Prairies Alive!

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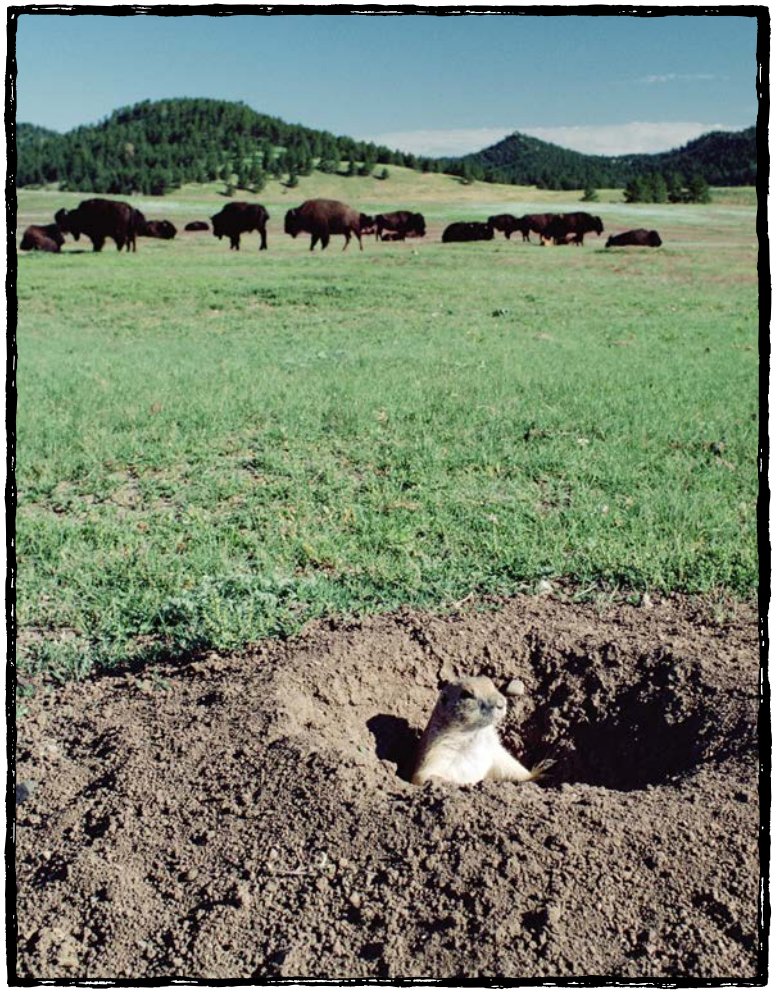

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Written by Alfred J. Smuskiewicz

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rodents *(n.)* small mammals that have large gnawing teeth that continue to grow throughout the animal's life (p. 18)

species *(n.)* a group of animals that are similar to one another and can breed (p. 4)

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Correlation

LEVEL Z	
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Reading Recovery	N/A
DRA	50

Glossary

bacteria *(n.)* one-celled organisms that sometimes cause infections and disease (p. 13)

burrows *(n.)* holes or tunnels dug in the ground by an animal for use as a shelter (p. 19)

carnivores *(n.)* animals that eat only meat (p. 12)

drought *(n.)* a long period of time with very little rain (p. 5)

ecosystem *(n.)* a biological community of organisms together with their habitat (p. 12)

forage *(n.)* hay, grain, grass, or other food for plant-eating animals (p. 16)

fungi *(n.)* small organisms that grow on organic material and produce spores (p. 13)

grazing *(v.)* the act of eating grass in a field (p. 5)

herbivores *(n.)* animals that eat only plants (p. 12)

interactions *(n.)* the relationships between living and non-living things (p. 12)

mammal *(n.)* a warm-blooded animal that has hair or fur, nurses its young, and has babies that are born live (p. 21)

nutrients *(n.)* substances in food or soil that organisms need to live, stay healthy, and grow (p. 5)

Tallgrass Prairie Preserves

- **Flint Hills National Wildlife Refuge, Tallgrass Prairie National Preserve, Kansas**

  http://flinthills.fws.gov/
  http://www.nps.gov/tapr/

- **Goose Lake Prairie State Natural Area, Illinois**

  http://dnr.state.il.us/lands/landmgt/parks

- **Living Prairie Museum, Manitoba (Canada)**

  http://www.winnipeg.ca/publicworks/naturalist/livingprairie/

- **Tewaukon National Wildlife Refuge, North Dakota**

  http://www.fws.gov/tewaukon/

- **Waubay National Wildlife Refuge, South Dakota**

  http://waubay.fws.gov/Shortgrass/Mixed-Grass Prairie Preserves

- **Caddo and Lyndon B. Johnson National Grasslands, Texas**

  http://www.fs.fed.us/r8/texas/recreation/caddo_lbj/caddo-lbj_gen_info.shtml

- **Comanche National Grassland, Colorado**

  http://www.fs.fed.us/r2/psicc/coma/

- **National Bison Range, Montana**

  http://www.fws.gov/bisonrange/nbr/

- **Prince Albert National Park, Saskatchewan (Canada)**

  http://www.pc.gc.ca/pn-np/sk/princealbert/index_e.asp

- **Wichita Mountains Wildlife Refuge, Oklahoma**

  http://www.fws.gov/southwest/refuges/oklahoma/wichitamountains/

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What Are Grasslands?

Grasslands in South America are called *pampas*.

Grasslands in Asia are called *steppes*.

Grasslands in South Africa are called *veld*.

Have you ever been on a ship far out at sea—or even in a boat in the middle of a large lake? In any direction you look, all you can see is water, right? Now imagine being in the middle of a sea of grass, surrounded by waves of green, golden, brown, and reddish grasses and multicolored flowers as far as the eye can see. This grassy sea is the home of hundreds of **species** of plants and animals. Different kinds of birds fly overhead, some swooping and diving for prey that live their lives mostly hidden among the grasses on the flat or gently rolling landscape.

Pronghorn Antelope

A female, left, and male pronghorn antelope

The fastest animal in North America is the pronghorn antelope, a long-legged, plant-eating mammal that lives on the shortgrass prairie. The pronghorn can run as fast as 60 miles (96 km) per hour—that's above the speed limit on most highways! The pronghorn stands about 40 inches (102 cm) high at the shoulders. Males have two black horns with hooklike prongs.

A coyote mother with a squirrel she's caught.

Coyotes, sometimes called prairie wolves, are about as large as a medium-sized dog. They usually weigh between 20 and 50 pounds (9–23 kg). Coyotes eat rodents, rabbits, dead animals, and fruit. They make spooky-sounding howls that can be heard at night.

Swift foxes are one of the smallest foxes in North America.

Foxes are smaller than coyotes. They usually weigh between 8 and 15 pounds (4–7 kg). Like coyotes, foxes will eat just about anything they can catch. Both gray and red foxes can be found on prairies.

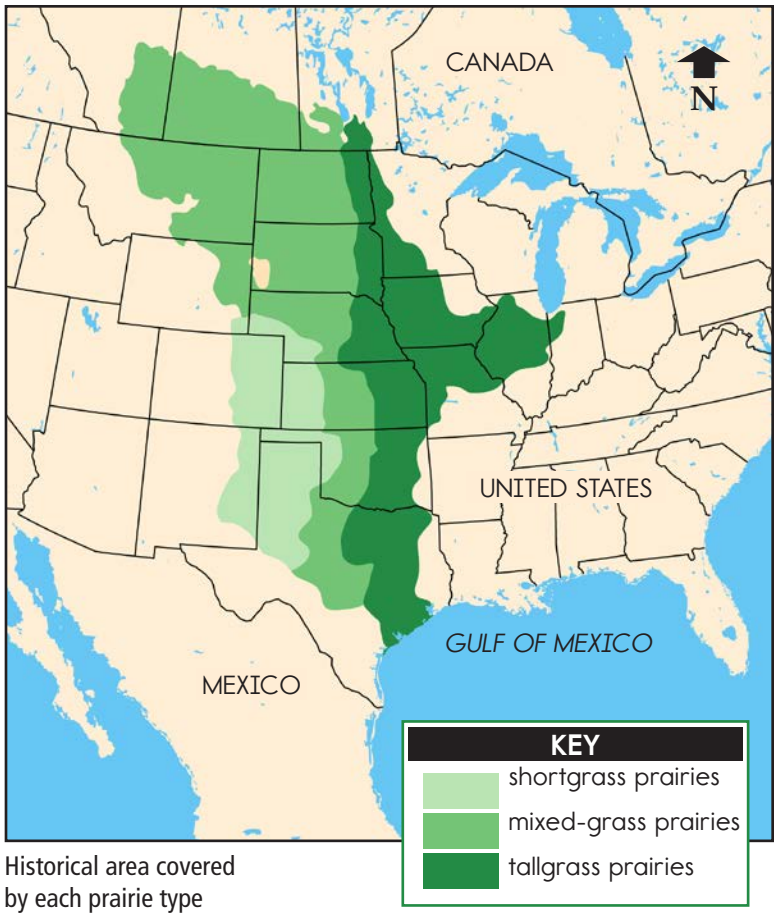
This is what a large, natural grassland is like—it's not like turf in people's yards, which is mostly one color, 2-inches tall, and hiding not much more than insects. Not all grasslands are alike, either. Different kinds of grasslands are found in North and South America, Europe and Asia, Africa, and Australia—every continent on Earth except Antarctica. Grasslands usually grow in areas that get too much rain for deserts but not enough rain for forests.

The main kinds of plants in grasslands are grasses, of course. Did you know that not all grasses are the same? Hundreds of different species populate the world's grasslands. One thing that most grasses have in common is that they are tough, hardy plants that can survive fire, heat, freezing, **drought**, and **grazing**. Can you think of anything else that could survive all of that?

Grasses have roots that grow deep underground to find and take in water and **nutrients**. New plants can grow from these roots when the stems and leaves above ground die, such as when they are burned by fire or eaten by animals.

Do You Know?

The tallgrass prairie once covered over 140 million acres (56.7 million hectares) in North America. About 10 percent of this area remains.



Historical area covered by each prairie type

Three Types of North American Grasslands

North American grasslands are known as prairies. The amount of rainfall and type of soil makes each prairie different. There are three main types—tallgrass, mixed-grass, and shortgrass prairies. I'll bet you can guess what the main difference is among the three. If you guessed the height of the grasses, you guessed right.

Prairie Dogs

Prairie dogs live in western prairies, but they are not dogs. They are rodents that bark like dogs! Prairie dogs live in groups of hundreds of animals called *towns*. They dig large systems of underground **burrows** where they run to hide when hawks, coyotes, or other enemies come near. These burrows can be 16 feet (5 m) deep.

The burrows of a prairie dog town have entrance holes surrounded by mounds of dirt.

Hawks

Several kinds of hawks fly over prairies during the day searching for rodents, songbirds, and other prey. (Their role as flying hunters is taken over at night by owls.) The northern harrier (also called the marsh hawk) stands about 2 feet (61 cm) tall. It glides low over the ground as it hunts, calling "kee kee kee." The northern harrier can fly as fast as 40 miles (64 km) per hour.

A hawk and its chicks on a prairie nest

Animals of the Prairies

A wide variety of animals live on prairies. Here are a few examples.

This sharp-tailed grouse shows he merits the name.

Grouse

Grouse are brown, chickenlike birds that live on the ground of prairies. They eat seeds, leaves, grains, berries, buds, and flowers. When a male grouse wants to attract a female, he dances, makes cooing sounds, and blows up a purple sac on his neck like a balloon. Grouse live in flocks called *coveys*.

A bullsnake hisses loudly as a warning to stay away.

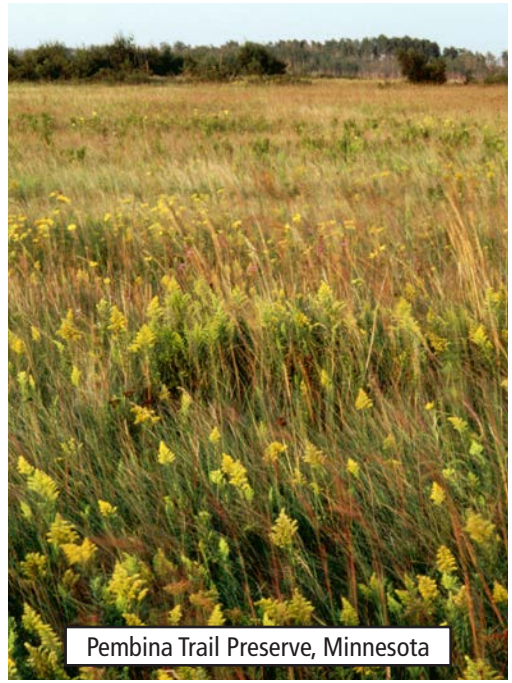
Snakes

One of the largest prairie reptiles is the bullsnake, a brownish snake that can grow to a length of 8 feet (2.4 m). It slithers through the grass looking for **rodents**, birds, and eggs to eat. It also hisses loudly! Other prairie snakes include the prairie kingsnake, the massasauga (also called the timber rattlesnake), and the fox snake.

Tallgrass prairie

Let's start in the eastern part of North America's prairie region and travel west, as many European settlers did in the 1800s. The tallgrass prairie comes first, and it includes much of Illinois, Iowa, Minnesota, North and South Dakota, Nebraska, Kansas, Oklahoma, and Texas. In the tallgrass prairie, it rains 30 to 40 inches (76–102 cm) every year.

In the tallgrass prairie, some grasses, such as big bluestem and Indian grass, grow taller than the average human—to heights of 8 feet (2.4 m) or more. The roots of these grasses can grow even more—to depths of 9 feet (2.7 m). In a tallgrass prairie, the soil is deeper, darker, and richer in nutrients than the soil in other kinds of prairies. Can you imagine traveling by foot through a tallgrass prairie? It would be easy to get lost.



Pembina Trail Preserve, Minnesota

Mixed-grass prairie

Now we move westward to the mixed-grass prairie, which is found in parts of North and South Dakota, Nebraska, Kansas, Oklahoma, and Texas. It gets between 15 and 25 inches (38–64 cm) of rain per year.


Mixed-grass native prairie, South Dakota

In the mixed-grass prairie, such grasses as little bluestem and sideoats grama grow to heights of between 2 and 3 feet (61–91 cm). The soil in this kind of prairie is usually dark brown.

Shortgrass prairie

The shortgrass prairie, which lies just east of the Rocky Mountains, gets only about 10 inches (25 cm) of rain every year. This prairie spreads into


Shortgrass prairie, Montana

Other Plants

Composites


Blazing star

Many prairie plants belong to the composite (sunflower) family. These plants have large "flowers" that are each made of many tiny flowers. The tiny flowers in the center, called *disk flowers*, are surrounded by a ring of other flowers, called *ray flowers*.

Blazing stars are composites with bright pink, red, or purple flowers that look like colorful shooting stars. The compass plant is a composite with large leaves, the edges of which always point in a north-south direction. Goldenrods have bright yellow clusters of flowers in late summer and fall.

Legumes


Wild indigo

Many prairie plants belong to the legume (pea) family. These plants all have flowers with complicated shapes.

Prairie legumes (leh-GYOOMZ) include various kinds of clovers with white, yellow, red, or purple flowers. They also include wild indigos, which can have white or cream-colored flowers. The stems of wild indigos contain a blue dye that was used by early settlers to color clothing.

Seed heads for little bluestem look fluffy.

Flowers on sideoats grama give the prairie some reddish color.

Buffalo grass would make a great central Texas lawn.

Little Bluestem

Little bluestem usually grows in drier areas than its big "brother," big bluestem. It can reach a height of about 4 feet (1.2 m). Its flowers grow in short hairy spikelettes arranged in zigzag patterns at the top of its stems.

Sideoats Grama

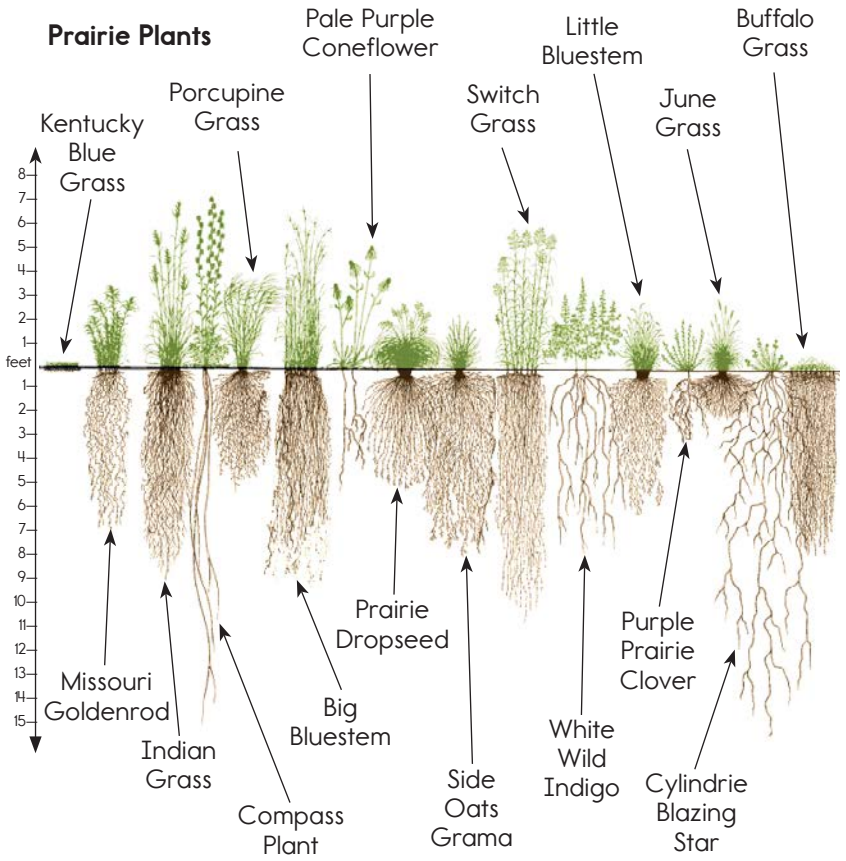
The flowers of sideoats grama hang off to one side of thin flower stalks. The plant usually grows to a height of 32 inches (81 cm) in mixed-grass or shortgrass prairies. This and other types of grama grass were important **forage** plants for the bison that once roamed in large herds across the prairies.

Buffalo Grass

Buffalo grass is another grass that was an important forage plant for bison. This plant grows about 6 inches (15 cm) high. In the 1800s, settlers used slabs of sod formed by buffalo grass like bricks to make their houses.

Montana, Wyoming, Colorado, New Mexico, and Texas. The shortgrass prairie gets little rain because the mountains create a "rain shadow" in this area. This means that warm, dry winds blowing down from the mountains make the area dry.

In the shortgrass prairie, most grasses, such as buffalo grass and bunch grass, grow to between 8 and 18 inches (20–46 cm) in height. The roots grow about 3 feet (91 cm) deep in the light brown soil.



Managers of prairies set special fires, known as "controlled burns," to help prevent trees and shrubs from growing.

The Importance of Fire

Most things cannot survive fire—but a prairie can! In fact, fire actually helps a prairie thrive. This is because prairie grasses have deep roots that new stems can easily grow from. During a fire, the flames may reach a temperature greater than 400 degrees Fahrenheit (204°C), but the temperature below ground rises only a few degrees. So after the fire stops, the grass roots can quickly give rise to new stems. By contrast, if any young trees or shrubs are growing on the prairie, they will probably be killed by the flames. Were it not for fires, these trees and shrubs would continue to grow, and the prairie would turn into a forest.

Plants of the Prairies

Following are a few examples of plants that can be found on prairies.

Grasses

Big Bluestem

Big bluestem is one of the tallest grasses on the tallgrass prairie, growing to a height of 8 feet (2.4 m) or more. It is blue only when the young shoots first come up in early summer. Later, the plant turns shades of red or brown. Big bluestem's flowers grow in long hairy spikelettes (clusters) that look like the three front toes of a bird's foot. That is why big bluestem is also known as "turkeyfoot" and "beardgrass."

Preserving the Prairies

In North America, few areas of natural prairie remain. Most prairies were changed into farms or cities long ago. However, some places still exist where you can get an idea of what it was like when the early settlers first saw the sea of grass. At these prairie preserves, scientists and volunteers—people like you—work together to restore prairies to their natural condition.

These cord grass seeds were collected to help restore the prairie.

To learn whether any prairies are near you, check with your state department of natural resources. Ask whether there are any tasks for which you can volunteer to help, such as collecting seeds or counting birds. These activities are wonderful ways to learn about the great grasslands of North America.

Do You Know?

In the area where prairies are today, there was a warm, shallow ocean between about 440 million and 410 million years ago. Scientists know this from finding fossils and other signs of ancient sea animals in the region.

Until the 1800s, fires occurred on the prairies when lightning struck the ground. Native American people, such as the Sioux, Pawnee, and Cheyenne, also set fire to the prairies. They sometimes set fire around a herd of bison (buffalo) to force the animals to run past a particular spot. Hunters would kill the bison, which would be used for food, clothing, and shelter. Native Americans also burned the prairie because the burnt plant material added nutrients to the soil when it decomposed.

When Americans of European ancestry moved into the prairie region in the 1800s, they usually put out any fires, thinking they were dangerous. Because of this, many parts of the prairie became forests.

Prairie Herds

Millions of bison (buffalo) once lived in huge herds on the prairies. However, the new settlers did not want these animals living where they wanted to build farms and towns. So they killed them in great numbers. Bison were easy to kill because instead of running away, they stood in circles surrounding and protecting their young. By 1890, only about 500 bison remained. Then, some people began breeding the remaining bison in zoos and on ranches. Today, about 200,000 bison are living in protected areas, such as Yellowstone National Park.

The Prairie Ecosystem

All the **interactions** of plants, animals, and nonliving things, including fire, make up the prairie **ecosystem**.

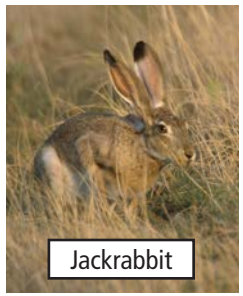
The prairie ecosystem has six main parts: 1) the Sun, 2) producers, 3) primary consumers, 4) secondary consumers, 5) decomposers, and 6) nonliving substances.

The Sun, with its light and heat, provides energy for everything else in the ecosystem. The Sun's energy flows through everything.

Producers are the grasses and other plants. They use energy from the Sun—along with water, carbon dioxide gas from the air, and nutrients from the soil—to make their own food.

Primary consumers in the prairie ecosystem are the animals that eat the plants, such as jackrabbits that eat grasses and clover. These animals, also called **herbivores**, get their nutrients and energy directly from plants.

Secondary consumers are the meat-eating animals, called **carnivores**, that eat the plant-eating animals. An example is a fox that eats jackrabbits.



Jackrabbit

Prairie Potholes

Areas in prairies where water is present for part or all of the year are called prairie wetlands. Wetlands that have water for only part of the year are known as prairie potholes. These areas are important resting and breeding places for ducks and other birds that migrate (travel long distances during spring and fall). Prairie potholes also take in rainwater like a sponge, helping to prevent flooding.

Decomposers in the prairie ecosystem are organisms that break down dead plants and animals into chemical substances in the soil. These organisms include **bacteria** and **fungi**, such as mushrooms. The chemical substances form nutrients that plants use to grow. These chemical substances and water are the nonliving parts of the prairie ecosystem.