Land Biomes of the United States

Imagine that you are taking a trip across the United States. As you travel from one part of the country to another, you quickly discover that different plants and animals live in different areas. So you would probably be really surprised to see an alligator in the middle of the Mojave Desert or a cactus in the Everglades!

Why do some kinds of plants and animals survive in one area but not in another? Why do different groups of plants and animals live in different areas? You can probably answer these questions easily once you think about them. The kinds of animals that live in an area depend largely on the kinds of plants that grow there. For example, the midwestern United States was once home to millions of grazing bison. Today, however, most of the grasses that once grew in the Midwest have been replaced by corn and wheat fields. What effect do you think this has had on the bison population? You are right if you said that the herds of bison have greatly decreased and have almost disappeared. (Today, small herds of bison have been established on private land.)

If the plant life in an area determines the animal life in that area, what determines the plant life? The plant life in an area is determined mainly by climate. Recall that climate refers to the general conditions of temperature and precipitation for an area over a long period of time. As The United States has six major climate regions. These are: Moist Continental, Moist subtropical, Marine west coast, Mediterranean, Desert, and Steppe. Scientists classify areas with similar climates, plants, and animals into divisions called biomes (BIGH-ohmz).

Biomes are divisions that help scientists better understand the natural world. But as is often the case in science, not all scientists agree on the kinds and number of biomes. However, most scientists accept at least six land biomes. Each of these biomes is located in some area of the United States. The major land biomes of the United States are tundras, coniferous forests, deciduous forests, tropical rain forests, grasslands, and deserts. There are also several types of aquatic, or water, biomes. Because aquatic biomes do not depend on climate, they will not be considered here.

Tundras

Tundra biomes cover about 10 percent of the Earth's surface. In the United States, tundra biomes are found only in parts of Alaska. (Recall that Alaska is in the polar climate zone.) The climate of a tundra is extremely cold and dry. In fact, you could think of a tundra as a cold desert. Less than 25 centimeters of rain and snow fall on a tundra during most years. (On the average, a snowfall 10 centimeters deep is the equivalent of I centimeter of rainfall.) The little water that is found on a tundra is permanently frozen in the soil. This frozen layer of soil is called permafrost. Almost 85 percent of the ground in Alaska is permafrost.

Plant life on a tundra consists mostly of mosses and grasses. Carpet like lichens, which are actually fungi and algae growing together, cover the rocks and bare ground. Because of the permafrost, large trees cannot root on a tundra. The few trees that do grow here are mainly knee-high willows and birches.

Lichens are the favorite food of the caribou herds. The caribou roam the tundras in the summer before moving farther south for the winter. Wolves often follow close behind the caribou, preying on the old and weak animals. Birds such as ptarmigan and small animals such as lemmings also inhabit the tundras. Some animals are only seasonal residents of the tundras. Arctic terns, for example, make round trip migrations of 34,000 kilometers to mate and raise their young during the short tundra "summer."

Coniferous Forests

South of the tundra biomes are the coniferous forest biomes. Unlike the permafrost of the tundras, the soil in a coniferous forest thaws every spring, making the forest floor wet and swampy. For this reason, a coniferous forest biome is also called a taiga (TIGH-guh), a Russian name that means swamp forest. It is also sometimes called the Boreal forest. (Boreal means north) A coniferous forest biome, or taiga, is found in parts of Alaska as well, as at the higher elevations of the Rocky Mountains. Temperatures in coniferous forest biomes are cold. The yearly rainfall is between 50 and 125 centimeters.

Few types of trees can survive the cold climate of the coniferous forests. The trees that do live in these biomes are needle-leaved trees, or conifers. Conifers produce their seeds in cones. They include firs, spruces, and pines. Giant redwoods grow along the coasts of Washington State, Oregon, and northern California. These conifers, which may grow as tall as 60 meters, are among the tallest trees in the world. (The tallest redwood ever found was 110 meters tall-almost 20 meters taller than the Statue of Liberty!) The Mediterranean climate of southern California supports a coniferous forest like biome called a chaparral. A chaparral consists mainly of short, shrublike plants.

Large animals in the coniferous forests include wolves, deer, black bears and grizzly bears, and moose. (Parts of the coniferous forests are even called "spruce-moose" belts.) Many smaller animals, such as beaver, hares, and red squirrels, also live in the coniferous forests. Crows and great horned owls are some of the birds that build their nests among the conifers. Grouse roost in the branches.

Deciduous Forests

South of the coniferous forest biomes are the deciduous forests. Deciduous forests begin at the northeastern border, between the United States and Canada, and cover the eastern United States. Deciduous trees shed their leaves in the autumn. New leaves grow back in the spring. The summers in the deciduous forests are warm and the winters are cold, but they are not as cold as in the coniferous forests. Rainfall in the deciduous forests is between 75 and 150 centimeters a year.

There are more than 2500 kinds of deciduous trees. Oak, birch, maple, beech, and hickory are the most common varieties found in the deciduous forests of the United States. Autumn in the deciduous forests is one of the most beautiful seasons of the year because of the bright

colors the leaves display before they fall to the ground. In the spring, wildflowers and ferns cover the forest floor.

Many different kinds of animals make their homes in the deciduous forests. Thrushes, woodpeckers, cardinals, and blue jays are some of the many birds you might see in a deciduous forest. Snails, worms, snakes, and salamanders slither along the forest floor. Small mammals, such as gray squirrels and raccoons, live among the branches of the trees.

Rain Forests

There are two types of rain forests. The one that gets the most press is the tropical rain forest. However there is also a temperate rain forest. Most of the temperate rain forests in the world are in the Pacific northwest of the United States.

In the United States, tropical rain forests are found only in Hawaii. (Recall that Hawaii is in the tropical climate zone.) As you might expect, rain forests get a great deal of rain-at least 200 centimeters a year. Kauai, Hawaii, may be the wettest place on Earth. It receives an average rainfall of 1215 centimeters every year! Temperatures in the tropical rain forests remain warm all year, so plants grow well here throughout the year.

Rain forests have more varieties of plant life than any other biome. Trees grow to a height of 35 meters or more. High above the forest floor, the tops of the trees meet to form a green roof, or layer, called a canopy (KAN-uh-pee). The canopy is so dense that rainfall may not reach the forest floor for 10 minutes after hitting the canopy! Most of the other plants in a rain forest grow in the canopy, where sunlight can reach them. Woody vines up to 90 meters long hang from the trees. Orchids and ferns grow on the branches of trees instead of on the ground.

Like the plant life, animal life in a rain forest is rich and varied. Some rain forest animals spend their entire lives high in the trees and never touch the ground. Parrots, toucans, and hundreds of other birds live in the canopy. At night, huge colonies of bats come out to hunt among the trees. Insects, tree frogs, and snakes crawl on the trunks and branches of the trees.

Coastal temperate rain forests are found in wet, cool climates where the collision of marine air and coastal mountains causes large amounts of rainfall. The worldwide distribution of coastal temperate rain forests has always been limited and today much of their remaining thirty to forty million hectares is located in Chile and along the Pacific Northwest of North America. The forest floor is covered by ferns, mosses, and small plants. Mosses and lichens grow on the tree trunks and rocks.

Although this rain forest has layers of tall, medium, and low growing vegetation, the cool winters limit the numbers and kinds of life forms that live here. Compared to the tropical rain forest, the temperate rain forest has a less complex ecology. For example, the topmost layer of the temperate rain forest on the western edge of North America is dominated by four kinds of tall coniferous trees. These are: the Douglas-Fir, the Sitka Spruce, the Western Red Cedar, and the Western Hemlock

When these trees are full grown, they are between 130 to 280 feet tall.

In some areas other conifers dominate. For example, in California redwood trees grow in the temperate rain forest.

Grasslands

The first European explorers found an endless sea of grass in the mid western plains of the United States. French explorers from Canada called these grasslands a prairie, a French word that means meadow. Some of the grasses on the prairie were over 2 meters tall! The grassland biomes in the United States receive between 25 and 75 centimeters of rain every year. The grasslands of the mid western plains are characterized by hot summers and cold winters.

Grasses make up the main group of plants in a grassland biome. There are few trees because of the low rainfall. Fires, which often sweep over the grasslands, also prevent widespread tree growth. Today, most of the original grasslands in the United States have been replaced by farms and pastures. Wheat, corn, and other grains are now widely farmed in the mid western plains of the United States.

Gophers, prairie dogs, and other small animals live on the grasslands. Blackbirds, prairie chickens, and meadow larks are among the birds that feed on the grasshoppers, locusts, and other insects. Large plant eaters, such as elk and bison, were once common on the plains. They were hunted by wolves and cougars. Now that farms have replaced most of the original grasslands, however, most of the large animals live only in national parks and other protected areas.

Deserts

Unlike the other biomes, deserts can be classified by what they do not have: water. Deserts receive less than 25 centimeters of rain a year. Desert biomes are located in the southwestern part of the United States. Although deserts can be hot or cold, the deserts of the American Southwest are hot.

Plants in a desert are adapted to the lack of rainfall. For example, the thick, fleshy stems of cacti help them to store water. A giant saguaro cactus in the Sonoran Desert ' of Arizona can store up to a ton of water The Joshua tree, a giant yucca, is one of the few trees that can survive in the deserts of the Southwest. Most flowering plants in the southwestern deserts flower, produce seeds, and die within a few weeks of a rare desert rainfall.

Like the plants, desert animals must be able to survive on little water. Plant-eating animals, such as kangaroo rats and jack rabbits, obtain most of their water from the plants they eat. Meat-eating animals, such as cougars, obtain most of their water by eating the plant eaters. Most desert animals hide from the hot sun during the day and come out to eat only at night, when temperatures are cooler.