

Welcome to the Konza Prairie Nature Trail. This is a self-guided hike with numbered stops. There are three loops for your enjoyment. **This guide is for the first loop of 2.6 miles.** Please see the map on the back. The trail is designed to provide you with an introduction to the tallgrass prairie ecosystem.

Please do not litter, take only photos and observe the rules on the signs along the trail. This is a research site with numerous experiments in progress. Access is restricted to the trails outlined on the map because human disturbance could affect on-going research. We ask that you stay on the trail at all times. **Thank you and enjoy your visit!**

Konza Prairie Biological Station is an 8600 acre (3487 hectare) tract of native tallgrass prairie



operating as a long-term ecological research site. Konza Prairie is a preserve of The

Nature Conservancy, managed by the Division of Biology, Kansas State University.

The preserve is divided into watersheds of different sizes for the purpose of studying the effects of fire and grazing on the prairie ecosystem and its plant and animal community. Fire is historically a “natural disturbance”, which maintains the prairie in a healthy state. On Konza Prairie controlled burns are used as a tool to help us understand this ecosystem. Major watersheds are burned at 1, 2, 4, 10 or 20-year intervals and in different seasons.

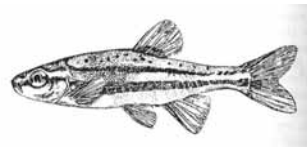
Watersheds on Konza Prairie range in size from 10 to 400 acres each.

A watershed is an area of drainage in which all water entering as rain flows into a central stream. At KPBS a watershed is the unit of study.

#1. Before the initial purchase by The Nature Conservancy in 1977, what is now known as Konza Prairie was part of the 10,000 acre Dewey Ranch, acquired by C. P. Dewey and his son, Chauncy, from 1872 to 1926. The farm fields to the north, south and west of this number were plowed and planted to crops. Today this land is used by the Department of Agronomy at KSU for research on various crops.

#2. Kings Creek is one of two major streams on Konza Prairie. Like many streams that begin in the tallgrass prairie, its lower reaches are bordered by a narrow, wooded strip called a “gallery forest”. The dominant trees here are bur and chinquapin oak, elm, hackberry, walnut and hickory. The gallery forest increases the biodiversity of the prairie by allowing many non-prairie species to thrive here. Watch for beaver, squirrels, birds and various shade-tolerant and water-loving plants. About 7% of Konza Prairie is forested.

#3. This stream is spring-fed, with cool, clear water filtered by the prairie sod and limestone layers. The U.S. Geological Survey studies the pristine condition of Kings Creek as a comparison for other more human-impacted prairie streams in the region. During heavy rains, prairie creeks may rise rapidly in “flash floods”. Enough water may enter the drainage to raise the level of the creek several feet. During these high water events the creek channel, banks and gravel beds may undergo major changes. Aquatic plants and animals are swept downstream. With time they gradually



return to the upper branches of the stream. During times of drought the creek bed may be entirely dry, making it uninhabitable by aquatic life.

#4. This open field was once forest but was cleared in the 1970’s and planted to brome grass, a non-native species used for hay. Early land survey

records indicate there were far fewer trees on the prairie at the time of settlement. The present climate of the region allows the growth of trees in the absence of fire. This field is now an example of ecological succession, the process by which native grasses and wildflowers reestablish themselves, followed by trees and other woody species.

#5. Dead trees and downed wood are important ecological resources since many animals use them for shelter and feed on insects within. Look for woodpecker holes in dead trees at the edge of the field. Eastern bluebirds and black-capped chickadees use these holes for nesting and white-footed mice find refuge as well.

#6. Konza Prairie soils are shallow and rocky, yet some woody plants do well under these conditions.

..... Can you identify
Dogwood has reddish stems : the honey locust,
and is the only shrub here : redbud, sumac
that has opposite leaves. : and dogwood
 growing here?

#7. These limestone outcrops characterize the landscape, forming terraces, which alternate with underlying shale. Since water easily penetrates the fractured limestone, springs and seeps commonly occur just beneath them. Bands of shrubs form on the hillsides where they can find water. The rock underlying Konza Prairie and the Flint Hills was formed beneath an ancient sea during the Permian period, some 250 million years ago.

#8. The tallgrass prairie supports a variety of plant life. The grasses are dominant: big bluestem, Indian grass, little bluestem and switchgrass. They are well adapted to fire. The underground rhizomes are protected from damage and send out new growth, which is nutrient rich for grazers.

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In the fall of a favorable year, the flowering stalk of big bluestem may grow 10 feet in height, while its root system can reach 12 feet into the soil.

#9. Along this rock outcrop the soil is drier and more shallow, forming a “clay-pan” community. Plants characteristic of the shortgrass prairie of the High Plains grow here, like blue and hairy grama grasses. Note also the crusts on the soil surface formed by lichens, algae and mosses. Continue along the limestone bench to the next station.

#10. Wildflowers are abundant in native prairies. The spring bloom is often spectacular in June. In fall the tall grasses are at their greatest height while asters, goldenrods and sunflowers are abundant. There are over 600 species of plants on Konza.

#11. From the top of this hill you can look down on Kings Creek, formed by the junction of two branches. The south fork lies in the 2400 acre Native Grazer Area, surrounded by a tall fence. Konza Prairie has a herd of about 300 bison.

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Bison originally grazed the prairie in vast herds. By 1890 there were no bison in Kansas and less than 1000 left in the country.

The north fork is ungrazed, providing a necessary comparison for effects of grazing by these large native herbivores. From here you can see the different colors and textures in the landscape. Can you tell which watersheds were burned this year? They are generally lighter in color in all seasons.

#12. This radio tower is used by Konza staff and researchers to communicate with each other, the Konza Prairie Headquarters and the KSU campus. It also has a wireless connection to provide real-time remote data collection from most of Konza Prairie.

#13. Smooth sumac is a common woody plant on the prairie. It is most attractive in the fall when the leaves and fruit are bright red. Wildlife feed on the fruit,



but generally late in the winter when other food is scarce. There is also wild rose here with its fruit, called “hips”. They are rich in Vitamin C and eaten by both birds and mammals. Both of these plants were well known to the Native Americans for their medicinal and edible value.

#14. To your left stretches the Kansas River valley. The rich, deep soils of the floodplain have been intensively cultivated since settlement times. This area was also used to grow corn and squash by the Kansa Indians, for whom Konza Prairie was named. On this ridge, you can see why most of Konza Prairie remained untouched by the plow. The limestone rocks of the Flint Hills contain bands of chert (flint), which have weathered over the millennia into thin soils containing flinty gravel.

#15. Imagine you are a drop of rain falling at the top of this watershed. Gravity will pull you down toward the center where shrubs and trees can be seen. This is the beginning of a branch of Kings Creek, which will eventually spill into McDowell Creek and then the Kansas River.

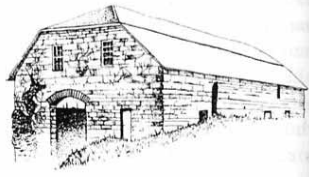
If you continue straight, you will begin the Kings Creek Loop and will have walked 4.7 miles by the time you return to the parking lot. An explanation for the numbered stops is provided by the separate trail guide in the mailbox at the top of the hill.

Here the Nature Trail turns right. Notice the short buffalo grass growing in the compacted soil of the trail. This species is dominant on the shortgrass prairie and is a favorite of bison because of its high nutritional value. It is also a good alternative for lawns in areas where water conservation is important.

#16. Continuing down the Nature Trail, you are now walking along one of the many fireguards that crisscross Konza Prairie. These mark the boundaries between the fire treatments. Fireguards are mowed in the summer to help contain the

prescribed burns of early spring. The watershed to your left is burned every year.

#17. This rock ledge is formed by an outcropping of the Cottonwood limestone, which provided the traditional building material in this part of the Flint Hills. The barn and ranch house on the Dewey Ranch, as well as many of the buildings in Manhattan and on the K-State campus, were built from this limestone, which is easily quarried. The trail turns right here and continues along the top of the Cottonwood limestone layer.



#18. The shrub community along this rock outcrop is an important part of the Konza Prairie landscape. This habitat is critical for collared lizards and many bird species, like Bell’s Vireo. It is also one of the favorite sites for woodrats to build their houses. The solitary woodrat may have more than one home under rock ledges or on the ground in shrubby areas. The nests usually are constructed of hundreds of branches, twigs and leaves with a cache of berries, nuts and seeds for winter.

#19. Down the hill to your left is the Hokanson Homestead built by Swedish settlers in 1878. In front of you is the composting toilet, built in 2001 for your convenience. Please observe the rules for use inside. The trail turns to the right here.

#20. The trees on your right are American elm and hackberry. Hardly stately specimens, but the prairie environment is harsh. The strong winds have bent and broken these tree and summer heat and drought have slowed their growth. Fires have burnt and weakened the trunks. To your left are two white mulberry trees, probably offspring of the old trees planted by settlers at Hokanson Homestead.

#21. These are Chinquapin oaks, one of two

species of oak that occur in the gallery forest. Note the shape of the leaves and the smooth acorn caps. Compare the leaves to the bur oak at #22.

#22. The bur oak has large acorns with curly caps. The red-headed woodpecker depends on these acorns for winter food. They migrate to other areas when acorns are not abundant here. This stately tree was a seedling at the time of settlement. How old do you think it is?



#23. Cottonwoods and willows indicate the presence of water. A perennial spring issues from the rock outcrop above these trees. They could not survive here long without it. Early settlers knew that where cottonwoods grew, water could be found. Perhaps this is the reason that the cottonwood was chosen as the Kansas state tree.

#24. You are at the end of the Nature Trail loop. Continue left to the parking lot.

If you would like more information, send an e-mail to konza@ksu.edu Kansas State University, Division of Biology, Ackert Hall, Manhattan, KS 66506 or call (785) 587-0441. Visit our education web site at <http://keep.konza.ksu.edu>.

*Please consider joining the **Friends of Konza Prairie**. A brochure can be found in the mailbox at the trailhead. Your membership will help support education programs on Konza Prairie. **Thanks!***



Funded in part by a grant from the Geary County Convention & Visitors Bureau.

