



Soils and Vegetation

Main Ideas

- Soil and climate help to determine the vegetation of a region.
- Human land use alters the vegetation in both positive and negative ways.

Places & Terms

ecosystem	coniferous
biome	savanna
deciduous	steppe
rain forest	

A HUMAN PERSPECTIVE In the 1870s, a settler described prairie land in Tazewell County, Illinois, as having western meadow lilies “as high as a boy’s head,” rippling waves of wildflowers, and grass so dense that a man on horseback 30 yards away could not be seen. At that time, the land produced crops of grains, such as corn, wheat, and oats. In most places in the world where people have settled, the land continues to be used for agricultural purposes, such as farming, herding, and timber production. Soil and vegetation have a direct impact on which of those activities the people living in a region can perform.

Soil Regions

Soil is a thin layer of weathered rock, humus, air, and water. It shapes human existence in many ways. The world’s food supply depends greatly on the top six inches of soil (sometimes called topsoil). Such factors as depth, texture, and humus content of the soil determine the type of vegetation that can be supported in a region. That, in turn, helps to influence which human activities may take place there. As you study the chart below, notice the relationship of climate to the characteristics of the soil. Soil characteristics and climate are major influences in vegetation regions.

Vegetation Regions

Vegetation regions are natural environments that provide the stage for human activities such as farming, raising livestock, and producing timber. Soil, temperature, and moisture influence the type of vegetation that thrives naturally in a region. Vegetation patterns are identified on the basis of the ecosystems they support. An **ecosystem** is an interdependent community of plants and animals. The ecosystem of a region is referred to as a **biome**. Biomes are further divided into forest, grassland, desert, and tundra.

Soil Differences

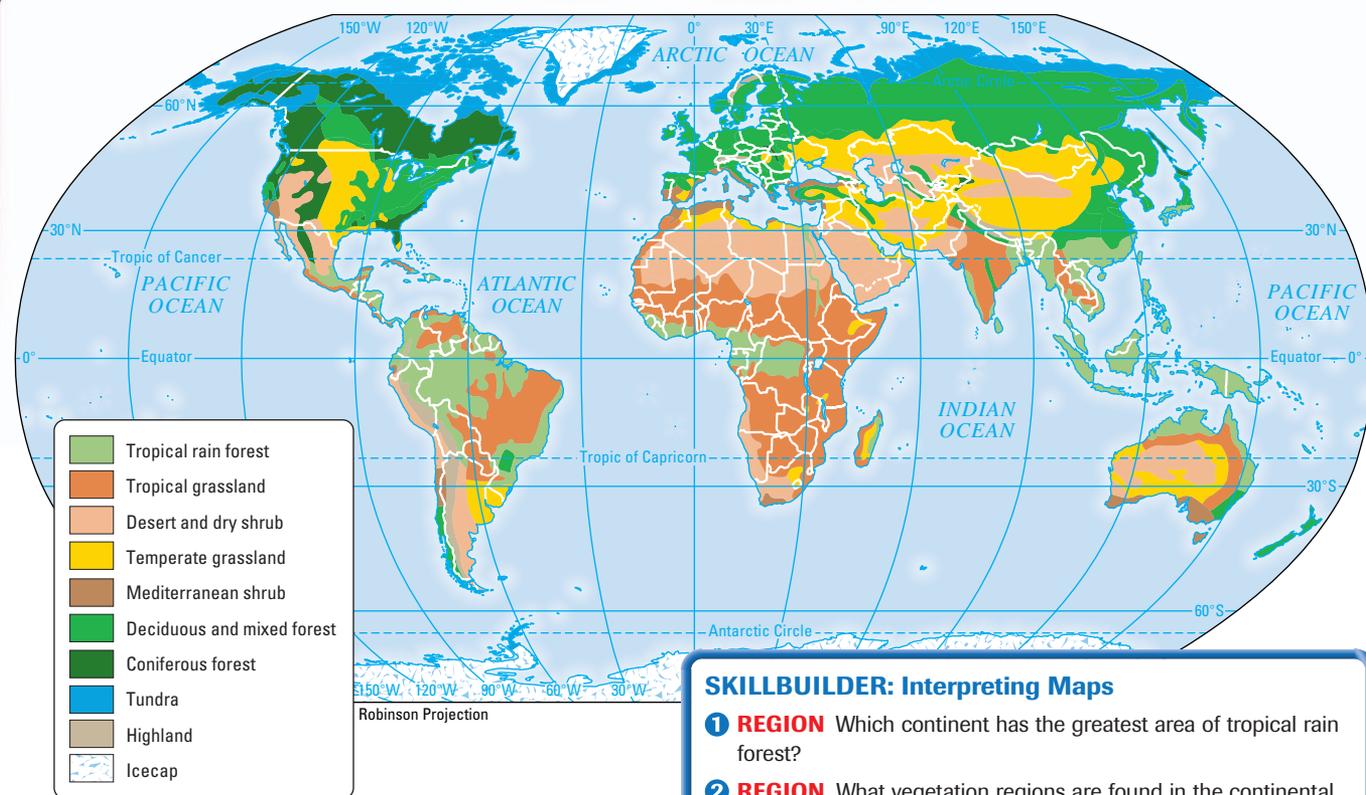
Soil Characteristic	Wet Climate	Dry Climate	Warm Climate	Cold Climate
Depth	deep	shallow	deep	shallow
Texture	intermediate to fine	coarse	fine	coarse
Weathering	chemical	physical	rapid	slow
Humus Content	variable	low	low	abundant
Acidity	acidic	not acidic	less acidity	higher acidity

SOURCE: *Physical Geography*, Ralph Scott

SKILLBUILDER: Interpreting Charts

- 1 PLACE** What characteristics would soil in a cold, dry climate most likely have?
- 2 REGION** How does the soil in warm and wet climates differ from the soil in cold and dry climates in terms of depth and texture?

World Vegetation Regions



FORESTLANDS Forest regions are categorized by the types of trees they support—broadleaf or needleleaf. Broadleaf trees, such as maple, oak, birch, and cottonwood, are also called **deciduous** trees. The **rain forest** is located in the tropical zone and is covered with a heavy concentration of broadleaf trees. In the tropical rain forest region, some broadleaf trees stay green all year. In the deciduous region, trees shed their leaves at least once during the year. This region is located almost exclusively in the Northern Hemisphere. Sometimes deciduous trees are mixed with needleleaf trees, such as pine, fir, and cedar, to form a mixed forest region. Needleleaf trees are also called **coniferous** trees because they are cone bearing. They are found in huge stands in northern regions of North America, Asia, and Europe.

GRASSLANDS Grasslands, mostly flat regions dotted with a few trees, are called by different terms. In the tropical grassland region, the flat, grassy, mostly treeless plains are called **savanna**. In the Northern Hemisphere, the terms **steppe** or prairie are used to identify temperate grasslands. Vast areas of Eurasia are covered with steppe. In the Southern Hemisphere, the temperate grasslands may be referred to as pampas. **A**

DESERT AND TUNDRA The plants that live in these extreme climates are specially adapted to tolerate the dry or cold conditions. In the tundra, plants that hug the ground, such as mosses and lichen, are best adapted to survive the cold dry climate. In the desert, plants that can conserve water and withstand heat, such as cacti, sagebrush, or other shrubs, dot the landscape.

Geographic Thinking

Seeing Patterns

A Study the map above. What patterns do you see in the relationship of forestlands to grasslands?



Before



After



Human Impact on the Environment

As you can imagine, the impact of human activities on soil and vegetation is immense. Throughout this book, you will read about the ways that human beings either have adapted to the land or have altered it to meet their needs. Human activities that affect the environment include building dams or irrigation systems, planting food crops, or slashing and burning the vegetation.

The two photographs above show you an example of a human-environment interaction. The photograph to the left shows Glen Canyon on the Colorado River before a dam was built to create a huge lake. The lake—Lake Powell—was created to provide irrigation water, hydroelectric power, and recreational facilities. The photograph on the right shows a part of Lake Powell today. It is 186 miles long, has 1,900 miles of shoreline, and in places is 500 feet deep. As you can see, this human activity has caused changes in the environment.

The next chapter will help you understand the human side of geography and its relationship to the physical world.

HUMAN-ENVIRONMENT INTERACTION

Photographs of Glen Canyon show the same site before and after it was filled with the waters of Lake Powell.

How has the landscape changed as the result of the creation of the lake?



Assessment

1 Places & Terms

Explain the meaning of each of the following terms.

- ecosystem
- biome
- rain forest
- savanna
- steppe

2 Taking Notes

REGION Review the notes you took for this section.

Soils & Vegetation	
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- How are soil and vegetation linked?
- What are the four types of biomes?

3 Main Ideas

- What soil factors influence type of vegetation in a region?
- What is the difference between coniferous and deciduous trees?
- What is unique about vegetation in the desert and tundra regions?

4 Geographic Thinking

Making Inferences What impact have humans had on soil and vegetation? **Think about:**

- altering the land to meet needs
- careless use of the land



RESEARCH LINKS
CLASSZONE.COM



EXPLORING LOCAL GEOGRAPHY Use the Internet to find out about the current vegetation of your state and what it was like before becoming populated. Draw two **maps** to show the contrast between the two time periods. Write a sentence summarizing what you learned.