


ENVIRONMENT & NATURAL RESOURCES

Wildlife Past & Present


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ICE AGE KENTUCKY

The period of earth history known as the Pleistocene—lasting from about 1.6 million to about 10,000 years before the present—was an age when great sheets of ice repeatedly spread across the upper part of the North American continent, alternately advancing and retreating. At the peak of the last glacial advance about 15,000

During periods of glacial advance, the sea level was lowered by hundreds of feet, and a land bridge connected North America to Asia across the Bering Sea. The land bridge allowed an intermingling of species. From the Old World to the New came bison, mammoth, mastodon, musk-ox, and felines such as the American lion, jaguar, and saber-tooth cats. Species originating in North America spread to Asia included members of the deer family, horse, camel, and wolf.

Evidence of most megafauna species is found from fossils preserved in deposits in caves and sites such as the salt springs of Big Bone Lick and Blue Licks in northern Kentucky. The composition of biological communities during the Pleistocene varied with climatic shifts—during recessions of ice, the ecology included more species favoring a warmer climate.

In the near-Arctic landscape of Kentucky during the late Pleistocene, vast herds of foraging animals mingled peaceably. Bison, horse, and mammoth fed upon grasses, while caribou, stag-moose, musk-ox and mastodon browsed on tundra plants. The most common grazing species was the shaggy *Bison antiquus*, direct ancestor of the modern buffalo, but nearly a third larger. Today's magnificent thoroughbreds originated in North America more than 50 million years ago

and were five-toed leaf browser about the size of a house cat—the horse gradually evolved to its larger modern form, with longer limbs and a single central toe on each foot. The horse became extinct at the end of the Pleistocene, but was reintroduced by the Spanish during the 16th century.

The woolly mammoth, *Mammuthus primigenius*, Columbia mammoth, *Mammuthus columbi*, and their cousin, the American mastodon, *Mammuthus americanum*, are mammals most symbolic of the Ice Age. The woolly mammoth was covered with a dense coat of hair, as much as 20-inches long,



Mastodons at Big Bone Lick State Park (Replica)
Source: KY Dept. of Parks

years ago, the climate, vegetation, and animal life of the land known as Kentucky were quite different than today. A landscape altered by the cold, dry air flowing off the great ice massif, the glacier borderlands comprised open tundra grassland mixed with sparse boreal woodlands of stunted white spruce, aspen and birch.

Here, driven southward by the inexorable movement of the ice, roamed the Pleistocene megafauna. This was the era of giant mammals, far larger, and existing in greater variety than today.

with a layer of fine dense wool beneath. A grown mammoth was comparable in size to the modern elephant, about six to eight tons in weight and 10- to 11-feet high at the shoulder.

Woodlands were occupied by pig-like peccaries, tapirs, and ground sloths. Certainly, one of the strangest prehistoric mammals was the ground-sloth, *Megalonyx jeffersonii*, which somewhat resembled an immense hamster larger than a grizzly bear.

diseases or overkill hunting by prehistoric humans. These circumstances did contribute to the decline, but the most likely cause seems to be the severe environmental disruption associated with the changing climate. As many herbivore species vanished, carnivores and scavengers dependent upon them likewise disappeared.

PRE-SETTLEMENT WILDLIFE

Once the great North American ice sheet retreated, tundra and boreal forest migrated northward and gradually were reestablished across Canada. At the same time, warmer-climate hardwood forests returned from the southeastern coastal plains. By the time Europeans discovered North America, the ancient forests were domi-



Bison, commonly called Buffalo
Source: KY Dept. of Fish & Wildlife

Ice Age carnivores included giant short-faced bears, dire wolves, American lions, jaguars, and the scimitar and saber-toothed cats. Bison, horses and mammoth provided the bulk of the diet for large predators—the giant short-faced bear was the largest and most powerful. This bear stood more than 11-feet tall when erect, and weighed about 1,500 pounds when heavy with autumn fat.

As the climate warmed and the ice sheet withdrew for the last time, a massive extinction took place from about 12,000 to 9,000 years before the present—nearly three-fourths of the large mammal genera in North America were eliminated. Vanished forever were the mammoth and mastodon, stag-moose, ground sloth, short-faced bears, dire wolves, American lion, scimitar and saber-toothed cats. Giant bison gradually evolved to the smaller modern bison. Jaguars, peccaries, and tapirs retreated southward. The woodland musk-ox was lost; horses and camels disappeared from the continent. In their absence, smaller mammals dominated North America: bison, elk, moose, pronghorn antelope, bighorn sheep, mountain goat, grizzly bear, and mountain lion. Bison became the largest land mammal of the continent.

Scientific explanations for the disappearance of the North American megafauna include epidemic



Black bear enjoying the snow
Source: KY Dept. of Fish & Wildlife

nated by oak and chestnut—extending from southern New England along the Appalachians to the Mississippi valley.

West of the Appalachian mountains, the forest gave way to woodlands and savanna—a more open habitat maintained by grazing animals and by fires deliberately set by the paleo-Indian inhabitants to drive game and make land more productive. Early explorers found the savanna of central Kentucky a fertile place filled with grass and cane, dotted with clustered oak and ash, surrounded by rolling, wooded hills. To the west, the treeless prairie landscape was called the Big Barrens.

Early pioneers described vegetation and wildlife—but their main concern was upon game animals. Christopher Gist made one of the earliest records during 1750-1751 as he traveled down the Ohio River and through eastern Kentucky. He described the lands along the Ohio River border-

ing northeastern Kentucky as "rich fine and Level Land, well Timbered with large Walnut, Ash, Sugar Trees, Cherry Trees &c, it is well watered...and abounds with Turkeys Deer, and Elks and most sorts of Game particularly Buffaloes..."

Large mammals left an imprint upon the landscape, creating networks of well-trodden pathways as they moved from favored grazing lands to salt licks and watering places. The game trails were used by American Indians, by explorers and settlers.



Red Fox
Source: U.S. Fish and Wildlife Service

When Daniel Boone traveled from the Cumberland Gap to the Kentucky River, he and his party followed a bison path that became known as the Wilderness Road. The game trails often served as the foundations for wagon roads, railroad beds, and modern highways.

KENTUCKY'S WILDLIFE TODAY

In the 15 years between the first Kentucky fortifications and the first U.S. Census in 1790, nearly 74,000 immigrants settled in the region; by 1820 more than half a million persons called Kentucky their home. The landscape at the time of settlement had been created through the interaction of climate, wildlife, and human agency; the ecology was altered to an even greater extent by the influx of population. Early inhabitants wielded axe and plow, transforming savanna woodlands into cropland and pasture. During the second half of the 19th century, the ancient forest of the Appalachian highlands was systematically stripped of its timber (nearly half was gone by 1900).

Unregulated hunting, habitat alterations, and competition from domestic livestock eliminated or greatly reduced populations of many of the most common large mammals. By 1800 woodland

bison and elk were rarely seen; by mid-century, mountain lions, black bear, red and gray wolves, bobcat, beaver, and wild turkey had nearly been exterminated.

Experimental projects have reintroduced certain species that were eliminated during the settlement period. In 1997 the Kentucky Dept. of Fish and Wildlife Resources began restoring elk to southeastern Kentucky—today we host the largest herd east of the Mississippi River. In the same year, the U.S. Geological Survey reintroduced black bears from the Great Smokey Mountain National Park into the Big South Fork area along the Kentucky-Tennessee border. Kentucky's wild turkey restoration project was so successful that it has been used as a national model. Bison, which once numbered less than 1,000 individuals, have



Bobcat (Felis Rufus), Salato
Source: KY Dept. of Fish & Wildlife

increased to an estimated 350,000 in North America today.

Smaller mammals commonly found in Kentucky include red and gray foxes, woodchuck, raccoon, mink, beaver, muskrat, opossum, spotted and striped skunk, eastern cottontail rabbit, gray squirrel, and eastern woodrat. Kentucky has many different species of bats, occupying diverse habitats from caves to barns. Among the most common bird species are the robin, cardinal, jay, wild turkey, ruffed grouse, barred owl, bobwhite, mourning dove, red-winged blackbird, eastern meadowlark, mockingbird, and summer tanager. Reptiles and amphibians include the red-spotted newt, dusky salamander, American toad, bullfrog, wood frog, box turtle, painted turtle, common snapping turtle, eastern garter snake, northern water snake, black rat snake, and copperhead. There are regional and habitat differences in the occurrence of these species, which are not distributed uniformly across the commonwealth.