

Terrestrial Biomes

Runa Rahman
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Introduction

- Biomes are large-scale environments that are distinguished by characteristic temperature ranges and amounts of precipitation.
- These two variables affect the types of vegetation and animal life that can exist in those areas.
- There are eight major terrestrial biomes-

- tropical rainforests,
- savannas,
- subtropical deserts,
- chaparral,
- temperate grasslands,
- temperate forests,
- boreal forests, and
- Arctic tundra

Tropical rainforests



Tropical rainforests

- Tropical rainforests are found in equatorial regions are the most bio-diverse terrestrial biome.
- In India these forests are found in Western Ghats.
- They have a temperature of 20-34⁰C.
- The annual rainfall is very high between 125-660cm.
- In these forest wind current is very low and only diffuse sunlight reaches the ground.
- They harbour more than a half of world's plant and animal populations.
- The common trees found in these areas are Rose wood, Bamboo, Mahogany, Ebony, Reeds etc.

- There are four distinct layers of trees in a tropical rainfall forest. They are- emergent, upper canopy, under storey and forest floor.
- Emergent trees are spaced wide apart and are 100-240 feet tall with umbrella shaped canopy.
- The upper canopy is 60-130 feet tall and is closed type.
- The under storey is 60 feet tall and is formed by crowns of shrubs and small trees.
- The forest floor is formed by herbaceous plants and other small plants on the ground.

Animals like worms, snails, milipeds, scorpions, spiders, planarians, leeches, monkeys, elephants, tigers etc.



Tundra Biome



- The tundra is the coldest of the biomes.
- Tundra is found in the regions just below the ice caps of the Arctic, extending across North America, to Europe, and Siberia in Asia. Much of Alaska and about half of Canada are in the tundra biome. Tundra is also found at the tops of very high mountains elsewhere in the world.
- The average annual temperature in winter is -70°C and in summer ranges from $3-16^{\circ}\text{C}$.
- Tundra biome is a windy place and winds blow at 30-60 miles per hour.
- The annual rainfall is 15-50cm. The soils of the Arctic tundra may remain in a perennially frozen state referred to as permafrost
- Biodiversity of plant is very low in tundra biomes. Lichens, mosses, and short shrubs are found in these biomes.

Plant diversity in Tundra



Temperate forests biome



- Temperate forests are the most common biome in eastern North America, Western Europe, Eastern Asia, Chile, and New Zealand.
- Temperatures range between -30 C and 30 C (-22 F to 86 F) and drop to below freezing on an annual basis. These temperatures mean that temperate forests have defined growing seasons during the spring, summer, and early fall. Precipitation is relatively constant throughout the year and ranges between 75 cm and 150 cm ($29.5\text{--}59\text{ in}$).
- Deciduous trees are the dominant plant in this biome with fewer evergreen conifers. Deciduous trees lose their leaves each fall and remain leafless in the winter.

- The trees of the temperate forests leaf out and shade much of the ground. However, more sunlight reaches the ground in this biome than in tropical rainforests because trees in temperate forests do not grow as tall as the trees in tropical rainforests. The soils of the temperate forests are rich in inorganic and organic nutrients compared to tropical rainforests. This is because of the thick layer of leaf litter on forest floors and reduced leaching of nutrients by rainfall. As this leaf litter decays, nutrients are returned to the soil. The leaf litter also protects soil from erosion, insulates the ground, and provides habitats for invertebrates and their predators.

- Animals that live in temperate forests adapt to the cool climate by hibernating in winter and living off the land in the remaining three seasons. The animals have also adapted by trying to find what plants are alright to eat and a good food source. The trees provide shelter for them. Most of the animals patterns and colours camouflage well with the ground. Birds, insects, reptiles, bears, squirrels, skunks and deer can all be found in Temperate Forests depending on where they are located.



Temperate grasslands

- Temperate grasslands are found throughout central North America, where they are also known as prairies, and in Eurasia, where they are known as steppes.
- Temperate grasslands have pronounced annual fluctuations in temperature with hot summers and cold winters.
- Annual precipitation ranges from 25.4 cm to 88.9 cm (10–35 in).
- Temperate grasslands have few trees except for those found growing along rivers or streams. The dominant vegetation tends to consist of grasses.
- The vegetation is very dense and the soils are fertile because the subsurface of the soil is packed with the roots and rhizomes (underground stems) of these grasses. The roots and rhizomes act to anchor plants into the ground and replenish the organic material (humus) in the soil when they die and decay.

Temperate grasslands

