

Natural Areas and KU's Reservation

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KU's natural history reservation was created in 1948 through the foresight of the late Professor E. R. Hall. The 590-acre tract in the northeastern corner of Douglas County was already owned by the University, as it was part of the farm that had belonged to Dr. Charles Robinson, first governor of the state. The entire Robinson farm was willed to the University. By the time it was made a natural history reservation, it had been subjected to various uses. Much of it had been grazed by cattle, sheep and horses. Parts of it had been cultivated and some of this was heavily eroded. By 1948, about half the area was woodland, mostly on hill-sides, and the remainder was open land in valleys or on hilltops and included grazed pastures, cultivated fields and tallgrass prairie. Timber had been harvested from the wooded portions.

When the reservation was created, cultivation, grazing and tree-cutting ended and from the start the tract was maintained as a

"natural area." As in national parks, the policy has been hands-off, and insofar as possible the area has been protected from disturbance by humans. However, humans have been a part of the natural world for more than a million years, and they have affected every plant and animal community worldwide. The Stone Age culture of the early Kaw Indians was more natural using metal tools and firearms (e.g., the Delawares, who were moved west to Kansas in the early 1800s) and these Indians were more natural than the settlers who later brought agriculture and industry. A succession of human cultures are known to have affected the plant and animal life in Kansas for the past 11,000 years at least, back to the time of the last ice age with a climate much cooler than now and a more boreal assemblage of plants and animals, including many species now extinct. In recent times the natural area has been subjected to various unnatural influences: polluted air from factories and cities, cats and dogs preying upon wildlife, occasional trespassers harvesting natural crops of mushrooms or berries, or poaching. Frequent visitations

of school groups, KU classes, and miscellaneous individuals, the research activities of various persons, the buildings, driveway, small lawn, and presence of a resident naturalist (I have lived on the area with my family since 1 March 1950) all constitute unnatural influences. Incidentally, in October, 1987, my family and I were honored with the renaming of the area as the Fitch Natural History Reservation, but it is much more widely known as the "KU Snake Farm."

Eastern Kansas is a transitional area, the ecotone, between the original woodlands of the eastern U.S. and the western prairies. Its plant and animal life consists of a mixture representing both regions. The amount (and distribution) of animal precipitation is critical. Where moisture is adequate the land is forested; where it is deficient there is grass instead. The tallgrass prairie is a "fire subclimax." It is subject to periodic burning, and every species of plant and animal that lives in it is highly adapted to avoid, escape, resist or survive fire. No doubt the fire subclimax with its distinctive assemblage of plant and animal species evolved over millions of years through the selective pressure of lightning fires. Once set, a fire might sweep over a great area, killing every tree and shrub in its path. On the contrary, the prairie grass, burned down to ground level, was not killed. Its root stock survived unharmed, to send up new shoots after the first rain. Recurrent fires maintained and stimulated the prairie growth, holding the line against the incursion of trees or other woody plants.

Burning off the prairie was a regular custom in early Great Plains cultures. One use of fire was to drive and concentrate game animals. The frequency of prairie fires was much increased above the level of lightning fires in the prehuman era, and the equilibrium between forest and prairie shifted, with the forest in retreat. In the early 1800s, after centuries of periodic burning, the area that is now the reservation

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was mostly tallgrass prairie with stands of trees only in sheltered places, on north slopes and in two small valleys. Hilltops and most slopes, especially those with south exposure were prairie.

By the early 1860s, the Delawares had been moved from their former reservation, including northern Douglas County. Farms and roads had appeared, and prairie fires were largely eliminated. Trees began to encroach onto formerly open areas, often preceded by low woody vegetation such as coralberry, blackberry, sumac and dogwood. Formerly cultivated fields and pastures have become thickets and copses. On our area the remaining open grassy patches are small, and the forest is spreading with increasing momentum. Fast-growing trees with small, easily dispersed seeds, American elm, honey locust, osage orange and boxelder, are the pioneers. The climax oaks and hickories are spreading also, but at a much more gradual rate.

Species of forest animals that formerly were not present, the white-tailed deer, wild turkey and eastern chipmunk have come into prominence, but some other species have not been favored by the suc-

cessional changes. The prairie vole was the area's most abundant mammal, with populations exceeding 200 per acre but now it is much scarcer. Seventeen species of snakes are known from the reservation, and research in snake ecology has been my main preoccupation. Seeing snake research in progress has fascinated some visitors, including leading herpetologists from as far away as Australia and Japan, but it has horrified some who are subject to "ophiphobia." Their reaction has been the basis for the name "KU Snake Farm." Yet snakes were never especially common on the area, and each capture represents much time and effort. Snakes need sunshine to bask, and as the spreading tree canopies have shaded former basking places all species have become scarcer and several have disappeared. Nevertheless, their fearsome image persists and has limited some visitors to birdwatching from the safety of their cars rather than venturing out on foot with the imagined risks of attack by snakes. Other sorts of animals have decreased too; of 37 common bird species, 9 have disappeared or greatly decreased, and the same applies to 9 of 30 species of mammals. In fact, there has been a net loss of 30% of the vertebrate species and the losses are continuing. Philosophies concerning natural areas vary. The many natural areas in Kansas are not all treated alike. Some are maintained with varying degrees of management. The late Professor Victor E. Shelford of the University of Illinois, who might be considered the father of American ecology, once suggested to me that we should check the spread of forest onto the prairie on our reservation by pulling out seedlings and young saplings. That seemed too unnatural; it was not done, and the prairie disappeared.

KU is fortunate in having different tracts available for field work of different kinds, some like the reservation, maintained as natural areas, others subject to various sorts of management and manipulation. The Nelson Environmental Study Area, adjoining the reservation on the north, has original and regenerated tallgrass prairie, maintained by experimental treatments. All of the Kansas Ecological Reserves are under the administration of the University's Experimental and Applied Ecology Program, directed by Professor K. B. Armitage. A multidisciplinary approach with longtime records supplemented by experiments, with many specialists participating, is yielding a better understanding of the plant and animal life of forest and prairie and their interactions. ■