

Major Biomes of the World

Have you visited any biomes lately? A biome is a large ecosystem where plants, animals, insects, and people live in a certain type of climate. If you were in northern Alaska, you would be in a frosty biome called the Arctic tundra. If you jumped on a plane and flew to Brazil, you could be in a hot and humid biome called the tropical rainforest. The world contains many other biomes: grasslands, deserts, and mountains, to name a few. The plants and animals living in each are as different as their climates. Which is your favorite?

Arctic Tundra

The Arctic tundra is a cold, vast, treeless area of low, swampy plains in the far north around the Arctic Ocean. It includes the northern lands of Europe (Lapland and Scandinavia), Asia (Siberia), and North America (Alaska and Canada), as well as most of Greenland. Another type of tundra is the alpine tundra, which is a biome that exists at the tops of high mountains.

Special features:

This is the earth's coldest biome. Since the sun does not rise for nearly six months of the year, it is not unusual for the temperature to be below -30°F in winter. The earth of the Arctic tundra has a permanently frozen subsoil, called permafrost, which makes it impossible for trees to grow. Frozen prehistoric animal remains have been found preserved in the permafrost.

In summer, a thin layer of topsoil thaws and creates many pools, lakes, and marshes, a haven for mosquitoes, midges, and blackflies. More than 100 species of migrant birds are attracted by the insect food and the safe feeding ground of the tundra. Other animals that live in this biome include polar bears, Arctic foxes, caribou, and grey wolves. Plants that you might find include small shrubs and cushion plants, and the lichen which cover the many rocks on the tundra's terrain. The Arctic is also famous for the beauty of its flowers during early autumn.

Coniferous Forest

The coniferous forest biome is south of the Arctic tundra. It stretches from Alaska straight across North America to the Atlantic Ocean and across Eurasia. The largest stretch of coniferous forest in the world, circling the earth in the Northern Hemisphere, is called the "taiga." It supplies the bulk of the world's commercial softwood timber, which is used to make paper.

Special features:

These forests consist mainly of cone-bearing trees such as spruce, hemlock, and fir, which are well suited to the cold climate. The soil is not very fertile, however, because there are no leaves to decompose and enrich it. Some animals that thrive in this biome are the ermine, the moose, the red fox, the snowshoe rabbit, and birds such as the crossbill and the great horned owl.

Deciduous Forest

This biome is in the mild temperate zone of the Northern Hemisphere. Major regions are found in eastern North America, Europe, and eastern Asia.

Special features:

Deciduous trees lose their leaves in fall. The natural decaying of the fallen leaves enriches the soil and supports all kinds of plant and animal life. The deciduous forest is a lively place, where oak, beech, ash, and maple trees are typical, and wildflowers, berries, and many types of insect and animal life abound. But the fertile soil is also good for people, and in Europe most of the deciduous forest has been destroyed to make room for farms and homes. In the U.S., the deciduous forest is a home for deer, American gray squirrels, wood mice, rabbits, raccoons, woodpeckers, cardinals, and finches, to name a few.

Desert

A desert is an area where little or no life exists because of a lack of water. Scientists estimate that about one-fifth of the earth's land surface is desert. Deserts can be found on every continent except Europe. There are two different kinds: hot and dry (such as the Arabian and Sahara deserts) and cold and dry (such as Antarctica and the Gobi desert).

In North America, there are four major deserts: the Great Basin, the Mojave, the Sonoran, and the Chihuahuan. All but the Great Basin are hot deserts located in Mexico and the southwestern part of the United States. The Great Basin covers parts of Idaho, Nevada, Oregon, and Utah, and is considered a cold desert.

Special features:

The lack of water and intense heat or cold make this biome inhospitable to most life forms. Most of the plants you'll see in the desert are species of cactus. You might come across yucca, aloe, ocotillo plants, or the tall saguaro cacti. A few animals—mainly reptiles, like snakes and lizards, and amphibians, like frogs and toads—are well adapted to the hot desert. Another famous desert animal is the camel, which can make water from the fat it stores in its hump. The Emperor

and Adélie penguins are well-known animals living at the edge of the Antarctic desert.

Grasslands

Grasslands are places with hot, dry climates that are perfect for growing food. They are known throughout the world by different names. In the U.S. they are called prairies and extend from the Midwest to the Rocky Mountains. In South Africa, grasslands are called the veld. Hot, tropical grasslands called savannas are found in South America and Africa. In Eurasia, temperate zone grasslands are called steppes; in South America, pampas.

Special features:

This inland biome is made of vast areas of grassy field. It receives so little rain that very few trees can grow. The U.S. prairies are used to graze cattle and to raise cereal crops. There is little variety of animal life. Some original prairie animals like the wolf and bison have come close to being eliminated from the habitat by hunters. Today, some of the most common grassland animals include the prairie dog and the mule deer in North America, the giraffe and the zebra in Africa, and the lion in Africa and Asia.

Mountains

Mountains exist on all the continents of the earth. Many of the world's mountains lie in two great belts. The Circum-Pacific chain, often called the Ring of Fire, runs from the west coast of the Americas through New Zealand and Australia and up through the Philippines to Japan. The other major belt, called the Alpine-Himalayan, or Tethyan, system, stretches from the Pyrenees in Spain and France through the Alps and on to the Himalayas before ending in Indonesia.

Special features:

Mountains are usually found in groups called chains or ranges, although some stand alone. A mountain biome is very cold and windy. The higher the mountain, the colder and windier the environment. There is also less oxygen at high elevations.

The animals of this biome have adapted to the cold, the lack of oxygen, and the rugged landscape. They include the mountain goat, ibex (wild goat), sheep, mountain lion, puma, and yak. All of them are excellent climbers, which means they can move freely in the steep, rocky landscape. Types of plants vary depending on geographic location and altitude. Lower elevations are commonly covered by forests, while very high elevations are usually treeless.

Rainforests

Tropical rainforests are found in Asia, Africa, South America, Central America, and on many of the Pacific islands. They are often found along the equator. Almost half of the world's tropical rainforests are in the South American country Brazil.

There are other types of rainforests around the world, too. For example, northern Australia has a “dry rainforest” that experiences a dry season each year, and the rainy Pacific Northwest in the United States has a “temperate rainforest” that is made up of evergreen trees.

Special features:

Tropical rainforests receive at least 70 inches of rain each year and have more species of plants and animals than any other biome. Many of the plants used in medicine can only be found in tropical rainforests. The combination of heat and moisture makes this biome the perfect environment for more than 15 million plants and animals. The thick vegetation absorbs moisture, which then evaporates and completes the cycle by falling again as rain.

A rainforest grows in three levels. The canopy, or tallest level, has trees between 100 and 200 feet tall. They block most of the sunlight from the levels below. The second level, or understory, contains a mix of small trees, vines, and palms as well as shrubs and ferns. The third and lowest level is the forest floor, where herbs, mosses, and fungi grow.

Rainforests are an endangered biome. People have cut the trees and sold the wood for firewood, building materials, and paper. Parts of the rainforest have been burned to make space for grazing and farming. Every minute, approximately 30 acres of rainforest are destroyed. The large amounts of carbon dioxide that are released due to the cutting and burning of rainforests contribute to the greenhouse effect.

Some of the animals of the tropical rainforest are the anteater, jaguar, brocket deer, lemur, orangutan, marmoset, macaw, parrot, sloth, and toucan. Among the many plant species are bamboo, banana trees, rubber trees, and cassava.

Biodiversity Hotspots of the World

Biodiversity hotspots are defined as regions “where exceptional concentrations of endemic species are undergoing an exceptional loss of habitat”. In this article, we are giving the concept of Biodiversity Hotspots, the criteria to qualify as a Biodiversity Hotspot and the name of Hotspot regions of the world, which is very useful for the competitive examinations like UPSC-prelims, SSC, State Services, NDA, CDS, and Railways etc.



Biodiversity Hotspots of the World

Biodiversity hotspots are defined as regions “where exceptional concentrations of endemic species are undergoing an exceptional loss of habitat”. The concept of biodiversity hotspots was developed by the **Norman Myers in 1988** when he identified that the tropical forest losing its plants species as well as habitat.

IUCN prepares ‘**Red Data Book**’. There are **34 areas around the world** which are qualified as **Biodiversity hotspots**. These hotspots represent only 2.3% of the total Earth's land surface. These hotspots are important because Biodiversity underpins all life on Earth. Without species, there would be no air to breathe, no food to eat, no water to drink. There would be no human society at all. And as the places on Earth, where the most biodiversity is under the most threat, hotspots are critical to human survival.

Criteria to qualify as a Biodiversity Hotspot

A region must meet two strict criteria to qualify as a biodiversity hotspot which is given below:

1. It must have at least **1,500 vascular plants** as endemics which are to say, it must have a high percentage of plant life found nowhere else on the planet. A hotspot, in other words, is irreplaceable.
2. It must have **30% or less of its original natural vegetation**. In other words, it must be threatened.

Biodiversity Hotspots of the World

These hotspots regions support a rich biodiversity because of geologic formations and endemic flora and fauna and also exhibit exceptional scientific

interest. It is important ecosystem in the world and the habitat of endemic species. The Biodiversity Hotspots of the World are given below:

Africa

1. Eastern Afro-Montane
2. The Guinean forests of Western Africa
3. Horn of Africa
4. Madagascar and the Indian Ocean Islands
5. Maputoland, Podoland, Albany hotspot
6. Succulent Karou
7. East Malanesian islands
8. South Africa's Cape floristic hotspot
9. Coastal forests of Eastern Africa

Terrestrial Biomes of the World

Asia and Australia

1. Himalayan hotspot
2. The Eastern Himalayas
3. Japan biodiversity hotspot
4. Mountains of South-West China
5. New Caledonia
6. New Zealand biodiversity hotspot
7. Philippine biodiversity hotspot
8. Western Sunda (Indonesia, Malas and Brunei)
9. Wallace (Eastern Indonesia)
10. The Western Ghats of India and Islands of Sri Lanka

11. Polynesia and Micronesian Islands Complex including Hawaii

12. South-Western Australia

North and Central America

1. California Floristic Province

2. Caribbean islands hotspot

3. Modrean pine-oak wood lands of the USA and Mexico border

4. The Mesoamerican forests

Aquatic Biomes of the World

South America

1. Brazil's Cerrado

2. Chilean winter rainfall (Valdivian) Forests

3. Tumbes-Choco-Magdalena

4. Tropical Andes

5. Atlantic forest

Europe and Central Asia

1. Caucasus region

2. Iran-Anatolia region

3. The Mediterranean basin and its Eastern Coastal region

4. Mountains of Central Asia

Above Biodiversity Hotspot regions are blessed with a variety of exceptional plant species and habitat, but facing endemism and serious habitat loss. Hence, it is our duty to protect and conserve the endemic species and their habitat. We can conserve biodiversity in two ways- first is in-situ and second is ex-situ. In-situ conservation involves in the maintenance of bio-diversity rich area in its natural form, whereas in ex-situ conservation, the endangered species are kept in a specially protected area which is separated from its natural habitat region.