

## The Desert Biome

Deserts makeup about 20% of total land cover on earth and are characterized by little (less than 50cm/yr) or no rainfall. Desert biomes come in four major kinds— each of these having their unique features but have similarities in their biotic and abiotic makeup. They are the **Hot and Dry Deserts, Semi Arid Deserts, Coastal Deserts and Cold Deserts**, and within these are many deserts located in many places of the world.

Desert biomes have very high temperatures because of the little vegetative cover, less cloud cover, low atmospheric moisture and the land's exposure to the sun. Humidity is very low, with a few events of very little rain in a year.

Soil cover is shallow and rocky, as a result of very little weathering (breakdown) and supports only a few plant types. Soils have very little or no organic matter, and very low in salt content.

Plants that survive here are short shrubs and cacti, which have the ability to conserve water. Plants are also less leafy, using their stems for photosynthesis. Examples of plants are the yuccas and the sotol.

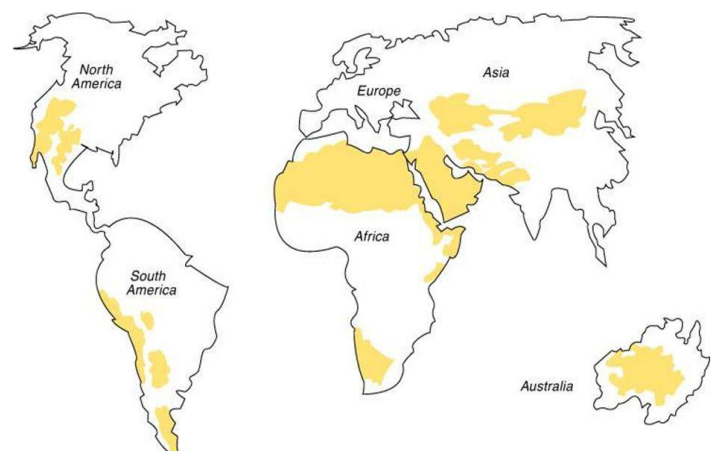


Animals here tend to burrow, or stay in hideaways till dusk to avoid the heat. They are mainly small carnivores, birds, insects, snakes and lizards, and are adapted to survive with very little water. Examples of the Hot and Dry Desert biomes include the Sahara of North Africa and the Chihuahuan of Southern USA and parts of Mexico.

Semiarid Desert biomes include the sagebrush of Utah, Montana and Great Basin. Atacama Desert of Chile and Peru are examples of Coastal Desert biomes.



## Desert Biomes



## The Aquatic Biome

This includes all water bodies on the earth's surface. Aquatic biomes are grouped into two, **Freshwater Biomes** (lakes and ponds, rivers and streams, wetlands) and **Marine Biomes** (oceans, coral reefs and estuaries). These biomes make up about 73% of the total earth's surface.

Life forms in these waters depend on the abiotic factors such as sunlight entering the waters, temperature, pressure, salt content and so on. Water biomes with lots of light tend to have more flora (plant) diversity, and the growth of algae and plankton is more. Small water bodies that freeze during the cold seasons, or dry out in the dry and hot seasons tend to have less diversity.

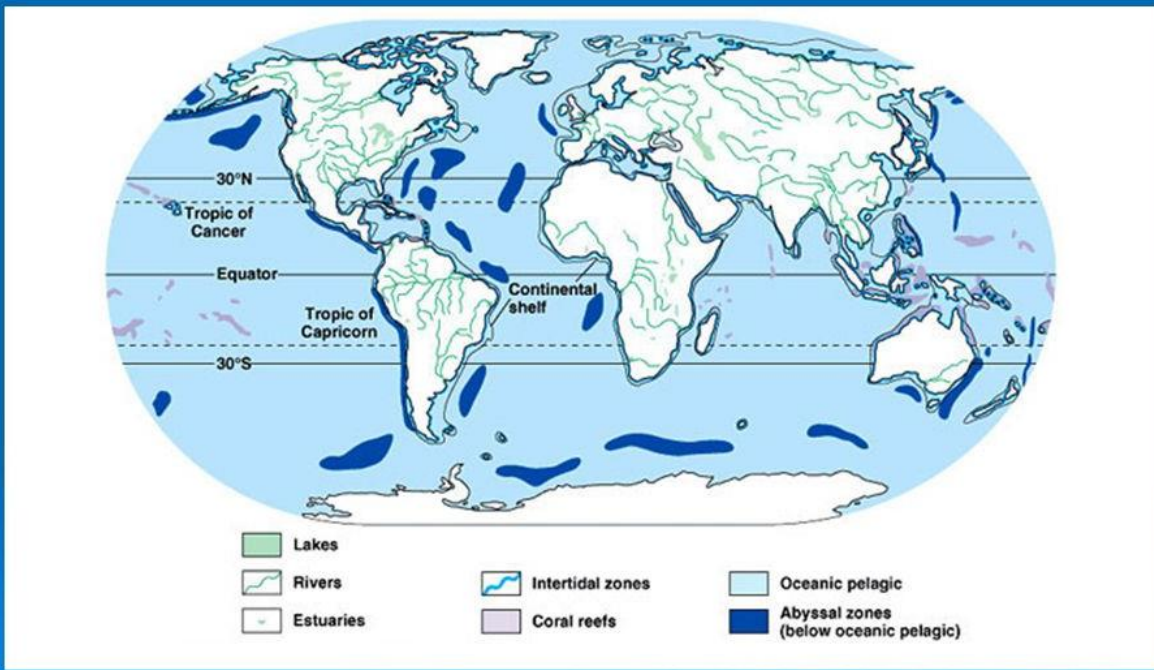


Examples of animals found in marine biomes include starfishes, sharks and tuna and sea birds. Examples of animals in freshwater biomes include salmon, tilapia worms, water-surface insects and crabs.

Aquatic biomes are very important because apart from being home to millions of water animals, they also form the basis of the water cycle and help with atmospheric moisture, cloud formation and precipitation. One example of a marine biome is the Great Barrier Reef (a coral reef system) of Australia.

An example of a fresh water biome is the Amazon River in Brazil.

## Aquatic Biomes



## The Forest Biome

Forests make up about 30% of the total land cover on earth and are of incredible value to life on Earth. They are a store of carbon and play a very important role in climate control. They have a watershed role and are a source of many raw materials that humans depend on. It is believed that forests have the most biodiversity. A small portion of the Rainforests, for example, may be home to millions of insects, birds, animals and plants. There are three main biomes that make up Forest Biomes. These are the **Tropical Rainforest, Temperate and Boreal Forests** (also called the Taiga)

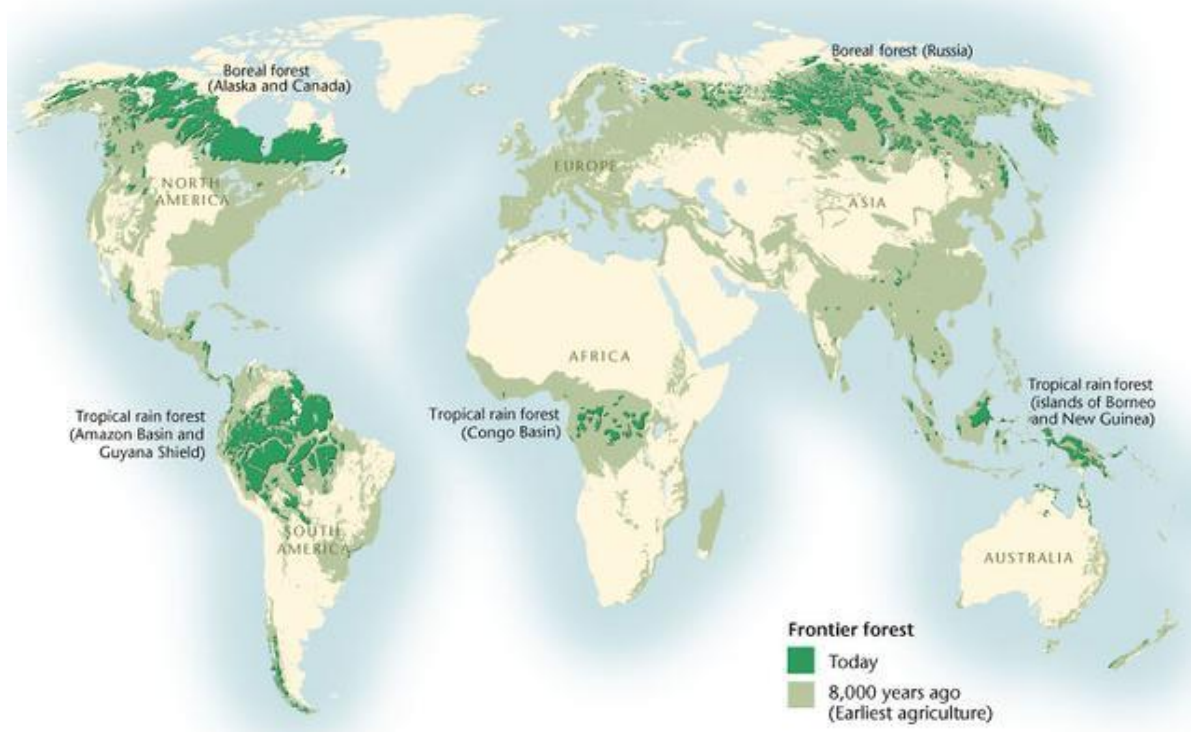
Temperatures of forests biomes (especially the tropical rainforest) are generally high all year though, but a lot cooler at the surface. This is because there is very little sunlight reaching the forest floors as a result of the heavy vegetative cover.

Humidity is extremely high with lots of rainfall, exceeding 200cm all year though.

Soils are loose and very airy, with high acidity and decaying organic matter.

Plant types of the Tropical Rainforests are usually huge trees with buttress roots, lots of large green leaves and shallow roots. Ferns and palms are also common. Plants in the Temperate forests are less dense with a bit of sunlight reaching the floors. Tree types include the willow, basswood and elm. Plants of the Boreal are mostly conifers with needle-like leaves. There is very little understory and lots of light at the floors. Trees like fir and spruce are common.

Small mammals, birds, insects and bats are common in the tropical rainforests, as they either can fly up for sunlight or do not need sunlight. However all the forest biomes have lots of skunks, deer, squirrels, foxes, birds and reptiles.





## The Grassland Biome

As the name suggests, these are massive areas dominated by one or a few species of grass, with a few sparsely distributed trees. There are two main types of grassland biomes: the **Savanna Grasslands** and the **Temperate Grasslands**. One major savanna is located in Africa and takes up more than a third of the continent's land area. Others can be found in India, South America and Australia. Temperate grasslands can be found in South Africa, Argentina, and some plains in Central North America.



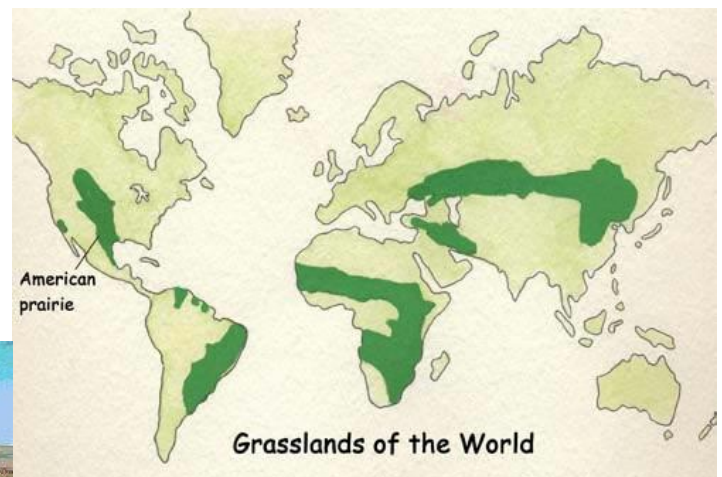
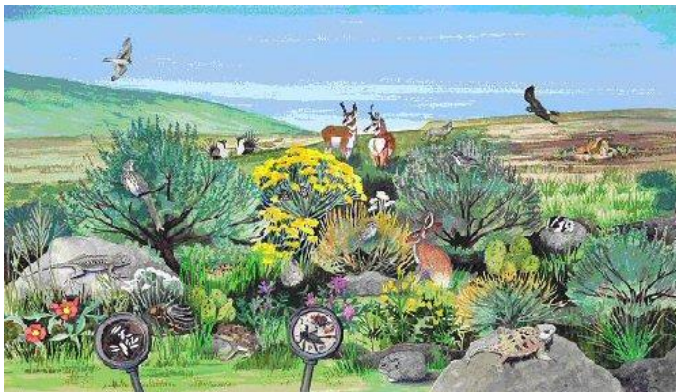
If the grassland is prevented from developing into a forest by climatic conditions such as rainfall, it is termed as 'climatic savannas'. If their characteristics are kept by soils, they are termed as 'edaphic savannas'. Sometimes, large animals such as elephants can constantly disturb young trees from taking over grasslands. Human activities such as farming or bush fires can also prevent grasslands from developing into forests. Such grasslands are

termed 'derived savannas'.

Soils in savanna are thin-layered and do not hold water. The soils contain some organic matter from dead grass, which is the main source of nutrients for plants.

Rainfall is moderate, and not enough to cause major floods. Animals in the savannas include large mammals such as lions, hyenas, snakes, giraffes and buffaloes with lots of insects.

Temperatures in the Temperate grasslands are extreme, with high summer and freezing winter temperatures. Animals here include hawks, owls, deer, mice, foxes, rabbits and spiders. Temperate grasslands with short grasses are called 'steppes' and those with tall grasses are called 'prairies'



## The Tundra Biome

This is known to be the coldest of all the terrestrial (land) biomes, with the least biodiversity capacity. Tundra got its name from '*Tunturia*' a Finnish word that means 'barren land'. This biome has very little rain with freezing temperatures, and covers about a fifth of the earth's land surface.

There are two major tundra biomes: **The Arctic Tundra and the Alpine Tundra**. The Arctic tundra is located around the north-pole in the northern hemisphere. This biome has temperatures of about 2-3°C in the summer and about -35°C in the winter. Bogs and ponds are common as a result of constantly frozen surface moisture and melted permafrost.



Plants in the Arctic Tundra are short and grow closely to each other. Examples include mosses, heaths and lichen. They are adapted to perform photosynthesis even in the freezing conditions. Animals here include herbivores like hares and squirrels. Carnivores include polar bears and arctic foxes. It also has lots of birds, insets and fish like cod and salmon.

The Alpine Tundra is very cold, located on top of high mountains, often with very few trees and very little vegetative cover. They are icy for a larger part of the year. Animals in this biome include some birds, mountains goats and marmots. There are also beetles and butterflies.

