The Grasslands
An Introduction

In different parts of the world, grassland areas have different names. In North America, they're called prairies; in Asia, steppes; in Africa and Australia, savannas. The grasslands of South Africa are called velds, and in parts of South America they're pampas. In Venezuela they're the Llanos, and in Brazil, the campo.

Grasslands once covered about 25 percent of the land area of Earth. They are found in a variety of climates and can have very hot summers and very cold winters. Rainfall is often fairly low, with yearly amounts varying from 40 to 100 centimeters (15 to 40 inches) per year.

The main vegetation of this biome is grass. Scientists estimate that there are about 10,000 different species of grasses on Earth. Grasses are flowering plants, often with very deep root systems. (We don't often think of grasses as having flowers, but they do.) Grasses are pollinated by wind, so they don't need colorful flowers to attract insects. Consequently, they may go unnoticed by humans. The crown, or growing point, of grass is located at ground level. This protects it from grazing animals and from fires.

Other plants that make up the grasslands include many different flowery forbs. These plants, some of which are insect pollinated, provide food and shelter for many of the animals of the grasslands.

The growth cycle of the grasslands over thousands of years has created some very rich topsoils that are many feet thick. Humans have found these to be the most suitable soils for growing the crops needed to feed the world's human population. Since only about 11 percent of the Earth's land is suitable for farming, much of the grasslands have been converted to grow crops. As a result, natural grasslands are now located in only a few remote areas and on protected refuges.

Animals of the grasslands are often sharp-eyed and fast, such as the Jack Rabbit and the Pronghorn Antelope. Many of the predators, such as lions and coyotes, have mottled colors to blend in with dry grass.

Lions use the tall grass as cover when hunting prey.

Name _____ Date _____

For the student:

1. What are three different names used for grasslands?

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2. Why do you think this biome is called grasslands?

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3. Why would grasses need deep root systems?

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4. Why are grasslands so suitable for farming?

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5. For predators, why would camouflage coloration be beneficial?

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The Grasslands
Habitat Types

The grasslands of North America were originally divided into the tall grass prairies of the Midwest and the short grass prairies of the West. The difference between them was attributed to the amount of rainfall and the fertility of the soil. The thickness of the sod, periodic fires, and the grazing of large mammals kept trees from invading the prairie.

For a time, the prairie even stopped the pioneers. They would settle in wooded areas, then they would cut the trees and burn them. They would farm the forest soils, because their wooden plows could turn the loose soil to produce a good seed bed.

Then came new inventions for the farmers to use. The advent of the steel plow meant that suddenly the prairie sod could be turned over and the rich prairie dirt cultivated.

Only a few remnants of the tall grass prairie remain today. Acres of grass, such as Little and Big Blue Stem, Indian Grass, Side-oats, Grama, and Cordgrass, have been replaced by corn, soybeans, wheat, oats, rye, barley, sorghum, and rice.

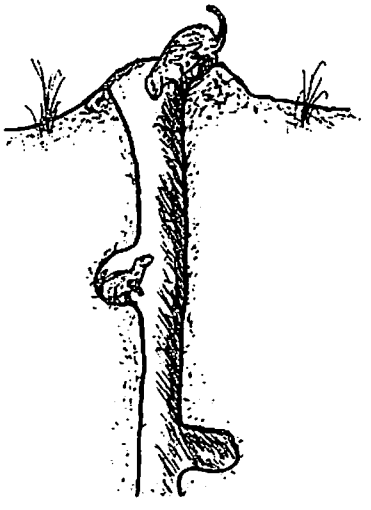
The Mammals

Great herds of herbivorous (grazing) mammals once roamed the world's grasslands. In North America it was the bison, in Africa, the wildebeest, and in Australia, the kangaroo. Humans discovered that the habitat of these animals was suitable for farming. The animals themselves were a source of meat and sometimes hides for clothing. Reduced habitat and hunting by humans lowered these animals' populations. Today, with modern management techniques and habitat protection, their numbers are growing once again.

One of the mammals most often associated with the grasslands of North America is the prairie dog. It is not actually a dog, but a ground squirrel. The prairie dog is a colonial animal. They build their underground nests in large, connected areas or colonies, which we call prairie dog towns.

Some of the prairie dog towns once measured in the thousands of acres. Ranchers and farmers didn't like the digging activities of these rodents. They thought the holes were dangerous because their livestock might step in them and break their legs. They also wanted all the grass for their animals. For these reasons, the prairie dog was hunted and poisoned.

Prairie dogs that were sick from poison were easy for predators to catch and eat. The Black-footed Ferret's population plummeted with the poisoning of prairie dog towns. For a time, the ferret was believed to be extinct. A few remaining individuals were found, however, and today they are protected. The prairie dog towns they rely on so heavily are also being protected.



Prairie dogs build systems of underground tunnels. We call these homes prairie dog towns.

Name _____ Date _____

For the student:

1. How do the tall grass prairies and the short grass prairies differ?

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2. Why don't trees grow well in the prairies?

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3. What prevented the early pioneers from farming the prairies?

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4. What permitted farmers to begin cultivating the prairies?

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5. Why are there only a few remnants of tall grass prairies?

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6. What were two factors leading to the decline of large herbivores, such as the bison, from the grasslands?

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7. Is a prairie dog really a dog? Explain.

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8. Why is the prairie dog known as a colonial animal?

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9. Why did the poisoning of prairie dogs affect the number of Black-footed Ferrets?

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10. Why are prairie dog towns now being protected?

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The Grasslands
Endangered Species

People have often tried to remove predators from some ecosystems, and their efforts have often met with dire consequences. One unique grassland system was located on the high plateaus of Arizona. This area received little rain, but a dense mat of grass kept the soil cool and in place. Deer were plentiful on these grasslands, and so were their predators, animals such as the puma, wolf, and coyote.

Deer hunting was good, but in an attempt to make it even better, hunters decided to kill all the predators they could. The deer population did increase. In fact, there were so many deer that the plateau's rich vegetation began to suffer the effects of overgrazing. Much of it died out. The sod that once held in moisture and protected the soil was gone. The area became a desert of sand and cactus.

People realized the mistake, perhaps too late. Attempts to reseed and re-establish grass have not met with any success. The delicate balance of producer (grass), consumer (deer), and predator (puma, coyote, wolf) had been disrupted.

When abrupt changes in the ecosystem occur in a biome, species of plants and animals may suffer population declines. In extreme cases, even extinction may occur.

The American Bison, or buffalo, numbered in the millions in the early 1800s. By the late 1800s, however, only a few hundred were left. The white man's rifles had made it easier to kill the buffalo. Buffalo were hunted for their thick hides and were even exterminated as a way of forcing Indians onto reservations. The low numbers of buffalo caused the prairie wolf and plains Grizzly Bears to become extinct. The buffalo itself was endangered, but small herds were saved and protected on refuges. Today, buffalo are also raised on ranches for their meat, which is nutritious and lower in fat than beef.

The Greater Prairie Chicken was once very common in the tall grass prairies. It is now on the endangered species list for most of its range. The eastern sub-species, called the Heath Hen, became extinct in the 1930s. The small population of Prairie Chickens that survives in Illinois may not last until the turn of the century. An introduced species of game bird, the Ring-necked Pheasant, seems to out-compete the Prairie Chicken in its search for food and nest sites.

Many species of prairie plants are on the endangered list. In some cases, insects that rely on the plants for food are also endangered. The Regal Fritillary Butterfly is a grassland species that is now rare. The Bluish-green Hairstreak of the grassy coastal areas of central California is almost extinct. The last California Xerces Blue Butterfly was collected on March 23, 1943.

Protecting the remnants of prairie that remain should be a top priority for conservationists. Re-establishing prairies from farmland has proven to be a difficult and time-consuming job. It could take a hundred years for a manmade prairie to reach an equilibrium where the grasses would be the climax vegetation.

Name _____ Date _____

For the student:

1. Why did the hunters want to kill off the deers' predators?

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2. Why did the grassland's vegetation die off?

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3. How did this affect the soil?

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4. Why did the area become sandy and full of cactus?

_____

5. Why do you think the area couldn't be easily reseeded?

_____

6. What may cause a biome's plant or animal species to become endangered or extinct?

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7. Why did prairie wolves and plains Grizzly Bears become extinct?

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8. How has introducing the Ring-necked Pheasant affected the native Prairie Chicken?

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9. Why would reduced numbers of plant species affect insects?

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10. What is climax vegetation?

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