Biomes of the World

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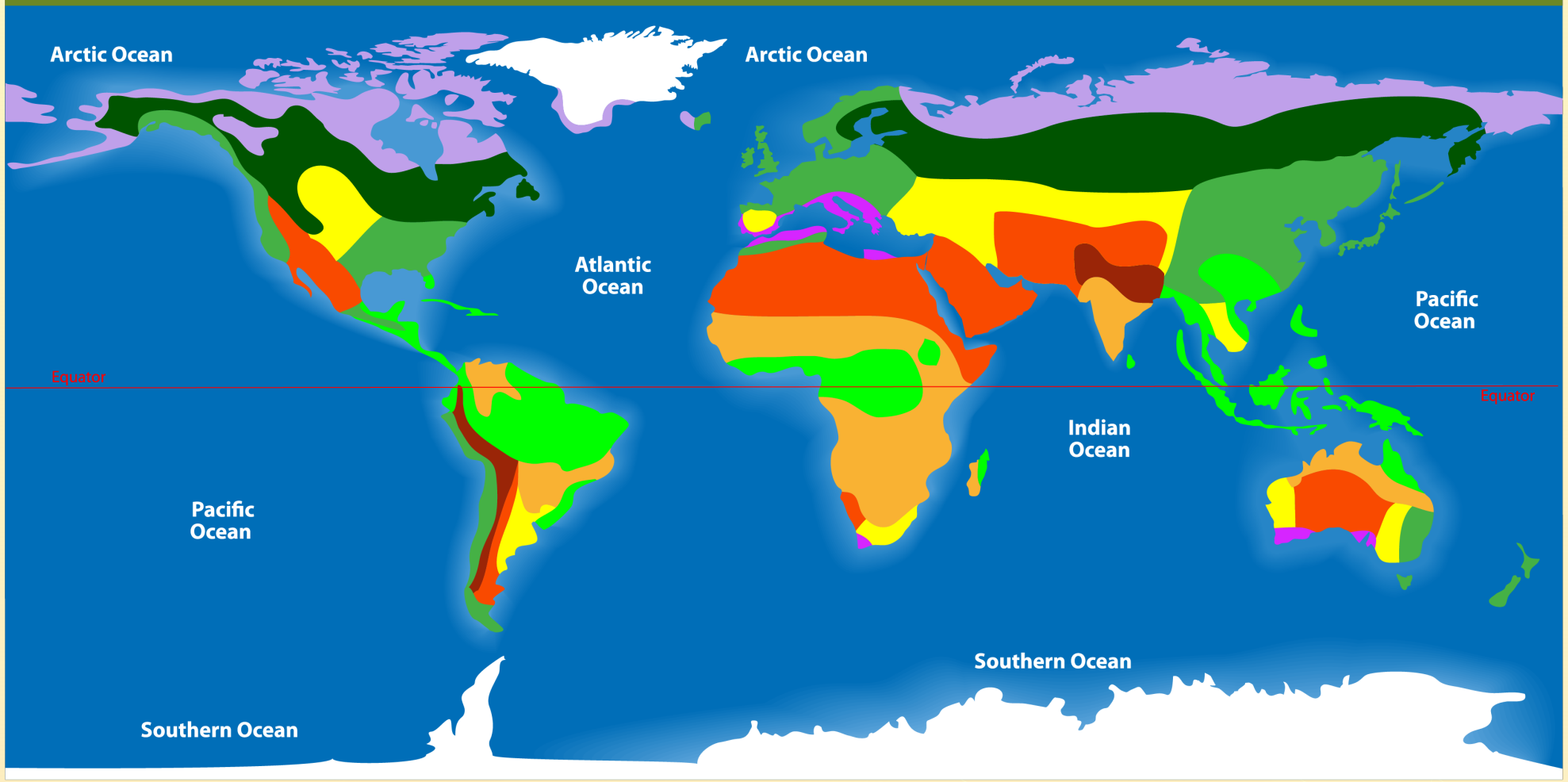
What is a biome?

Biomes are very large ecological areas e.g. tropical rainforest. The map below shows 10 of the world's main biomes.

The main biomes in the world



- Ice sheet and polar desert
- Tundra
- Taiga
- Montane (alpine tundra and montane forest)
- Mixed and deciduous forest
- Tropical rainforest
- Steppe
- Savanna
- Desert
- Mediterranean vegetation

The distribution of ecosystems is affected by local factors including:

- **Climate**
- **Altitude**
- **Soil Type**

Climate (rainfall, temperature and sunshine hours) is the main factor that influences the distribution of ecosystems. On a smaller scale, altitude and soil type become more important.

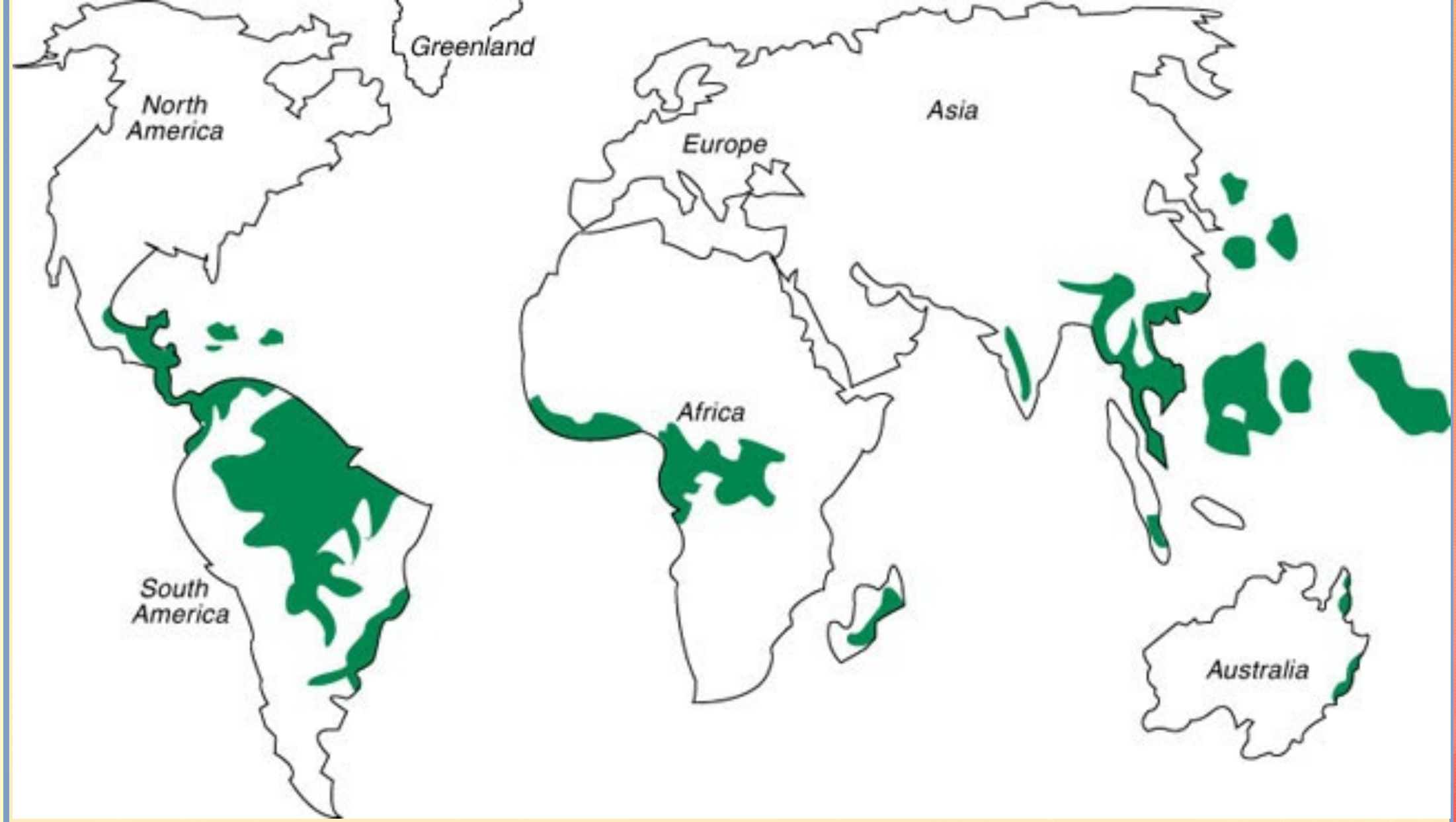
Altitude, height above sea level, affects the growth of vegetation. Higher altitudes are colder so fewer plants grow. This also limits the number of animal species that can thrive. Cold environments also have thin soils due to the lack of organic matter available to decompose and form soil.

Soil types also affect the diversity of plants and animals. Nutrient-rich soils can support more vegetation. The acidity, drainage and thickness of soils also affect whether plants can grow.

Biomes contain fauna and flora (animals and plants) that have adapted to the environment. *Biomes* are often defined by abiotic (non-living) factors such as climate, relief, geology, soils and vegetation.

Tropical rainforest

- 23.5° north – 23.5° south of the equator.
- Hot and wet all year.
- Around 12 hours of sunshine all year round.
- Rich in plants and animals.
- Almost all plants are evergreen (they don't drop their leaves in a particular season).
- Plants grow quickly and are adapted to take in maximum light.
- Dense vegetation provides food and habitats for many species of animals.
- Poor soils as nutrients are rapidly recycled as leaves decompose quickly, providing a constant supply of nutrients to the soil.



The Tropical Rainforest is located mainly in places near the Equator. Such areas include Central and South America, Southeast Asia, Africa, and Australia. Our favorite rainforest, that we suggest you go to, is located in Manaus, Brazil!

Tropical grassland or savanna

- Within the tropics. Mainly between 5° and 15° north and south of the equator.
- Lots of sunshine throughout the year.
- Relatively low rainfall (800-900mm).
- Hot with a wet and dry season.
- Fires are common in the dry season.
- Temperatures are highest (around 35°C) just before the wet season and lowest (around 15°C) just after it.
- Mainly grass, scrub, small plants and a few specially adapted trees e.g. acacia. These plants are adapted to recover quickly after a fire.
- Many species of insects.
- Large mammals such as lions, elephants, giraffe and zebras.
- Thin, nutrient-rich soil formed as the grass dies back or burned during the dry season.
- Nutrients are washed out (leached) during the wet season.

Desert

- 15-30° north and south of the equator.
- Located in a belt of high pressure (sinking air) and low rainfall.
- Low rainfall (less than 250 mm per year).
- It might only rain once every two or three years.
- High range in temperatures between very cold night temperatures (0°C) and hot day time temperatures (e.g. 45°C). Very hot and dry.
- Hot deserts get more daylight during the summer than the winter.
- There is little cloud cover because they get lots of sunshine hours during the day.
- Plant growth is sparse due to limited rainfall. Limited plants.
- Vegetation includes cacti and thornbushes.
- Many plants have a short life-cycle and appear only when it rains. Relatively few animals species, those that do exist have adapted to the harsh climate including scorpions, lizards, snakes and insects.
- Sparse vegetation means there is little leaf litter and high temperatures mean it is slow to decompose, leading to soils being thin and nutrient-poor.

Mediterranean

- 30-40° north and south of the equator.
- West coasts.
- Hot, dry summers and warm, wet winters.
- Mainly scrub vegetation – plants adapted to summer drought.

Mixed and Deciduous forest / Temperate forests

- 40-60° north and south of the equator.
- High rainfall and mild-temperatures in the mid-latitudes.
- Four distinct seasons.
- Warm summers and cool winters.
- Rain throughout the year, up to 1500 mm per year.
- Days are shorter in winter and longer in summer.
- Hours of sunshine vary throughout the year.
- Fewer plant species than tropical rainforests.
- Rich deciduous woodlands.
- Forests are made up of broad-leaved trees that drop their leaves in autumn e.g. oak, shrubs and undergrowth.
- Mild climate and range of plants provide food and habitats for mammals such as foxes, squirrels and mice, birds and insects.
- Plants lose their leaves in autumn, and leaf litter decomposes quickly, so soils are nutrient-rich and relatively thick.

Temperate Grassland

- 40-60° north and south of the equator (higher altitude and latitudes than tropical grasslands).
- 250-500mm of rainfall each year, mainly in late spring, early summer.
- Hot summers (up to 40°C) and very cold winters (down to -40°).
- Light varies throughout the year.
- Quite low rainfall.
- Mainly grassland vegetation.
- Rainfall is too low to support large plants, so there are few trees.
- Home to fewer species of animals than tropical grasslands.
- Mammals include bison and wild horses and rodents such as mole rats.
- Decomposition happens quickly in summer due to high temperatures. So soils are relatively thick and nutrient-rich.

Coniferous forest (Taiga) / Boreal Forest

- High latitudes, 60° north of the equator and on mountains.
- Long, cold winters (-20°C)
- Short, mild summer (-10°C)
- Limited precipitation (less than 500mm per year). Most of this falls as snow.
- Lots of daylight during the summer months, little or none during the winter.
- Clear skies so plenty of sunshine during daylight hours.
- Most trees are evergreen, so they can grow whenever there is enough sunlight.
- Coniferous trees such as pine and fir are common, as are low-growing lichen and mosses.
- Relatively few animals species because of the lack of food available.
- Animals include black bears, wolves and elk.
- Needles decompose slowly due to cold temperatures, so soils are thin, nutrient-poor and acidic.
- The soil is frozen for most of the year due to cold temperatures.

Tundra

- Far north, above 60°N in Northern Europe, Alaska and Russia.
- Below freezing for most of the year.
- Summer 5-10°C, winter -30°C.
- Low precipitation – less than 250mm per year, most of which falls as snow.
- Near-continuous sunlight during the summer, and little or no sunlight during the winter.
- There is more cloud cover in the summer.
- Few trees due to lack of light in the winter. Vegetation includes mosses, grasses and low shrubs.
- Relatively few species of animals. Examples include Arctic hares, Arctic foxes and birds.
- Some animals migrate south during the winter.
- Sparse vegetation produces little leaf litter and organic matter decomposes slowly due to the cold temperatures.
- Soil is thin and nutrient-poor.
- Below the soil surface, there is a layer of permanently frozen land (permafrost).
- Light snow.

Montane

- Very cold.
- Thin soils.
- Limited vegetation.

Polar

- Very cold all year round.
- A permanent or semi-permanent layer of ice.
- Mainly found in the Arctic and Antarctic.