

Tropical Rain
Forest

Tropical Dry
Forest

Tropical Savanna

Desert

Tropical Savanna

Characterized by a cover of grasses. Spotted with isolated trees and small groves of trees and shrubs. Compact soils, fairly frequent fires, and large animals (rhinoceroses) prevent some savanna areas from turning into dry forest.

Abiotic Factors: Warm temp; seasonal rainfall; compact soil; frequent fires b/c of lightning

Dominant Plants: Tall, perennial grasses; drought-tolerant and fire-resistant trees or shrubs

Dominant Wildlife: Predators: lions, leopards, cheetahs, hyenas, and jackals; aardvarks; herbivores: elephants, giraffes, antelopes, zebras; baboons; birds: eagles, ostriches, weaver birds, storks; insects: termites

Geographic Distribution: large parts of eastern Africa, southern Brazil, northern Australia

Desert

Deserts are dry, defined as having less than 25 centimeters of precipitation annually. Deserts vary greatly based on elevation and latitude. Many undergo extreme temperature changes during the course of a day, between hot and cold. Organisms in the desert can tolerate extreme conditions.

Abiotic Factors: Low precipitation; variable temperatures; soils rich in minerals but poor in organic material

Dominant Plants: Cacti and other succulents; creosote bush and other plants with short growth cycles

Dominant Wildlife: Predators: mountain lions, gray foxes, bobcats; herbivores: mule deer, pronghorn antelopes, desert bighorn sheep, kangaroo rats; birds: owls, hawks, roadrunners; insects: ants, beetles, butterflies, flies, wasps; reptiles: tortoises, rattlesnakes, lizards

Geographic Distribution: Africa, Asia, Middle East, US, Mexico, S. America, Australia

Tropical Rain Forest

Home to more species than all other biomes combined! Trees as tall as 50-80 meters for dense covering, the canopy. Below canopy are shorter trees and vines, the understory. Organic matter that falls to forest floor quickly decomposes, recycling nutrients.

Abiotic Factors: Hot and wet all year; thin, nutrient-poor soils

Dominant Plants: Broad-leaved evergreen trees; ferns; large woody vines and climbing plants; orchids and bromeliads

Dominant Wildlife: Herbivores: sloths, tapirs, capybaras; predators: jaguars, anteaters, monkeys; birds: toucans, parrots, parakeets; insects: butterflies, ants, beetles; fish: piranhas, freshwater fish; reptiles: caymans, boa constrictors, anacondas

Geographic Distribution: Parts of South and Central America, Southeast Asia, parts of Africa, southern India, and northeastern Australia

Tropical Dry Forest

Grow in places where rainfall is highly seasonal rather than year round. During dry season, trees drop leaves to conserve water. Trees that shed leaves during a particular season are deciduous.

Abiotic Factors: Generally warm year round; alternating wet and dry seasons; rich soils subject to erosion

Dominant Plants: Tall, deciduous trees, form dense canopy during wet season; drought-tolerant orchids and bromeliads; aloes and other succulents

Dominant Wildlife: Tigers; monkeys; herbivores: elephants, Indian rhinoceroses, hog deer; birds: great pied hornbills, pied harriers, spot-billed pelicans; insects: termites; reptiles: snakes and monitor lizards

Geographic Distribution: Parts of Africa, South and Central America, Mexico, India, Australia, and tropical islands

Temperate
Grassland

Temperate
Woodland and
Shrubland

Temperate Forest

Northwestern
Coniferous Forest

Temperate Forest

Contain a mixture of deciduous and coniferous trees (AKA conifers, produce seed-bearing cones, normally have needles as leaves). Cold winters halt plant growth for several months. Deciduous trees shed leaves in autumn. Small plants burst out of ground and flower in spring. Soils are often rich in humus, material formed from decaying leaves and other organic matter, makes soil fertile.

Abiotic Factors: Cold to moderate winters; warm summers; year-round precipitation; fertile soils

Dominant Plants: Broadleaf deciduous trees; some conifers; flowering shrubs; herbs; ground layer of mosses and ferns

Dominant Wildlife: Deer; black bears; bobcats; nuts and acorn feeds, like squirrels; omnivores: raccoons and skunks; numerous songbirds; turkeys

Geographic Distribution: Eastern US; southeastern Canada; most of Europe; and parts of Japan, China and Australia

Northwestern Coniferous Forest

Mild, moist air from Pacific Ocean provides abundant rainfall. Made up of variety of conifers from giant redwoods (coast of N. California) to spruce, fir, and hemlock farther north. Moss covers tree trunks and forest floor. Flowering trees and shrubs, dogwood and rhododendron are abundant. Sometimes called “temperate rain forest” because of lush vegetation.

Abiotic Factors: Mild temps; abundant precipitation during fall, winter, and spring; relatively cool, dry summer; rocky, acidic soils

Dominant Plants: Douglas fir, Sitka spruce, western hemlock, redwood

Dominant Wildlife: Bears; large herbivores: elk and deer; beavers; predators: owls, bobcats, weasel family

Geographic Distribution: Pacific coast of northwestern US and Canada, from northern California to Alaska

Temperate Grassland

Rich mix of grasses and underlaid by some of world’s most fertile soils. Temperate grasslands (plains and prairies) once covered vast area of midwest and central US. Most now converted to agricultural fields. Periodic fires and heavy grazing by large herbivores maintain this characteristic plant community.

Abiotic Factors: Warm to hot summers; cold winters; moderate, seasonal precipitation; fertile soils; occasional fires

Dominant Plants: Lush, perennial grasses and herbs; most are resistant to drought, fire, and cold

Dominant Wildlife: Predators: coyotes, badgers, and historically wolves, grizzly bears; herbivores: mule deer, pronghorn antelopes, rabbits, prairie dogs, introduced cattle, historically bison; birds: hawks, owls, bobwhites, prairie chickens, mountain plovers; reptiles: snakes; insects: ants, grasshoppers

Geographic Distribution: Central Asia, North America, Australia, central Europe, upland plateaus of South America

Temperate Woodland and Shrubland

Characterized by semiarid climate and mix of shrub communities and open woodlands. In open woodlands, large areas of grasses and wildflowers, like poppies, are interspersed with oak trees. Chaparral communities are dominated by shrubs. Growth of dense, low plants with flammable oils makes fires a constant threat.

Abiotic Factors: Hot, dry summer; cool, moist winters; thin, nutrient-poor soils; periodic fires

Dominant Plants: Woody evergreen shrubs with small, leathery leaves; fragrant, oily herbs grow in winter and die in summer

Dominant Wildlife: Predators: coyotes, foxes, bobcats, mountain lions; herbivores: blacktailed deer, rabbits, squirrels; birds: hawks, California quails, warblers, other songbirds; reptiles: lizards, snakes; butterflies

Geographic Distribution: Western coasts of North and South America, areas around Mediterranean Sea, South Africa, Australia

Boreal Forest

Boreal Forest

Northern edge of temperate zone are dense evergreen forests of coniferous trees. Biome called boreal or taiga. Winters bitterly cold, summers long enough to allow ground to thaw.

Abiotic Factors: Long, cold winters; short, mild summers; moderate precipitation; high humidity; acidic, nutrient-poor soils

Dominant Plants: Needleleaf coniferous trees: spruce and fir; some broadleaf deciduous trees; small, berry-bearing shrubs

Dominant Wildlife: Predators: lynx, timber wolves, members of weasel family; small herbivore mammals; moose and other large herbivores; beavers; songbirds and migratory birds

Geographic Distribution: North America, Asia, Northern Europe

Tundra

Tundra

Characterized by permafrost, layer of permanently frozen subsoil. Ground becomes soggy and wet during short, mild summers. Plants small and stunted because of cycle of thawing and freezing. Cold temps, high winds, short growing season, humus-poor soil all limit plant height.

Abiotic Factors: Strong winds; low precipitation; short, soggy summers; long, cold, dark winters; poorly developed soils, permafrost

Dominant Plants: Ground-hugging plants: mosses, lichens, sedges, short grasses

Dominant Wildlife: Few resident birds and mammals can stand the conditions; migratory water fowl, shore birds, musk ox, Arctic foxes, caribou; lemmings and other small rodents

Geographic Distribution: Northern North America, Asia, Europe