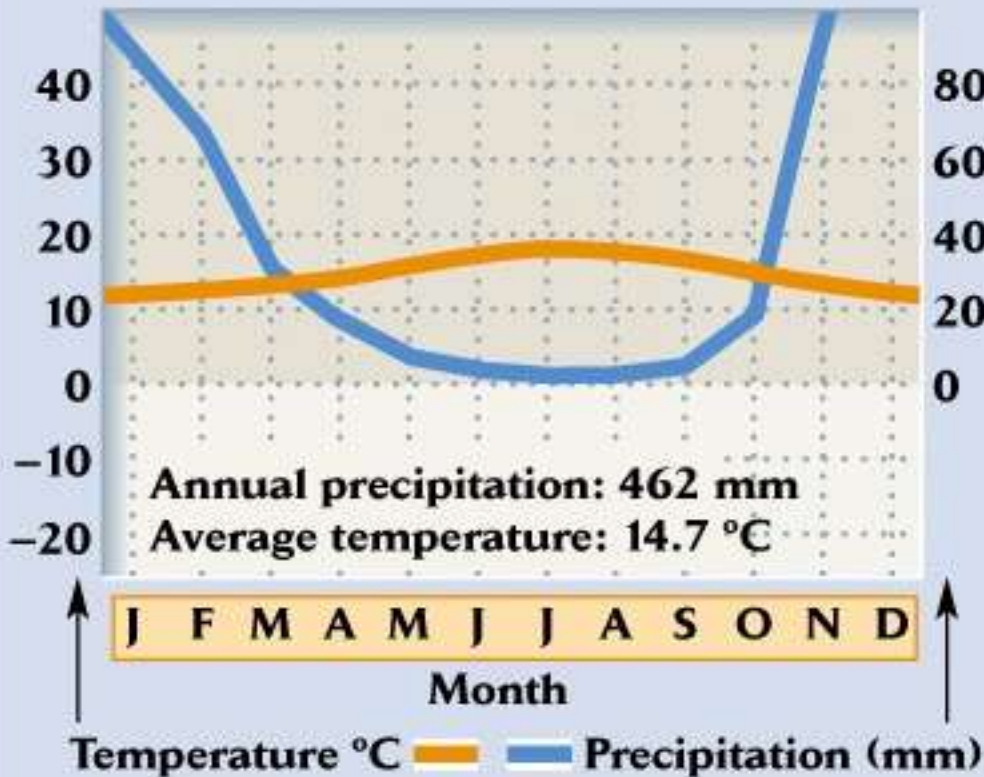


Chapparal

Lisbon, Portugal

Climate: Mediterranean (IV)

Elevation: 41 meters



-mild winters

-seasonal rainfall
winter rain, summer
drought

-maritime influence
cold ocean currents
continental winds

Chaparral

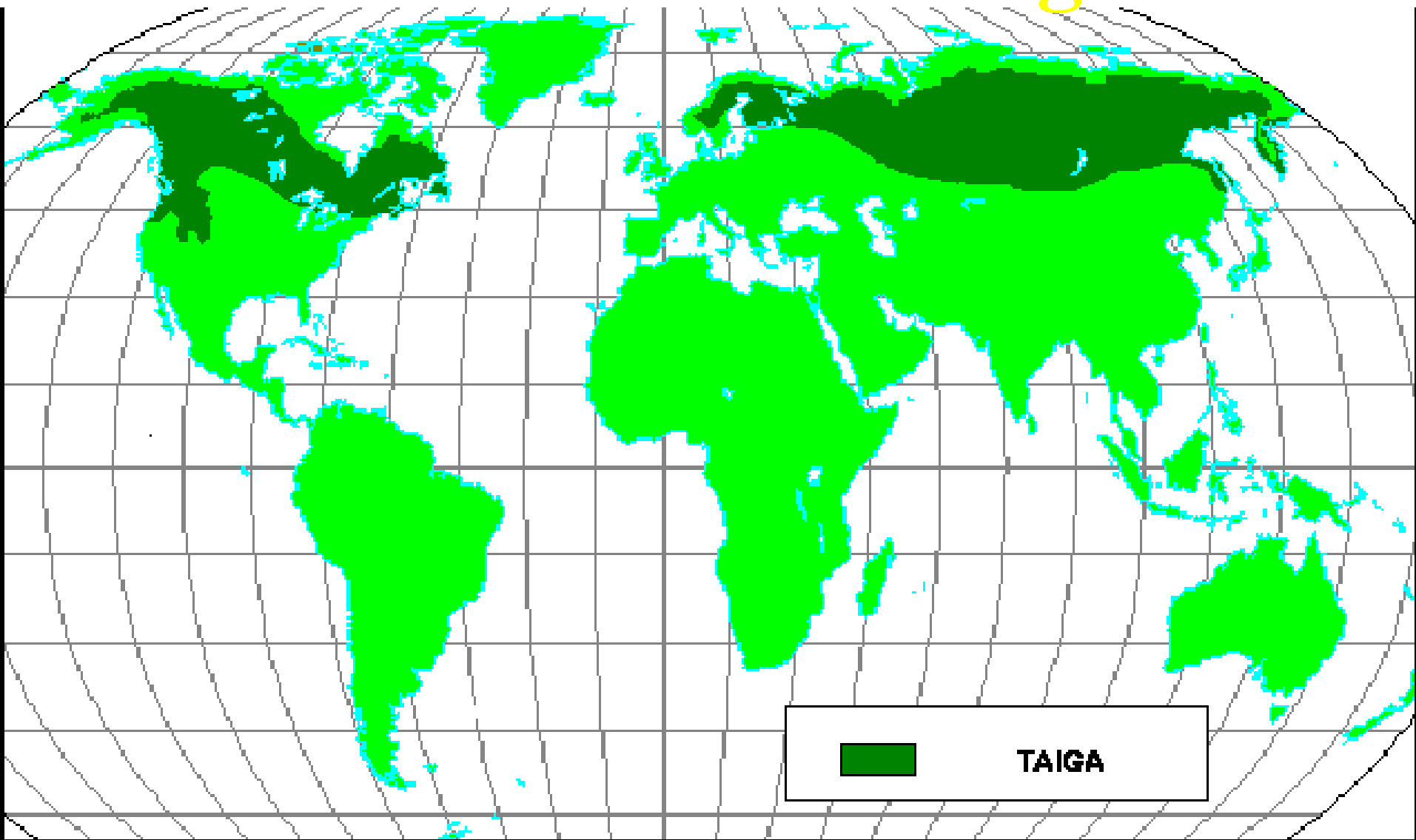


(a) Chaparral at wet site at low elevation with infrequent fire, southern California.



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

Boreal Forest / Taiga

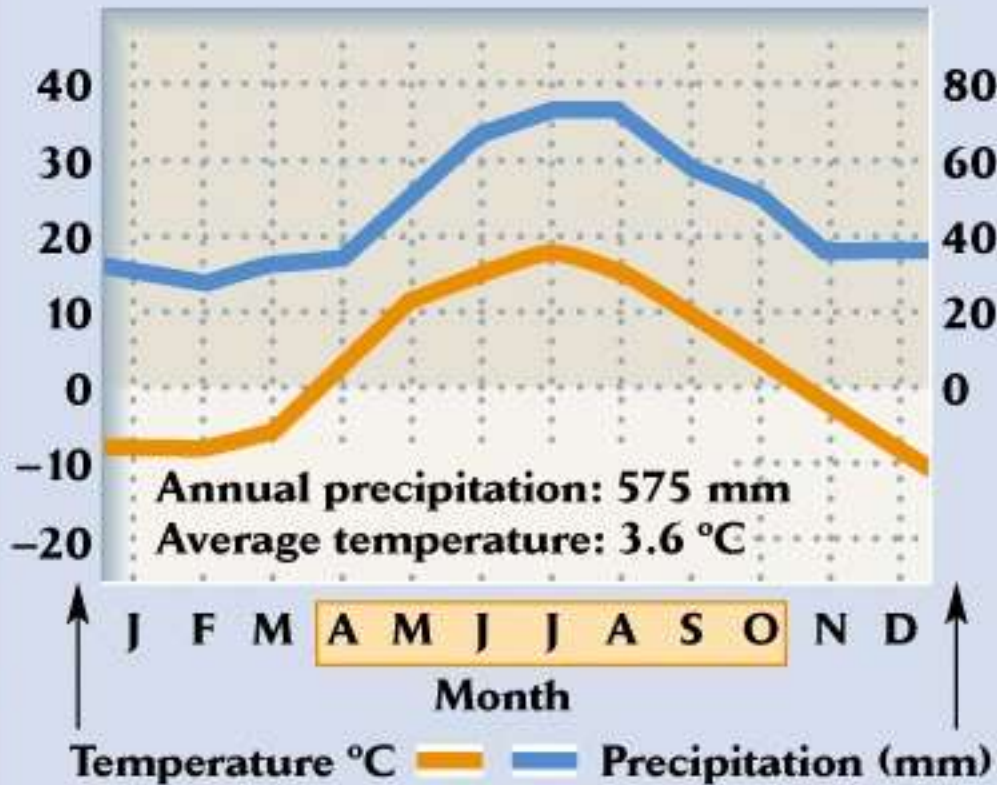


Boreal Forest

Stockholm, Sweden

Climate: Boreal (VIII)

Elevation: 156 meters



-severe winters,
MAT can be < 0 deg C

-ppt is low, but evapo-
transpiration low

-short growing season

Boreal Forest

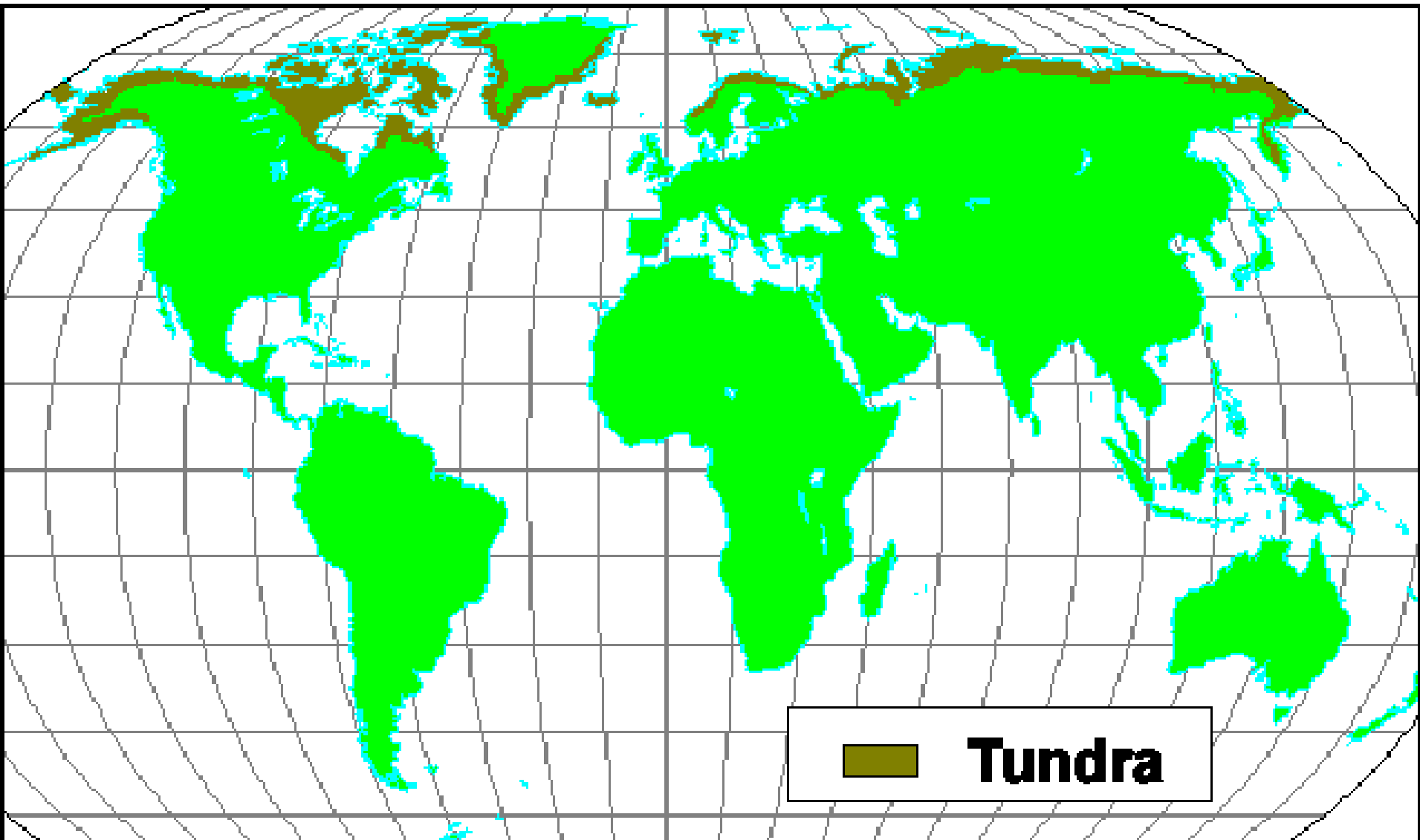


(a) Boreal forest, near Fairbanks, Alaska.



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

Tundra



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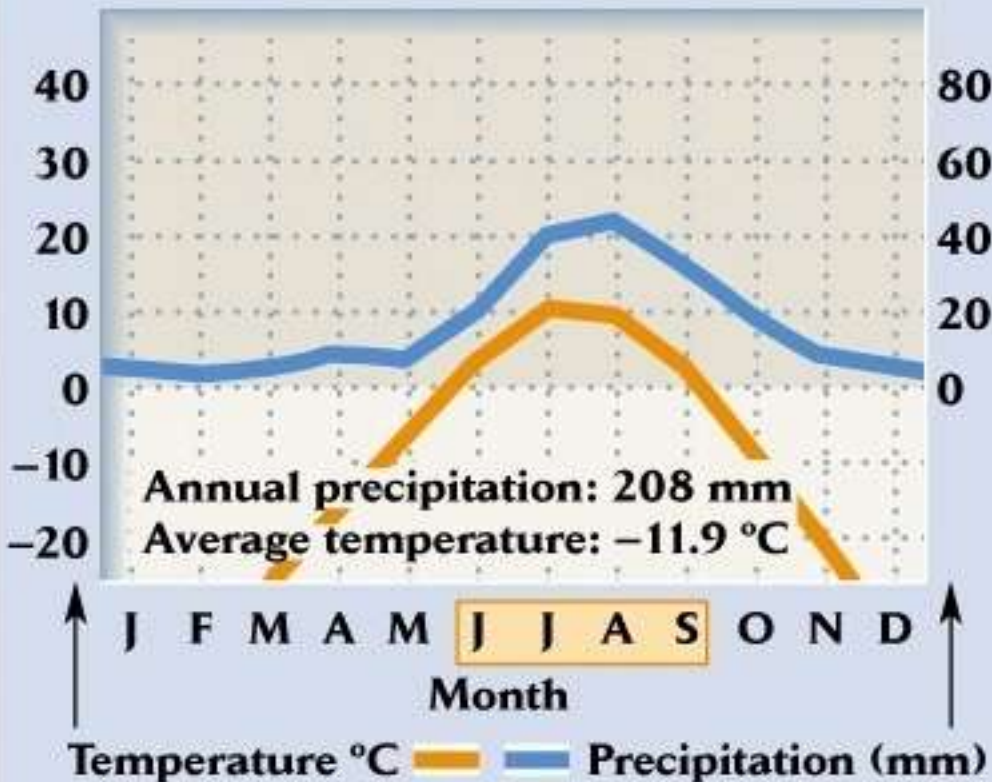


Tundra

Baker Lake, Canada

Climate: Polar (IX)

Elevation: 4 meters



-severe winters

-short growing season,
cool summer

-arctic or alpine

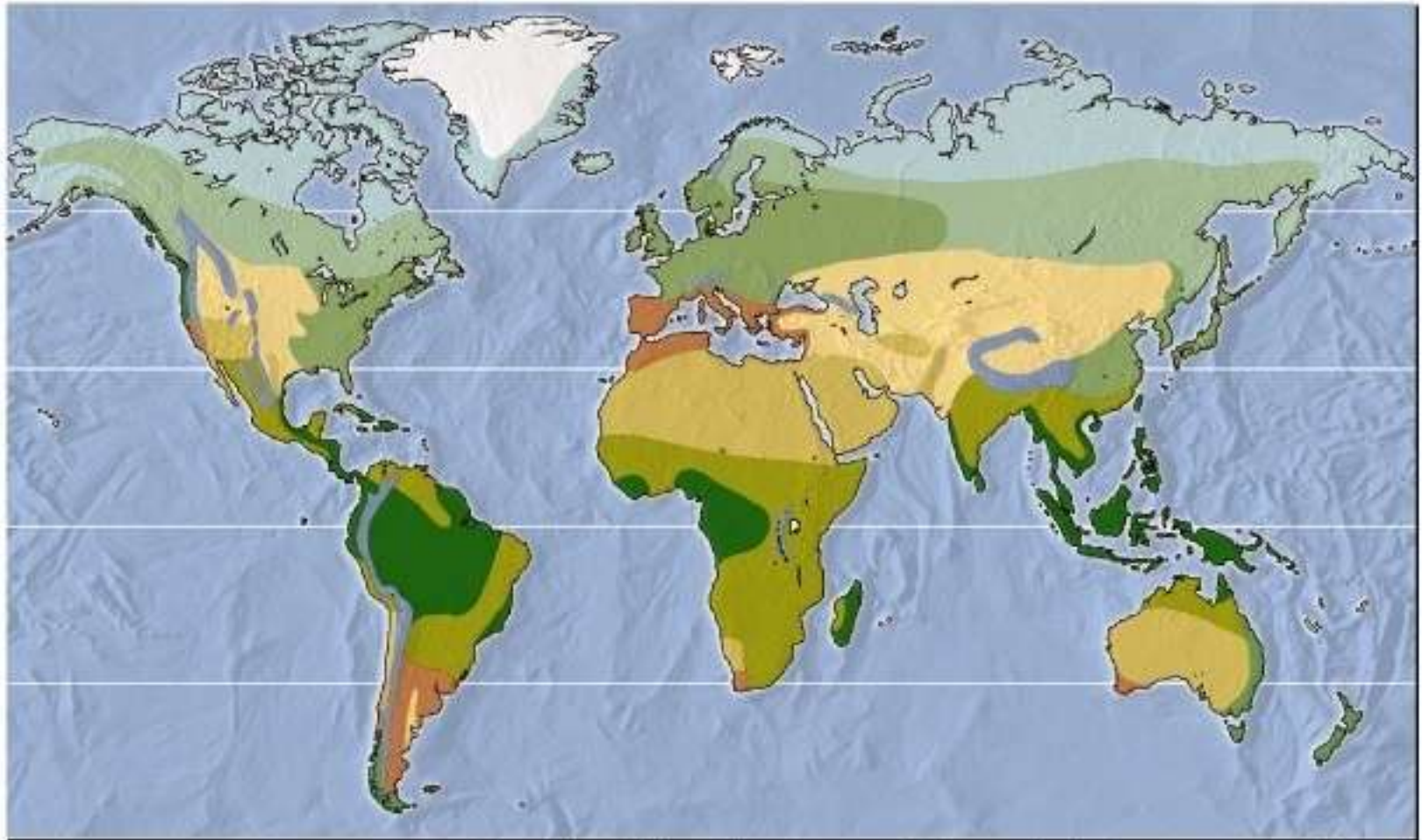
Tundra














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



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



KEY

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|--|---|---|---|
|  Tropical rain forest |  Woodland /shrubland |  Subtropical desert |  Tundra |
|  Tropical seasonal forest/ savannah |  Temperate grassland/ desert |  Temperate rain forest |  Alpine |
| |  Boreal forest |  Temperate seasonal forest |  Polar ice cap |

