Chapter 6: Biomes
Section 3, Grasslands, Deserts, and Tundra

Grassland, Desert, and Tundra Biomes

- In climates that have less rainfall, forest biomes are replaced by _____
- As even less rain falls in these biomes, they change into desert and tundra biomes.
- As precipitation _____ in an area, the diversity of the species in the area also _____.
- But, the number of individuals of each species present may still be very large.

Savannas

- _____ are plains full of grasses and scattered trees and shrubs that are found in _____.
- Found mainly in regions with a _____, such as East Africa and western India.
- Although savannas receive little precipitation throughout the year, they do have a _____.
- Many animals are only active during the wet season.
- _____ help to restore nutrients to the soil during the dry season.

Plants of the Savanna

- Because most of the rain falls during the wet season, plants must be able to survive prolonged periods without water.
- Some plants have large _____ to help them survive the dry season.
- These roots also enable the plant to grow _____ after a fire.
- The grasses also have _____ that expose _____ to help conserve water, while some trees shed their leaves.
- Almost all have _____ for protection from herbivores.

Animals of the Savanna

- _____, like the elephant, have adopted migratory ways of life, following the rains to areas of new grass and fresh watering holes.
- Predators often stalk these animals for food.
- Many savanna animals give birth only during the _____, when food is abundant and the young are more likely to survive.
- Some species of herbivores reduce competition for food by _____ at different heights than other species do.

Temperate Grasslands

- _____ are communities (or biomes) that are dominated by grasses, have few trees, and are characterized by _____, with rainfall that is intermediate between that of a forest and a desert.
- Temperate grasslands have the _____ soil of any biome.
- Few natural temperate grasslands remain because many have been replaced by _____ and farms growing crops such as corn, soybeans, and wheat.

Temperate Grasslands

- Temperate grasslands are located on the interiors of continents where too little rain falls for trees to grow and include the prairies of North America.
- _____ often play a crucial role in maintaining grasslands as rain clouds from the west are blocked.
- However, rainfall does increase as you move eastward, allowing taller grasses to grow.
- Heavy precipitation is _____ in the grasslands, allowing the hot temperatures in the summer to make the grasslands _____.

Plants of Temperate Grasslands

- The roots system of prairie grasses form _____ that survive _____ allowing the plants to come back from year to year.
- Few trees survive on the grasslands because of the lack of rainfall, fire, and the constant winds.
- The _____ in the area determines the types of plants that will grow in that area with varying root depth and grass height.

Animals of Temperate Grasslands

- Some grazing animals, such as the bison and pronghorn antelope, have _____ for chewing the coarse prairie grasses.
- Other grasslands animals, such as prairie dogs, owls, and badgers, live protected in underground burrows that protect them from predators on the open grasslands.

Threats to Temperate Grasslands

- _____ have changed the grasslands.
- _____ cannot hold the soil in place as well as native grasses can because the roots of crops are shallow, so _____ eventually occurs.
- _____ is also caused as the grasses are constantly eaten and trampled.
- Constant use can change the fruitful grasslands into desert like biomes.

Chaparral

- _____ is a type of _____ biome with vegetation that includes broad-leafed evergreen shrubs and is located in areas with hot, dry summers and mild, wet winters.
- Chaparrals are located in the middle latitudes, about 30° north and south of the equator.
- Chaparrals are located primarily in coastal areas that have _____ climates.

Plants of the Chaparral

- Most chaparral plants are low-lying, _____ that tend to grow in dense patches and include chamise, manzanita, scrub oak, and herbs like sage and bay.
- These plants have _____ that contain oils that promote burning, allowing _____ to destroy competing trees.
- Chaparral plants are well adapted to _____ from small bits of surviving plant tissue.

Animals of the Chaparral

- A common adaptation of chaparral animals is _____, shape or coloring that allows an animal to blend into its environment.
- Animals such as quail, lizards, chipmunks, and mule deer have a brownish gray coloring that lets them move through the brush without being noticed.

Threats to the Chaparral

- Worldwide, the greatest threat to chaparral is _____.
- Humans tend to develop lands of the chaparral for _____ because these biomes get a lot of sun, are near the oceans, and have a mild climate year round.

Deserts

- _____ are regions that have little or no vegetation, long periods without rain, and extreme temperatures.
- Although there are hot and cold deserts, one characteristic they both share is the fact that they are the _____ on Earth.
- Deserts are often located near large mountain ranges because mountains can block the passage of moisture-filled clouds, limiting precipitation.

Plants of the Desert

- All desert plants have _____ for obtaining and conserving water, which allows the plants to live in dry, desert conditions.
- Plants called _____, such as cactuses, have thick, fleshy stems and leaves that conserve water.
- Their leaves also have a _____ to prevent water loss, while sharp spines on the plant keep animals away.
- Many plant roots spread out just under the surface to absorb as much rain as possible.

Plants of the Desert

- Some plants are adapted to survive for long periods _____.
- When conditions are too dry, these plants _____ their seeds that stay dormant until the next rainfall.
- Then, new plants quickly germinate, grow, and bloom before the soil becomes dry again.
- These plants can survive their water content dropping to as low as 30 percent of their mass.

Animals of the Desert

- Animals of the desert have adapted many different ways to prevent _____.
- _____ have thick, scaly skin that prevents water loss.
- Amphibians survive by _____, or burying themselves in the ground and sleeping through the dry season.
- Insects are covered with _____ that helps them _____.

- In addition, most desert animals are _____, meaning they are active mainly at night or dusk when it is cooler.

Tundra

- The _____ is a treeless plain that is located in the _____ and that is characterized by very low winter temperatures, short, cool summers, and vegetation that consists of grasses, lichens, and perennial herbs.
- Summers are short in the tundra, so only the top few centimeters of soil thaw.
- _____ is the permanently frozen layer of soil or subsoil and can be found in the tundra regions.

Vegetation of the Tundra

- _____, which can grow without soil, cover vast areas of rocks in the tundra.
- The soil is thin, so plants have _____ to help anchor them against the icy winds.
- Most flowering plants are _____, which keeps them out of the wind and helps them _____ from the sunlit soil.
- Woody plants and perennials have evolved _____ that grow flat along the ground.

Animals of the Tundra

- Millions of migratory birds fly to the tundra to _____ in the summer when food is abundant.
- Caribou migrate throughout the tundra in search of food and water.
- Hunters such as wolves prey on migratory caribou, deer, and moose.
- Rodents stay active, but burrow underground to avoid the cold.
- Other year-round residents, such as arctic foxes, lose their brown summer coat for white fur that _____ them with the snow.

Threats to the Tundra

- The tundra is one of the most _____ biomes on the planet.
- The food chains are relatively simple so they are easily disrupted.
- Until recently these areas have been _____ by humans
- But oil was located in parts of the tundra, and oil exploration, extraction, and transport has disrupted many tundra habitats.
- Pollution caused by spills or leaks of oil and other toxic materials may also poison the food and water sources of organisms of the tundra.