

DESERT BIOME

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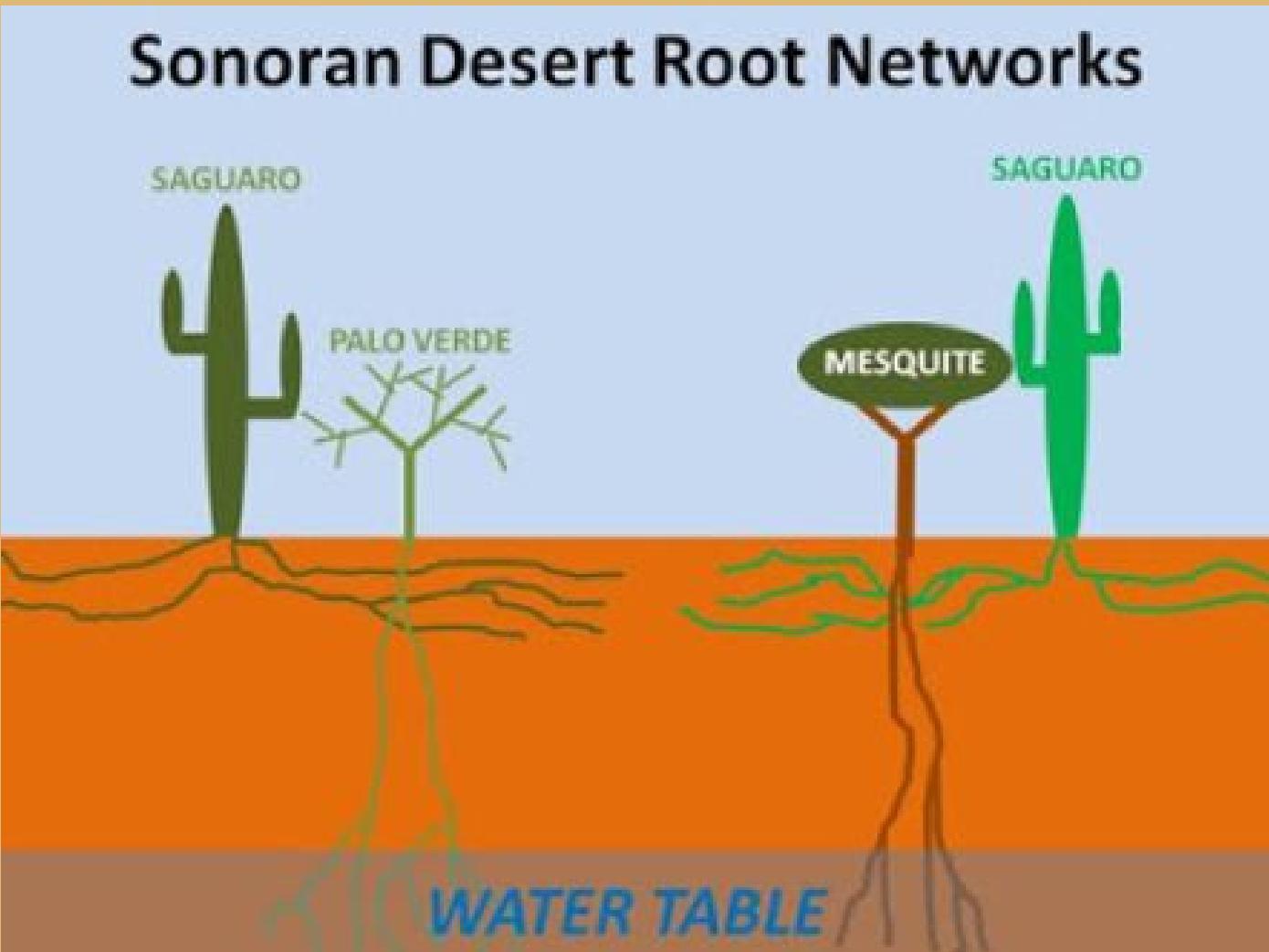
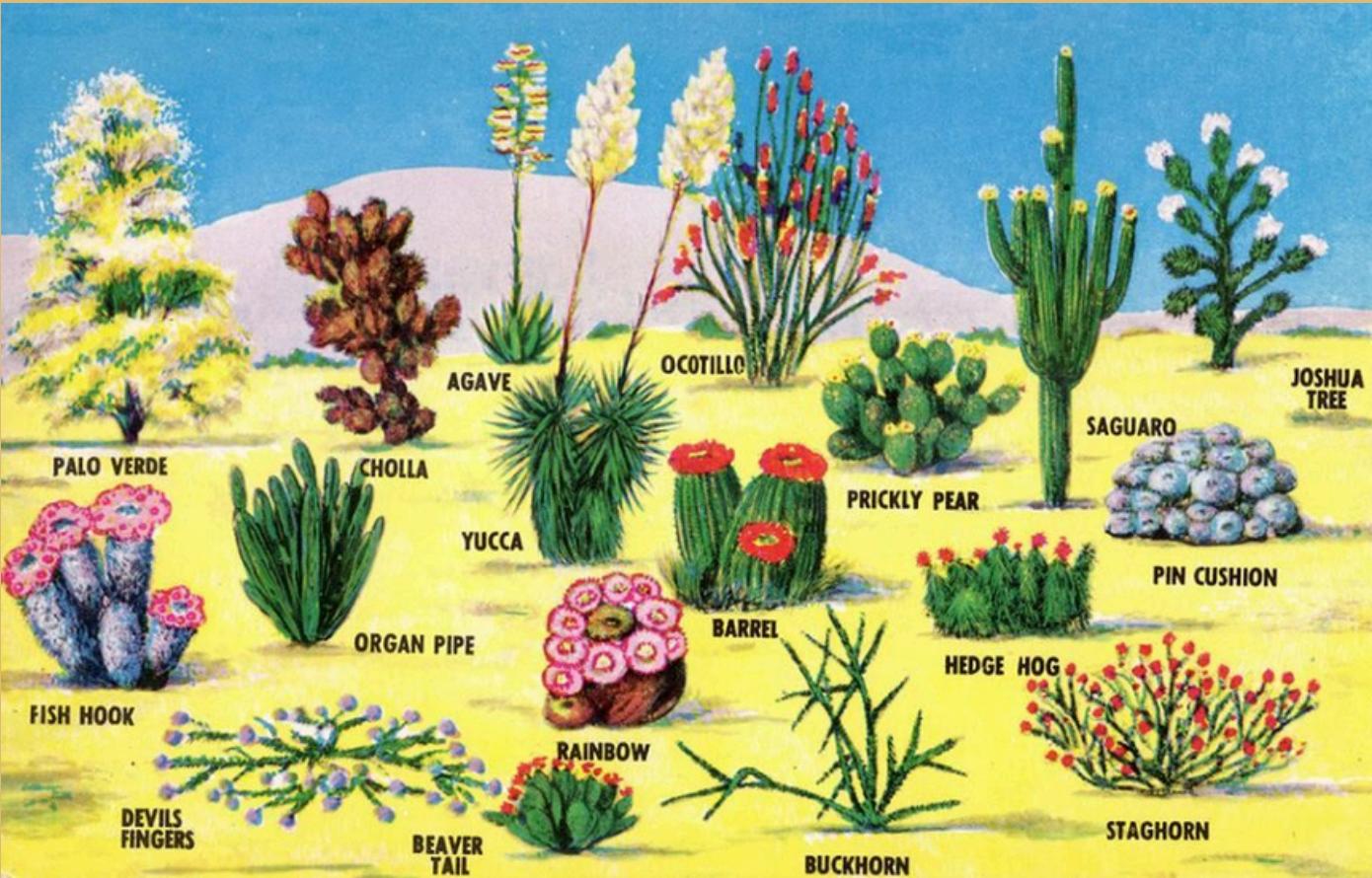


- Deserts although dry are not devoid of precipitation
- Violent downpours of rain causing flash flooding and erosion



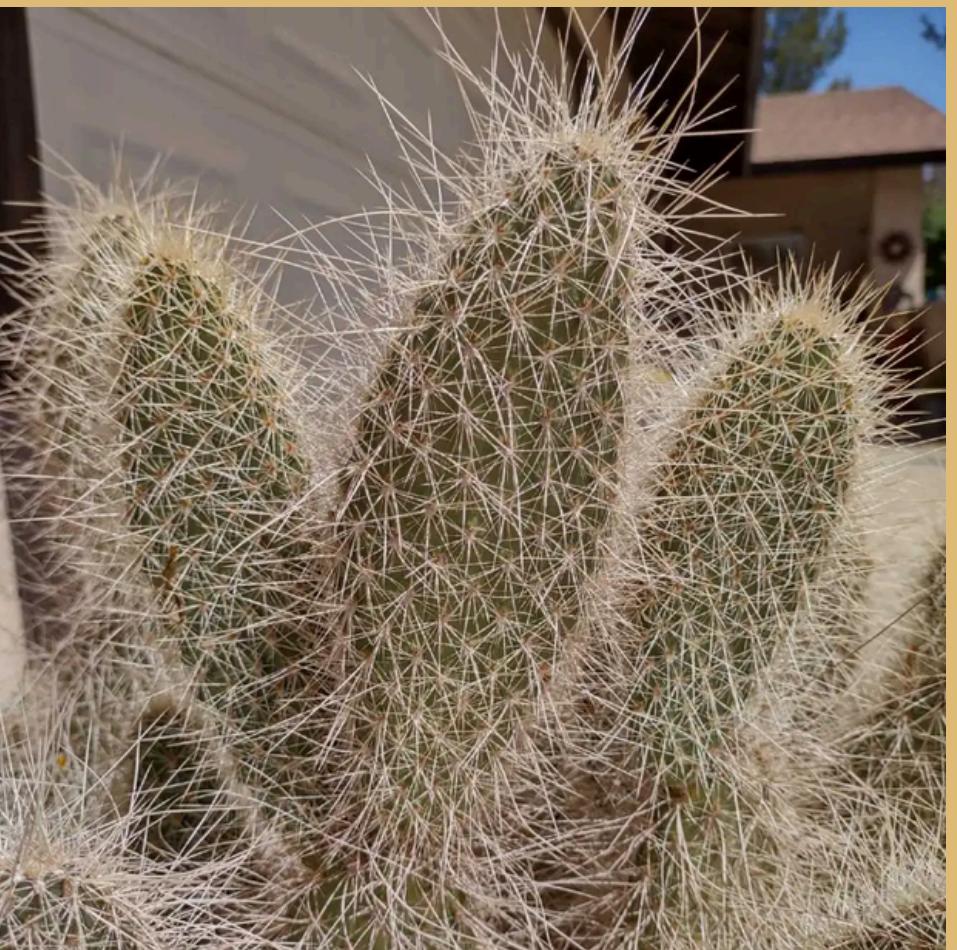
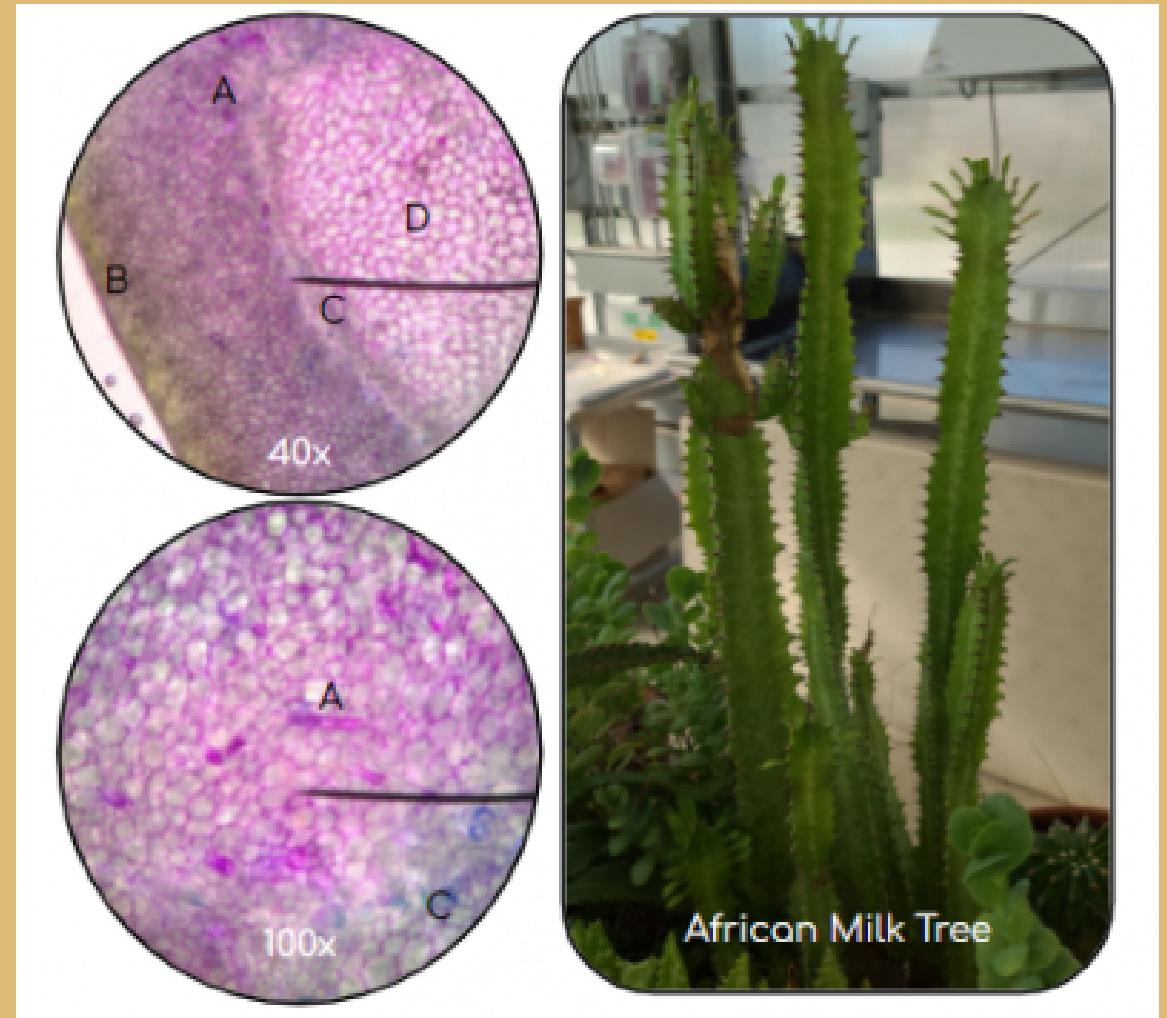
- Species of desert wildflowers well adapted to infrequent and intense spring rains
- Have accelerated life cycle

- Temperature during daytime : 50 degree Celsius
- Drops to near freezing temperature at night
- Absence of moisture in atmosphere causes this high temperature fluctuations
- Retention of heat from day is negligible due to the absence of moisture



- Plants in desert are adapted to low soil moisture
- Many desert plants have shallow root systems that extend laterally from the plant

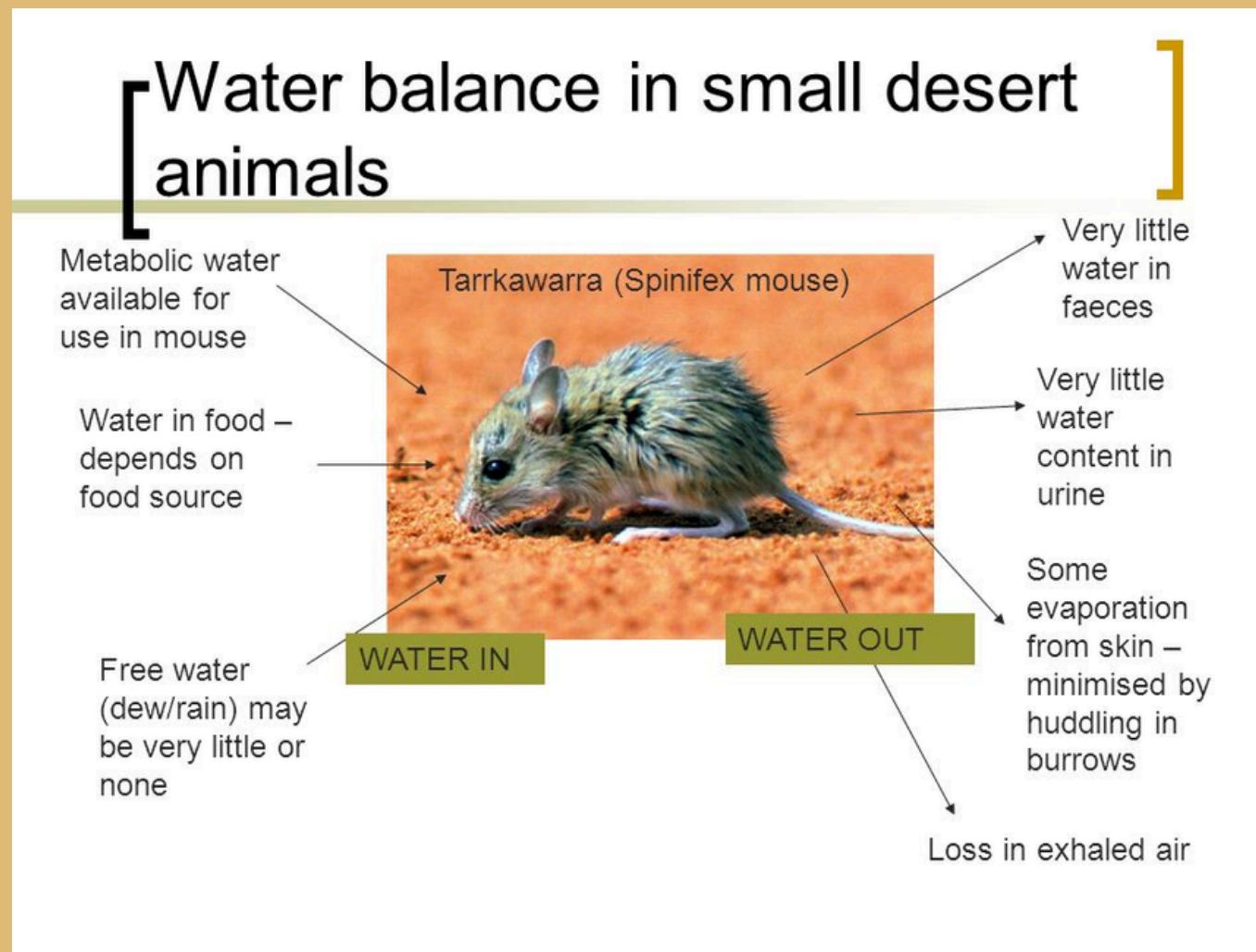
- Other plants like mesquite have deep taproots that extend downwards up to 60 meters to moist soil
- Taproots anchor the plant are more reliable water source



- The roots absorb rain and melted snow then transport the water to the main body to store it.
- Water-retaining tissues called succulent store water later used during rainless months

Adaptations:

- Thick outer layers and waxy coats reduce moisture loss
- Thorns give some degree of protection from the sun by providing shade and reflecting sunlight from the plant
- White fluffy hairs on some species do the same
- Desert plants release growth inhibiting chemicals into the soil preventing any nearby growth



Adaptations:

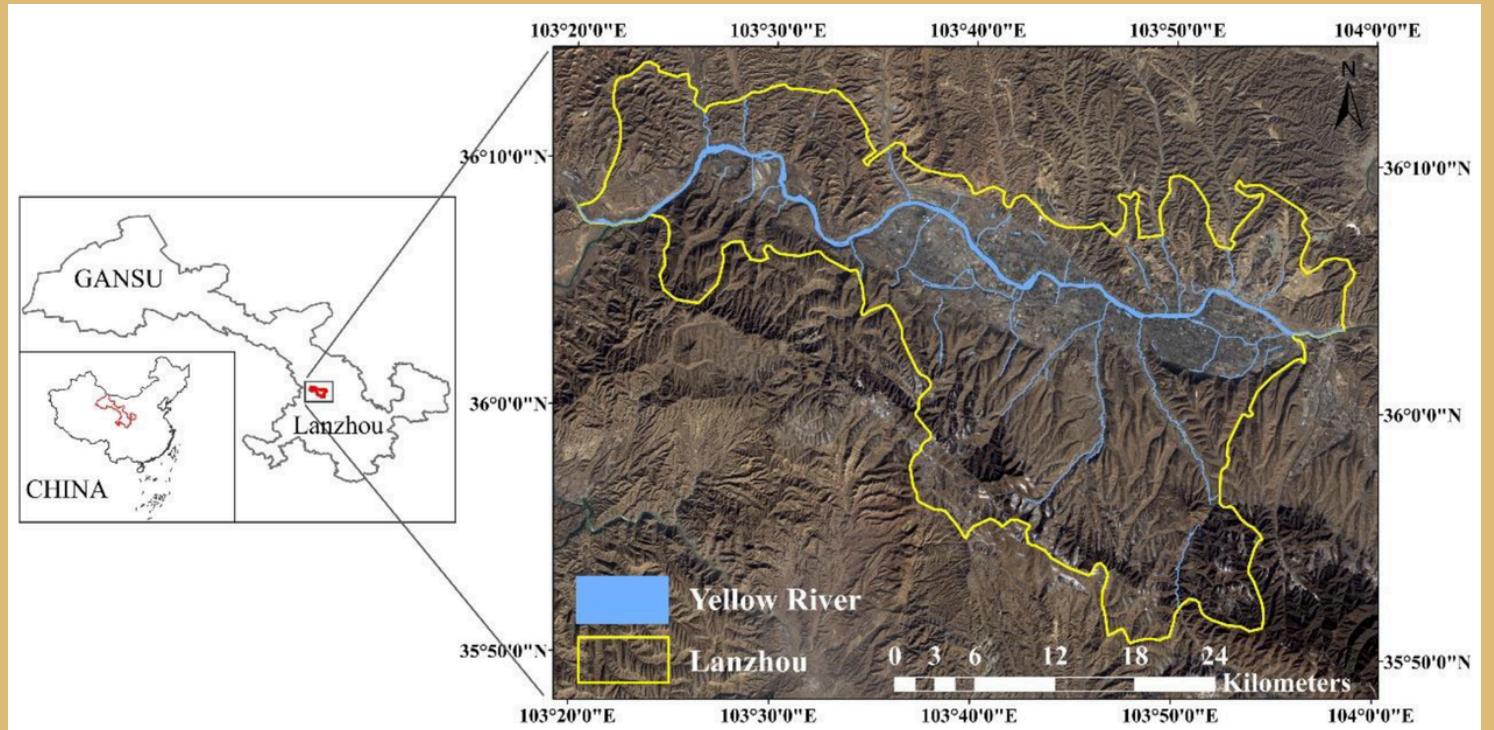
- Like plants, animals as well are adapted to desert conditions
- Thick scales of lizards and snakes minimize water loss
- Lizards and mice survive by avoiding daytime heat resting in caves or burrows
- other examples: ringtail
- Species acquire moisture from cellular energy production called metabolic water
- Kangaroo rat gets all its moisture from metabolic water and from the plants and insects it eats
- Kangaroo rat, snakes and lizards excrete highly concentrated urine that reduces water loss



- Water is pumped from deep aquifers or transported from distant sources via extensive pipelines
- Phoenix Arizona receives water from Colorado river

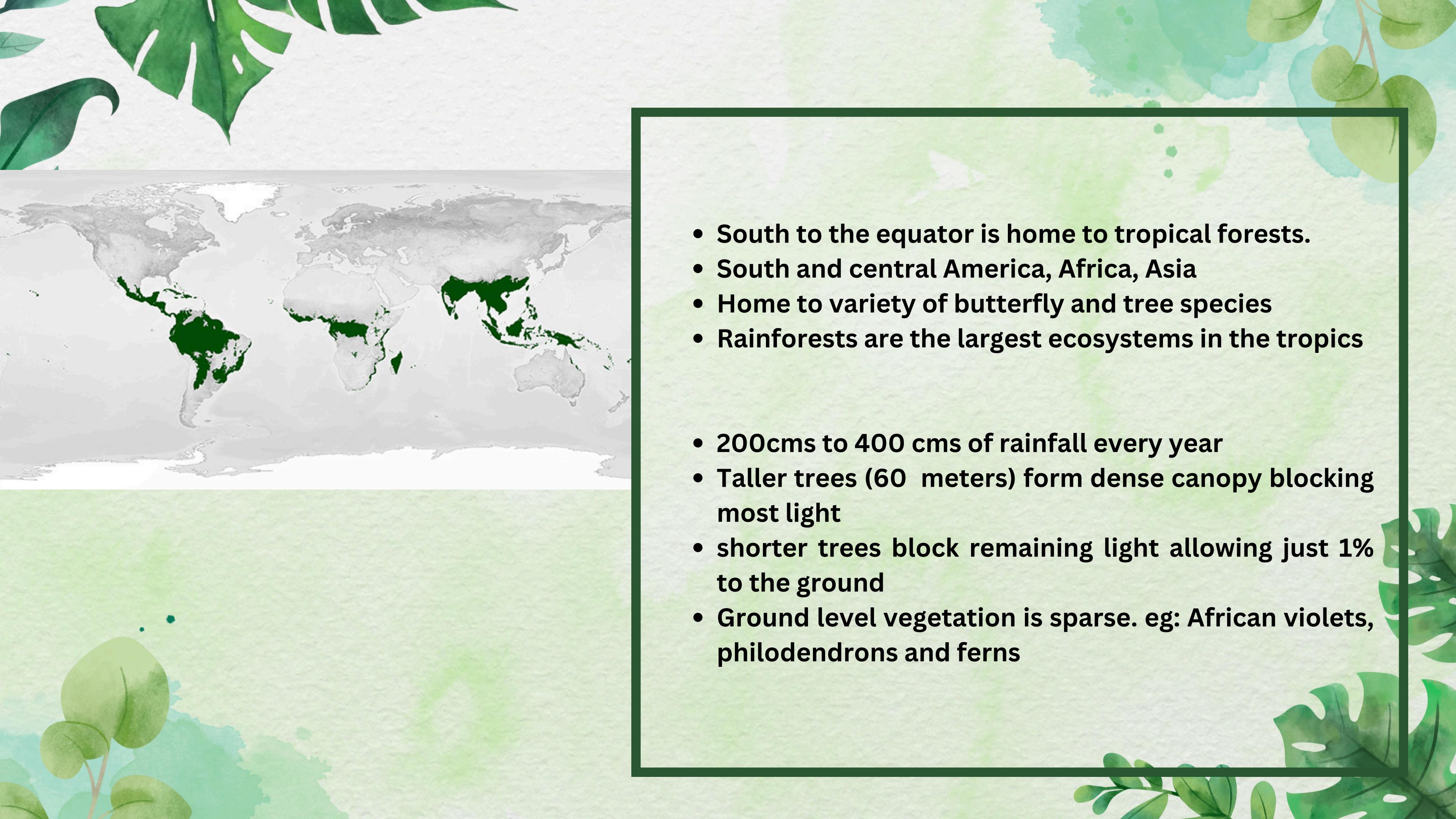
Problems faced from expansion of cities in the deserts:

- Square kilometers of land have subsided or sunk
- Cracks developed in subsided areas
- These effects can break pipelines , destroy homes



**Deserts are expanding as a result of overgrazing
livestock and production of greenhouse gases**

TROPICAL RAIN FORESTS



- South to the equator is home to tropical forests.
 - South and central America, Africa, Asia
 - Home to variety of butterfly and tree species
 - Rainforests are the largest ecosystems in the tropics
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- 200cms to 400 cms of rainfall every year
 - Taller trees (60 meters) form dense canopy blocking most light
 - shorter trees block remaining light allowing just 1% to the ground
 - Ground level vegetation is sparse. eg: African violets, philodendrons and ferns



- Rainforests being the richest and most diverse biome with a soil that is nutrient poor.
- Large scale farming and ranching on many rainforest soils are generally doomed to fail

Why is soil so poor?

- Insects consume most of dead trees/animals
- Material that insects don't eat rapidly decomposed by bacteria
- Nutrients released from the bacterial decay is quickly absorbed by roots of trees
- Tropic soils are so poor because life is rich



- Lush vegetation of tropics protects soil from erosion
- Heavy rainfall erodes soil that is no longer protected by vegetation
- Eroded sediments choke the nearby river streams.

Most rainforest soils contain large amounts of iron, such soils are called lateritic.

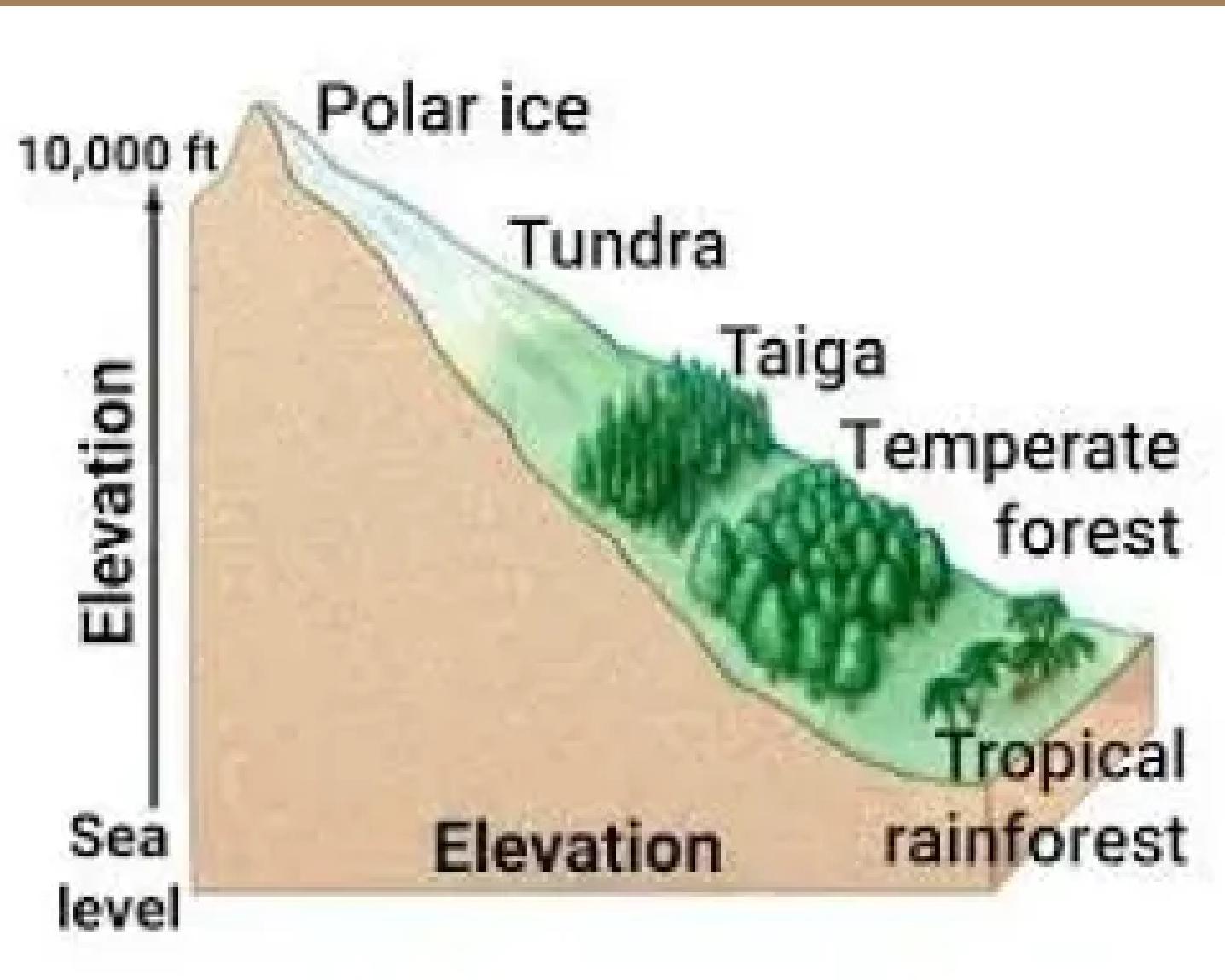
These soils bake as hard as bricks when exposed to sunlight rendering soils impossible to cultivate when cleared of crusts



- Topical rainforests are lungs of planet
 - Help reduce global warming by reducing CO2
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- Timber cutting is a plague to rainforests
 - Deforestation happening at rate of 17 million hectares per year

ALTITUDE BIOME

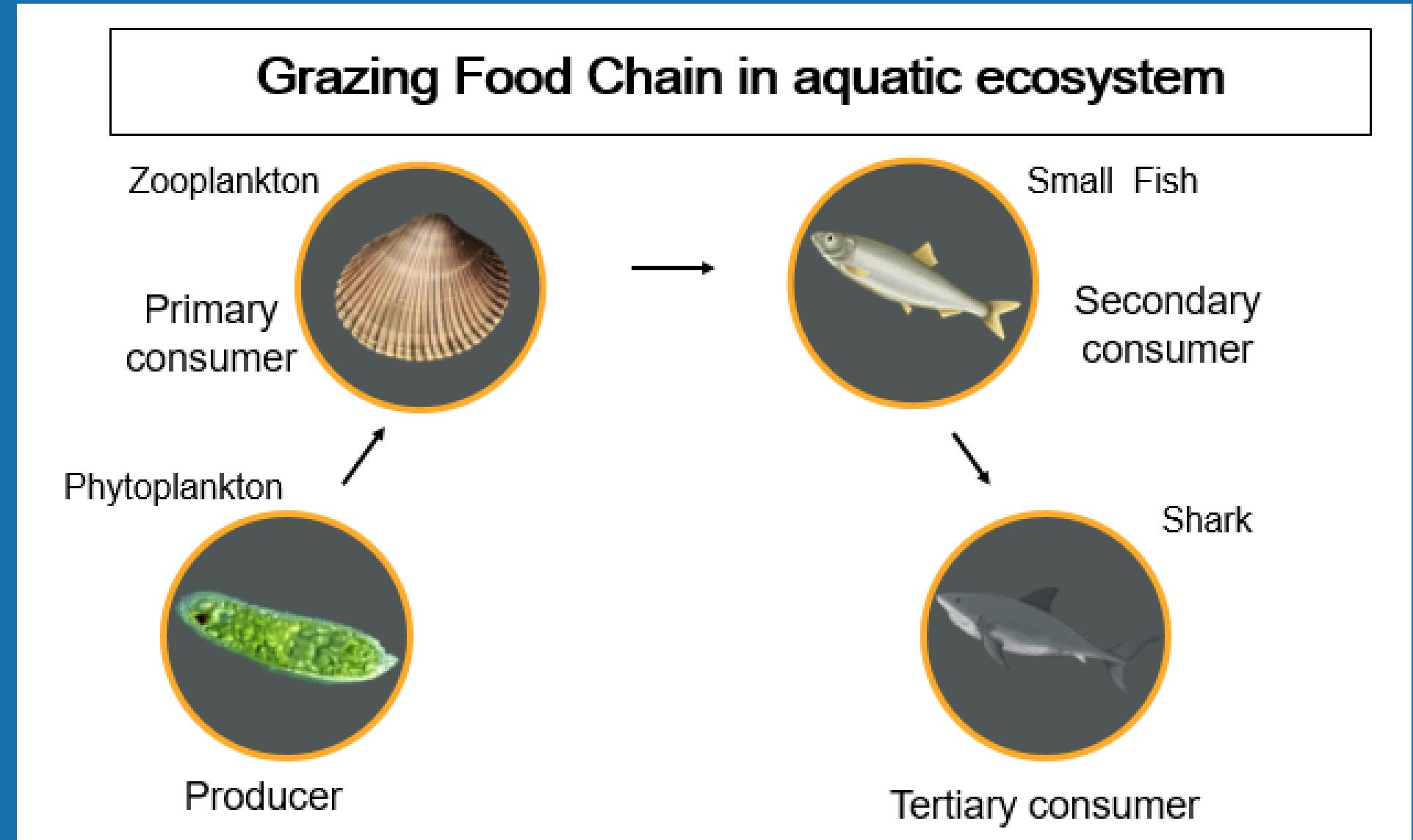
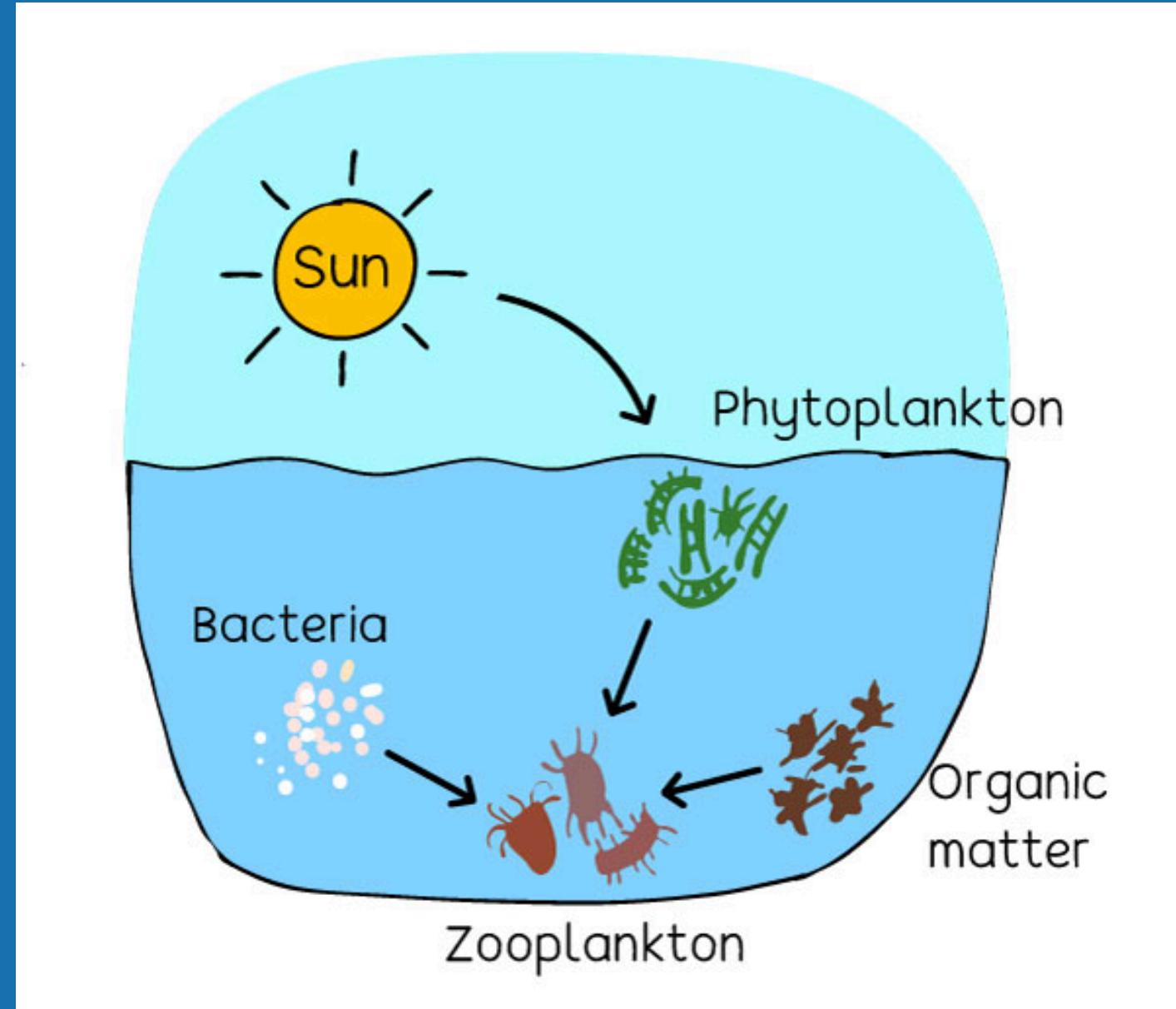




- Different biomes at different altitudes from the base
- At the top it is similar to arctic tundra known as alpine tundra
 - Alpine tundra has long cold winters and is treeless
 - Alpine tundra receives moisture unlike artic tundra
 - Snow is the main source of precipitation
- Downwards to alpine tundra mimic that of Taiga
- In the rocky mountains the zone borders on grasslands
- Deciduous trees are found in the western slope

AQUATIC LIFE ZONES

INTRODUCTION



AQUATIC LIFE ZONES

