

## Comparing Four of Earth's Biomes

Earth is covered with many types of biomes. Biomes are groups of plants, animals, and other organisms that live together in a similar environment. Biomes vary based on the types of animals or plants that live in them, the climate, how much water is available, and how life survives.

### Marine Biome

The marine biome is primarily made up of the saltwater oceans. It is the largest biome on planet Earth and covers around 70% of the Earth's surface and over 90% of life on Earth lives in the ocean. The average temperature of the ocean is 39 degrees F.

The marine biome has the greatest biodiversity of all the biomes. Many of the animals, such as fish, have gills that allow them to breathe the water. Other animals, like seals and whales, need to come to surface to breathe but have fins and flippers to be able to swim in the water.

There are thousands of species of plants that live in the ocean. They rely on photosynthesis from the sun for energy. Plants in the ocean are extremely important to all life on planet earth. Algae in the ocean absorbs carbon dioxide and provides much of the Earth's oxygen. Examples of algae include kelp and phytoplankton. Other ocean plants are seaweeds, sea grasses, and mangroves.

### Desert biome

Deserts are primarily defined by their lack of rain and overall lack of water. They generally get 10 inches or less rain in a year. They have dry soil, little to no surface water, and high evaporation. They are so dry that sometimes rain evaporates before it can hit the ground!

Because deserts are so dry and their humidity is so low, they have no "blanket" to help insulate the ground. As a result, deserts get very hot during the day but do not hold the heat overnight. Some deserts can reach temperatures of over 100 degrees F during the day and then drop below freezing (32 degrees F) during the night.

Animals have adapted to survive in the desert despite its extreme temperatures and lack of water. Many animals sleep during the day and come out when it is cooler at night. Animals that live in the desert have also adapted to needing little water. Many get all the water they need from the food they eat. Other animals store fat to use when food is scarce. The camel stores up fat in its hump while other animals store up reserves in their tails. Desert animals include meerkats, camels, reptiles; such as horned toads, scorpions, and grasshoppers.

Only certain types of plants can survive the harsh environment of the desert. These include cactus, grasses, shrubs, and some short trees. Most of these plants have a way to store water in

their stems, leaves, or trunks so they can survive a long time without water. They also tend to be spread out from each other and have a large root system so they can gather up all the water possible when it does rain.

## **Grassland biome**

Grasslands are generally located between deserts and forests. Temperate grasslands are wide expanses of land filled with low growing plants such as grasses and wildflowers. Grasslands get 10 to 35 inches of rain per year, which is not enough to grow tall trees and produce a forest. The temperate grasslands have seasons including a hot summer with highs of 100 degrees F and a cold winter with lows of -40 degrees F.

A variety of animals live in the grasslands. These include prairie dogs, wolves, turkeys, eagles, weasels, bobcats, foxes, and geese. A lot of smaller animals hide down in the grasses such as snakes, mice, and rabbits.

Different kinds of grass grow in different areas of the grasslands. Where the grass grows usually depends on the amount of rain that area gets. In wetter grasslands, there are tall grasses that can grow up to six feet high. In dryer areas the grasses grow shorter, maybe only a foot or two tall.

The temperate grassland biome plays an important role in human farming and food. They are used to grow staple crops such as wheat and corn. They are also good for grazing livestock such as cattle.

## **Tundra biome**

The tundra is the coldest of the biomes. It is a treeless plain where harsh conditions make it hard for plants and animals alike to survive. Around 20% of the Earth is tundra. The tundra gets about 10 inches of precipitation per year, mostly snow.

The tundra has two distinct seasons: a long winter and a short summer. Winter in the tundra lasts around 8 months and is extremely cold. The tundra is frozen and often covered with snow during the winter and can reach temperatures of -60 degrees F. However, the summer is shorter. In the middle of summer the sun is up for 24 hours, and temperatures may reach 50 degrees F causing the snow to melt and wetlands to form.

Plants that grow in the tundra include grasses, shrubs, herbs, and lichens. They grow in groups and stay low to the ground to stay protected from the icy winds. Additionally, plants tend to have shallow roots and flower quickly during the short summer months.

The tundra has a lot more animal activity during the summer than the winter. This is because most birds migrate south for the summer, insects lay eggs that wait for the summer to hatch,

and some mammals hibernate for the winter. There are even some animals, like the caribou, which migrate south for the winter. In contrast, some animals have adapted to winter in the tundra. The fur of some animals, like arctic hares and foxes, changes from brown in the summer to white in the winter to blend in with the snow.