

Biome

Introduction

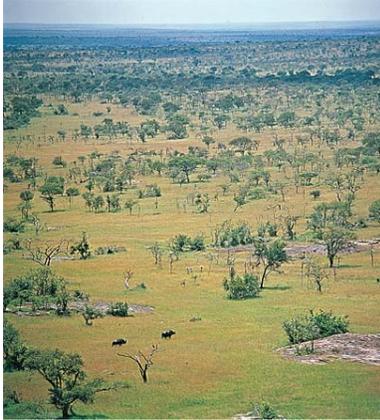
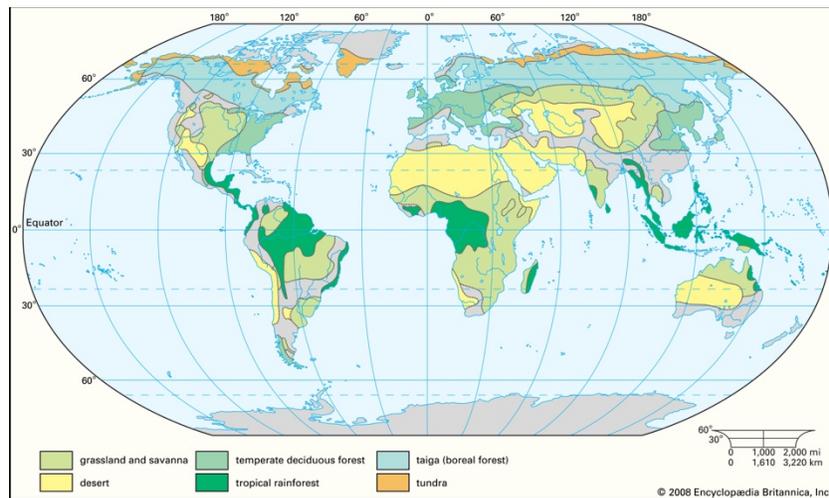


Figure 1: Africa's Serengeti Plain is a savanna biome.

The major recognizable life zones of the continents are called biomes. Because vegetation is usually the dominant and most apparent feature of the landscape, a biome is characterized by its plant community. More formally, a biome can be defined as a major biological community of plants and animals with similar life forms and environmental conditions. In the Earth system, the biome is the largest biotic geographic unit.

Biomes are named for the dominant type of vegetation they contain, such as grassland or forest. Because they are defined by environmental conditions and vegetation, the same type of biome may be found in different parts of world. For example, desert biomes, are found largely in locations between 15° and 35° latitude North and South of the Equator that receive scant rainfall (less than 10 inches [25 centimeters] per year on average).



The six major biomes are tundra, taiga, temperate deciduous forest, tropical rain forest, grassland and savanna, and desert.

Tundra



Figure 2: Reindeer (caribou) graze on the Arctic tundra of Canada's Northwest Territories.

The tundra biome is found in extreme northern regions. It is the coldest of the six major biomes—so cold that a layer of permanently frozen soil, called permafrost, lies under the rocky topsoil. Although the tundra receives little precipitation, bogs and ponds often form because little evaporation and drainage take place.

Generally situated on level or rolling ground, tundra is a treeless landscape characterized by low vegetation, particularly mosses, lichens, and short grasses. There are two major tundra zones: the

Arctic tundra, found mostly north of the Arctic Circle, and the alpine tundra, located above the timberline on high mountains. Arctic foxes, reindeer, and migrating birds are some common tundra animals.

Taiga

The taiga, or boreal forest, covers a broad region of cold, but not permanently frozen, land south of the tundra. It extends in a belt across North America, Europe, and Asia between the latitudes 60° N and 50° N. The taiga is warmer than the tundra and receives more precipitation, mostly in summer.

Coniferous vegetation, composed largely of evergreen trees such as pines, spruces, and firs, dominate the taiga biome. Animals adapted to the cold, wet conditions of the taiga include squirrels, rabbits, weasels, moose, wolves, reindeer, and bears. Migratory birds are plentiful in the summer, when insects also are abundant.



Figure 3: Evergreen trees surround a beaver pond in the taiga, or boreal forest, in Wrangell–St. Elias National Park and Preserve, in Alaska.



Temperate Deciduous Forest

Temperate deciduous forests are found in regions of the Northern Hemisphere that have moist, warm summers and frosty winters—primarily eastern North America, eastern Asia, and western Europe. Temperate deciduous forests are dominated by hardwood broad-leaved trees, most of which lose their leaves each fall and grow new ones each spring. Oaks, beeches, hickories, and maples are common. Sufficient light reaches the forest floor to support the growth of many species of shrubs, herbs, and mosses. Flowering plants are abundant in the spring. Animals include squirrels, rabbits, deer, foxes, wolves, bears, and many other mammals; many kinds of birds, such as owls, pigeons, and migrating songbirds; and some reptiles and amphibians.

Toward the polar regions, temperate forests grade into boreal forests, which are dominated by evergreen conifers, so that mixed forests containing both deciduous and coniferous trees occupy intermediate areas.

Tropical Rainforest

Lush with broad-leaved evergreen trees and diverse plant and animal life, tropical rainforests are situated in the wet, warm areas near the Equator. Rainforests occupy parts of northern South America, Central America, equatorial Africa, India and Southeast Asia, and northeastern Australia.

Tropical rainforests receive the most rainfall of any terrestrial biome and have warm temperatures year-round. The canopy, or upper layer of trees, is so dense in some places that daylight barely penetrates to the ground level. Many animals live in the canopy and rarely leave. Epiphytes, or air plants, live on tree trunks or branches and never touch the ground during their life cycle. Among them are numerous species of orchids, ferns, and bromeliads. Lianas (woody vines) almost completely cover many of the trees.



Figure 4: Numerous kinds of green plants grow in profusion in a rainforest in Dominica. The existence of nearly the entire biosphere—including people and all other animals—depends on the photosynthesis carried out by the world's green plants and certain algae an

Many species found in rainforests are not found anywhere else on Earth. Among these are mammals such as gorillas, orangutans, and most monkeys; birds such as toucans and many parrots; numerous types of reptiles and amphibians; and countless species of insects.

Grassland and Savanna

In temperate or tropical regions where precipitation is sparse or erratic, grasses are the dominant plants. Trees and shrubs are rare or absent in temperate grasslands, which cover large tracts of central North America, central and eastern Asia, eastern Europe, southern Africa, and southern South America. These grasslands have dry, warm to hot summers and damp, cold winters. Prairies, steppes, and pampas are all types of temperate grasslands.



Figure 5: A herd of gnu (wildebeests) crosses the Mara River in Serengeti National Park, in Tanzania.

Tropical grasslands, or savannas, have scattered drought-resistant trees. Savannas are found in northern Australia, southern India, part of Southeast Asia, northern South America, and more than half of sub-Saharan Africa. Savannas are warm year-round, with distinct wet and dry seasons.

Both savannas and grasslands exist as vast plains. Characteristic animals include small burrowing mammals, large grazing mammals, and the mammals that prey on them. Animals range from the lions, hyenas, baboons, zebras, gazelles, giraffes, warthogs, vultures, and ostriches of Africa's Serengeti Plain, to the coyotes, skunks, badgers, and songbirds of the North American prairies.

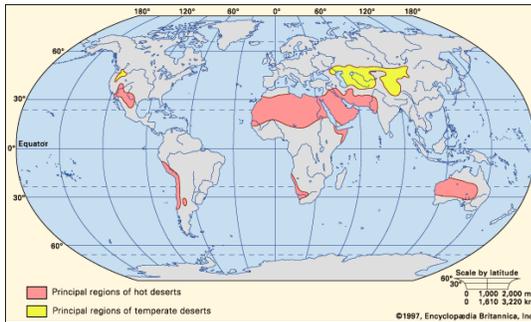
Desert

Deserts are characterized by their extreme dryness. A desert typically receives less than 10 inches (25 centimeters) of rain annually. The vegetation is normally very sparse, and both plants and animals are specially adapted to withstand low moisture levels.



Figure 6: North America's Sonoran Desert is a typical hot desert.

Many people associate deserts with extreme heat, but there are both hot and cold deserts. Hot deserts, where it can be extremely hot during the day but cool at night, are found near the latitudes 30° N and 30° S. The Sahara of northern Africa is an example of a hot desert. Typical plants found in hot deserts include cacti and other succulents (plants that store water in their leaves or stems) as well as various types of brush and grasses.



Cold, or temperate, deserts lie at higher latitudes. Much of Antarctica is considered a desert. Other large cold deserts include the Taklimakan in northwestern China, the Gobi in Mongolia, the Great Basin in the western United States, and the Atacama Desert in Chile. Cold deserts have cold winters but may have fairly warm summers. Scattered small

bush vegetation is common.



Figure 7: The Altai Mountains rise above the Gobi in south-central Mongolia.

Animals in the various deserts include many lizards and snakes, plus burrowing rodents such as gerbils, mice, and gophers. There are also jackrabbits, gazelles, coyotes, foxes, owls, vultures, and hawks. Many animals in hot deserts are active at night, a strategy that allows them to avoid the daytime heat.

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