

KONZA PRAIRIE NATURE TRAIL KINGS CREEK LOOP

You are now on the second loop of the Nature Trail. By following the trail east from this point, you will walk about 3.3 miles before returning to the parking lot. Proceed to the first number.

1. The limestone underneath the shallow soil on which you are standing was laid down under an ocean that covered Konza Prairie about 250 million years ago. You can trace this outcrop around the top of the ridge to the west and south. The soils of Konza Prairie are largely derived from weathered limestone, wind-blown dust during the Ice Age and the organic remains of plants.

2. The pond in this valley was constructed to provide water for cattle on the Dewey Ranch, which was developed from 1872 to 1926 by acquiring smaller tracts from the original settlers and others. It was maintained for cattle production by subsequent owners until purchased by The Nature Conservancy in 1977. Parts of Konza today are grazed by bison, others by cattle, providing a comparison for areas that are ungrazed.

3. Humans first entered this region 10 to 20 thousand years ago, settling in the Kansas River valley below you. These first inhabitants took advantage of the rich, deep soils along the river to raise crops, as did European and American settlers in the 1800's. Manhattan, KS, is visible in the distance. Behind you the landscape has been little affected by man. This is virgin prairie first grazed by mastodons and mammoths during the Ice Age, then by bison and later domestic cattle.

4. The shallow basin about 10 feet south of the trail is an ancient bison wallow. The last wild bison in this area was seen in 1857, so this wallow probably has not been used for over 150 years. Yet the impact of large animals rolling over on their backs is still apparent. Mud or dust from the wallow provided protection against biting flies. Note the difference in the vegetation on the compacted soil of the wallow

compared to the plant community on nearby prairie soil.

5. Glaciers never reached the area now called Konza Prairie. Only water and wind have sculpted this landscape. In the floodplain of the Kansas River, the meandering flow produced a flat fertile plain. In the uplands, water produced the characteristic stair-step profile of the Flint Hills as the more durable limestone outcrops formed benches between the more eroded slopes of the inter-layered shale.

6. The watershed to the east has not been burned for more than 20 years while the watershed to the west is burned every year. Woody shrubs and trees, like dogwood, sumac and elm, take over and eventually become dominant where fire has not reached. The annually burned watershed is dominated by fire-tolerant grasses. On Konza Prairie fire is a management and research tool to learn about prairie ecology.

7. Rain falls on the prairie, seeping into the soil and percolating through fractured limestone and shale. The layers are tilted about one degree to the west, allowing water to move to the edge of the outcrop and appear as occasional springs or seeps. This habitat has more water to support trees and woody plants. A special community develops sheltering wood rats, collared lizards and birds, like thrashers and Bell's vireo. Look across the hills and you can see lines of this shrub community defining where each limestone layer hides beneath.

8. A buildup of soil along the north fork of Kings Creek fosters broad-leaved deciduous trees that form the gallery forest. The valley is protected from the strong prairie winds but higher on the slopes trees still struggle with the prevailing wind from the south and the limited water supply.

9. The row of trees along the rock outcrop to your right and the grasses on the intervening shale slope provide a mix of habitats that attract wildlife because of sufficient food, water and cover. Look for game trails crossing the path.

10. The redbud tree is prevalent along the limestone outcrops and upper creek drainages throughout Kansas. In April, before the heart-shaped leaves appear, its pink flowers succor a little known butterfly, Henry's Elfin, which can only be seen in the spring on redbud trees, where it nectars and lays its eggs. Once the blossoms are gone so is this little butterfly until next spring arrives. The bean-like seedpods remain on the tree through the winter.

11. Large fire-scarred standing dead oaks are an important resource for a whole community of wildlife ranging from wood-boring insects and the birds that feed on them to the mammals and birds that use the nest cavities hewn by the woodpeckers.

12. The rough-leaved dogwood is the most common shrub on Konza Prairie. It can be distinguished from other shrubs by the opposite leaves and stems. The white berries ripen late in summer and are an important food source for wildlife.

13. The Bur Oak on the left and the Chinquapin Oak on the right are co-dominant trees of the gallery forest along Kings Creek. The Bur Oak has deeply lobed leaves and large acorns with curly caps, while the Chinquapin has leaves with wavy margins and small acorns.

14. The original forest was cleared from this area and planted in brome, a non-native grass for hay. Unlike bison, domestic cattle cannot survive the winter by grazing native prairie grasses. The ranch used the hay for winter supplementation of their animals. Native grasses and forbs are invading here, as well as non-native annual weeds and some invasive perennial grasses that must be controlled to protect the native plant community.

15. This is an ephemeral stream, only flowing during wetter times. But even so, it has carved this valley into the prairie on its way to join Kings Creek.

16. On the left is green ash. Like the dogwood, this tree has opposite branching. The Bur Oak in front of

you has a simple leaf, while the walnut on the right has a compound leaf like the ash, formed of many smaller leaflets growing along a central rib.

17. Note how the far side of the bank of Kings Creek is being eroded away, exposing the deep lowland soils. Streams meander across their floodplains, eating soil on one side and depositing it on the other side.

18. This tramway is used by scientists from the U.S. Geological Survey to sample water during high stream flow. Kings Creek is a USGS "benchmark" stream used as a comparison to other streams in the Great Plains. Its headwaters are entirely within Konza Prairie and its water quality is largely unaffected by agricultural runoff and other human pollution.

19. These clumps of tall grass are Eastern Gama Grass, highly nutritious and preferred by cattle. It is also the host plant to the Golden Byssus Butterfly, an endangered species in areas where the prairie is disappearing.

20. This is another example of natural stream cutting. The bank on the near side is eroding while a gravel bar is deposited on the far side. The course of a prairie stream can change drastically during "high water events", commonly known as "flash floods".

21. In 1878 Andrew Hokanson purchased 95 acres along Kings Creek and by 1888 had acquired a total of 194 acres. This well was an early water supply for the homestead. By 1910 the Hokansons were completely surrounded by the Dewey Cattle Company. His son Carl inherited the farm and continued operations until 1948 when the land was sold to the Davis Cattle Company, then owners of the Dewey Ranch. Andrew and his wife Hettie moved to Manhattan where Andrew died in 1927 followed by his wife 12 years later. Follow the Homestead Trail around the Hokanson site. There are numbered markers and a trail guide in the mailbox on the driveway.

From here turn right up the hill and then left to reach the main Nature Trail back to the parking lot. If you would like more information, write to the Konza Prairie Office, Division of Biology, Ackert Hall, Kansas State University, Manhattan, KS 66506-4901 or call (785) 587-0441. Visit our education web site at www.ksu.edu/konza/keep.

Please consider joining the Friends of Konza Prairie. A brochure can be found in the mailbox at the trailhead or online at the web address above. Your membership will help support education programs on Konza Prairie. Thank you!

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