

9 Fungi, bacteria and invertebrates play an important role in ecosystems by breaking down dead and decaying matter and filtering the nutrients back into the soil. What are some ways that these organisms directly benefit other prairie animals?

**Fungi and bacteria capture and recycle nutrients in the soil. They also loosen soil so that air can circulate and animals can easily make their homes in the soil.**

10



Running at 53 miles per hour, the pronghorn of Black Mesa's short grass prairie is the second fastest land animal in the world. Why did pronghorns adapt the ability to run at such high speeds?

**Pronghorns adapted the ability to run at high speeds because cheetahs once lived in Oklahoma. Cheetahs were the primary**

**hunters of pronghorns and went extinct around 12,000 years ago, but pronghorns survived and retained their high speeds.**

11

Find the information on wasps vs. spiders. Describe the evolutionary contest between tarantula hawks and tarantulas.

**Wasps called "tarantula hawks" paralyze tarantulas by stinging them. Then, they lay eggs on the paralyzed tarantula. When the eggs hatch, the larvae feed on the tarantula. As tarantulas have gotten better at hiding from tarantula hawks, tarantula hawks have gotten better at finding them.**

12

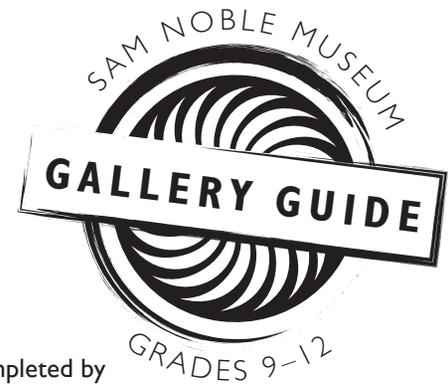


Prairie dogs are a **keystone species**, meaning that they are vital to the environment in which they live. List four ways that prairie dogs are beneficial to the short grass prairie.

**Prairie dogs are beneficial for a number of reasons:**

- 1. Their burrows channel rainwater into the ground.**
- 2. They loosen the soil.**
- 3. They improve the soil quality.**
- 4. They trim grasses and other plants.**
- 5. They fertilize new growth with their droppings.**

# HALL OF NATURAL WONDERS



Welcome to the Sam Noble Museum!

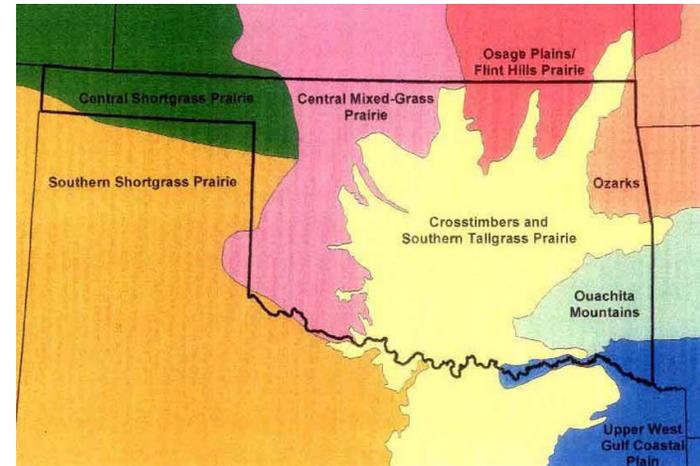
These gallery activities are designed to be completed by a student or group of students.

Gallery Guides are available for each of the museum's three permanent galleries.

The Hall of Natural Wonders is your guide to the plants and animals of Oklahoma. Each section of this gallery features different ecosystems in the state including woodlands, caves, mixed grass prairie and short grass prairie. Each of these areas are home to different plants and animals.

In the Ozark Highlands, you will explore the diversity of life in the upland stream and discover the different species that live in the oak hickory forest. Then, head to the limestone cave which features the 22 species of bat that live in Oklahoma. Next, find the bison in the mixed grass prairie and learn about how these giant animals have adapted to life on the prairie. Finally, stop by the short grass prairie to learn about Black Mesa and the wildlife that live in the driest part of our state.

Use the map below to learn where in the state each ecosystem is found!



Sam Noble Museum 2401 Chautauqua Ave., Norman, OK 73072-7029  
THE UNIVERSITY OF OKLAHOMA. (405) 325-4712 [samnoblemuseum.ou.edu](http://samnoblemuseum.ou.edu)

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For accommodations on the basis of disability, please call (405) 325-4712.



1. Begin at the Hall of Natural Wonders located on the second floor. The gallery entrance has pictures of plants and animals covering the wall.
2. Explore the gallery to find the answers to the questions below.
3. Start your journey at the sign marking the oak hickory forest in the Ozark highlands.

**1** Find the text panel titled Life in a Riffle. A riffle is an area of fast-moving water in a stream. Why would it be difficult for a fish or invertebrate to live in one of these areas? How does body shape affect survival in a riffle?

**Because the water in a riffle moves fast, animals might get swept away in the current. Flat-bodied animals are able to lay close to rock surfaces and avoid being swept away.**

**2** Read the text panel titled *Survival Tactics*. What do invertebrates need that they cannot get in slow-moving waters? How have mayfly and midge larvae adapted to survive in slow-moving water?

**Invertebrates need oxygen from the water, but slow moving areas have less oxygen than fast moving areas. Mayfly larvae rapidly beat their gills to create their own oxygen in the water and midge larvae make large amounts of hemoglobin to store more oxygen in their blood.**



**3** What does it mean that skinks have chemosensory abilities? How do these abilities help them?

**Chemosensory abilities allow skinks to interpret the chemical make up of odors in the air by using their tongues. They use these abilities to find mates and to protect their nests and young from predators.**

**4** Acorns are a source of food for many animals in the oak hickory forest. How do oak trees survive with so many animals eating their seeds? What are some ways that seed-eating animals can actually help trees reproduce?

**Oak trees produce huge crops of acorns in order to feed animals and have enough left over to sprout new trees. Animals also help oak trees reproduce by carrying seeds to new locations and burying them.**

**5** Go to the limestone cave. How does acidic ground water cause limestone caves to form?

**Acidic groundwater moves through the cracks in the outer layers of rock and dissolves the limestone, forming a hollow space beneath the surface. Water runoff causes erosion, which creates the cave opening.**



**6** Find the information on plant predators and defenses to the left of the Bison. What adaptations do prairie plants have that keep predators away?

**Many grasses have growth tissues underground. This allows them to keep growing when grazers eat them. Some plants make toxins that taste bad to prevent animals from eating them. Tough fibers make many plants too hard for animals to eat and digest. Spines and stinging hairs can make plants inedible to some animals.**

**7** Look for the information on buffalo wallows to the left of the bison. What is a wallow? List one way wallows can help other mixed grass prairie species and one way they can harm other short-grass prairie species.

**Wallows are depressions made by bison when they roll in the dirt. Wallows compact the soil and help it retain water. This helps new vegetation to grow once a wallow has been abandoned. Wallowing can be harmful to prairie dogs because it can flatten their mounds causing them to rebuild in another location.**

**8** Find the panel labeled *Strange Bedfellows*. Describe the beneficial relationship between Great Plains narrowmouth toads and brown tarantulas.

**Great Plains narrowmouth toads and brown tarantulas have a mutually beneficial relationship. The toads hide in tarantula burrows to avoid predators and eat the ants that prey on tarantula eggs.**