Many mammals are naturally secretive and difficult to see in nature. Others are nocturnal, while most of the larger kind, as well as many of the smaller forms, have learned to fear man as a source of disturbance or danger. These factors, plus the fact that some species are now quite rare or approaching extinction, means that a lot of people have never had the opportunity to see these mammals in the wild. When they are seen, it is usually just as a silhouette on the horizon or back in the shadows of the trees or shrubbery, or penned up in a cage or enclosure in a zoo.

However, just the silhouette of most mammals is distinctive, and will serve to identify the animal seen. This issue of the Naturalist has been prepared to let the reader see how many of the mammals sketched he recognizes, and to permit him to learn to recognize some with which he may not be too familiar.

Bits of information concerning such things as the size, foot habits, distribution, ecological niche occupied, value or danger to man, and possible danger of extinction or reduction of numbers to a critical level are included.

The sketches may be cut out and pinned on the bulletin board, or flashed on an opaque projector for class review or study. The teacher may wish to assign the various mammals to students for class reports, and have them do research for additional information and pictures to go with that which is provided in this booklet.

This issue of the Naturalist is the first of three such issues to be published. The full set will consist of over fifty mammals, ranging from the most primitive egg-laying mammal to the highest group, the Primates.

THE BISON
(Cover picture)

It has been estimated that some 60,000,000 bison (often mistakenly called “buffalo”) once roamed over North America. There were once several forms of this animal in this country, but now only two remain. One of these forms, the western plains bison, was reduced to perhaps less than 300 individuals in the late 1800s, but the numbers have now risen to several thousand animals on preserves and in zoos across the country.

The bison, like our cattle today, was a grazing animal, feeding upon the grasses of the prairies. Bison were the largest of the hoofed animals in America. A large bull might reach a height of almost six feet, a length of nearly 12 feet, and weigh almost 3000 pounds.

Bison were slaughtered in tremendous numbers, sometimes only for their tongues. Some 3000 train cars of bison bones were shipped from Dodge City in a two year period near the start of the twentieth century, to be used for refining sugar, in fertilizer, and in carbon works.

The last wild bison in Kansas is said to have been killed in 1879 west of Dodge City, but a few individuals may have survived in the state until about 1888.
The moose, known as an elk in Europe, is the largest of all deer. A mature male may stand over seven feet high at the shoulders, and weigh over 1800 pounds. Only the males have the huge palmate antlers, which are shed every year.

Moose are animals of the coniferous forests of the northern hemisphere. They feed on a large variety of twigs, leaves, and the bark of deciduous and evergreen trees and shrubs. They also eat water lilies and other aquatic plants.

Now that the wolf has been reduced to very low numbers, man is the mooses’ greatest enemy, hunting them for food and sport. A bull moose’s antlers, which may be over six feet across and weigh over 100 pounds, are a prized trophy.
The American elk, or wapiti, is the largest round-horned elk in the world, and originally came to this country from the Old World. It is closely related to the North American moose. In primitive times, they ranged over much of this country, but have now been eliminated from most of their original range. Thousands were killed just to get the "tusks" to wear as watch charms.

A large bull elk may stand five feet at the shoulders and weigh up to 1000 pounds. Cows normally give birth to one calf, but twins sometimes occur. Only the gray wolf was a serious predator upon the wapiti before the coming of modern man.

Several great dams have been proposed which, if built, will result in the flooding of some of the finest elk-grazing areas left, causing a severe reduction in the numbers of animals in these areas. Even though a browser, the elk may take enough grass to interfere with cattle on the same range, causing ranchers to demand their removal or reduction.

Wapiti is an Indian name for the big deer, while elk is the name used in Europe for what we call the moose.
The caribou is really a North American reindeer. Large males may stand up to five feet in height and weigh as much as 700 pounds. Both males and females have large, spreading antlers, except in the winter, when they are shed.

These animals range over the tundra of Greenland, the islands of the Arctic Ocean and Alaska, and most of Canada. They exist upon caribou moss (a lichen), twigs and leaves of blueberry, woodrush, horsetail, willow, aspen, and other shrubs and trees.

Their greatest enemy was the wolf, and with the great decline in the number of wolves, caribou appear to be increasing in some areas. They provide both hides and food for the Eskimo, and are hunted by sportsmen for their meat and impressive racks of antlers.

Their food, consisting of partly-digested lichens, and which is stored in the caribous paunch, is considered to be a delicacy by the Eskimos.
White-tailed deer may stand as tall as 40 inches at the shoulders, and weigh as much as 400 pounds. The large fluffy tail, white on the underside, and which is usually carried aloft when frightened or running, is responsible for their common name. The spikes of the antlers come off of a main axis, rather than branching by twos, as do the antlers of the mule deer.

They range over North America and even into Canada, inhabiting the forests, swamps, open areas, meadows, and woodland glades. Their food consists of green forage, twigs, leaves, bark from trees, grass, berries, nuts, and aquatic plants. They once were the prey of wolves, mountain lions, and bears; but now man fills the role of the primary predator upon this fine game animal.

A graceful, fast runner, it can attain a speed of over 35 miles an hour, jump over eight feet into the air, and ‘broadjump’ up to almost 50 feet. With the destruction of their natural enemies, hunting is necessary to keep them from destroying their habitat through overbrowsing.
MULE DEER

The mule deer once occurred over much of western Kansas, at least in the winter, when the snows at higher altitudes drove it onto the high plains. Hunting and other environmental pressures appear to have once exterminated them from the state, but they are now plentiful enough that a carefully regulated program permits limited hunting for food and sport. This is the common species today throughout the central part of the United States.

As in the case of the white-tailed deer, only the males have antlers, which are shed each year. There are reports of mule deer that exceeded 450 pounds. They are prolific, and a doe may have two, or even three, fawns.

ROCKY MOUNTAIN GOAT

Both sexes of the Rocky Mountain goat have a pair of small, slender, spiked horns. A full-grown male may weigh as much as 300 pounds. Its nearest relative in America is the muskox, and it is not a goat, in spite of its common name.

Its range is restricted to the high mountain ranges of northwestern North America. Rocky Mountain goats are rugged animals, and not even the cold winds and snows of winter can drive them from their mountain-top home. They are probably the most sure-footed of the mountain climbers.

Outside of man, the Rocky Mountain goats' greatest enemy may be the avalanche, especially in the spring and fall.
**PRONGHORN**

The pronghorn, often erroneously called an antelope, is the only animal in the world with branched horns and the only one that sheds the outer covering, but not the core. Both males and females have horns. It is the only member of its family, the Antilocapridae. It may range from near the seashore to above timberline (about 11,000 feet) and can stand temperatures from 130 degrees F in the Sonoran desert to 40 degrees below during the Wyoming winters. A creature of the arid plains, it can survive in some of the most desolate places in the country.

Pronghorns are not large, averaging less than 115 pounds, and the largest less than 140 pounds. There were many millions when the first settlers entered the Great Plains, but by the early 1920's only an estimated 25,000 were left in the entire United States. Plowing up of the natural habitat for farms, along with excessive hunting, were probably responsible for the greatest decline in numbers.

Primarily a weed eater, browsing on such plants as sagebrush and bitter brush, and eating very little grass, the pronghorn is not in competition with man's cattle. There may now be as many as 160,000 roaming the plains of the West.

Pronghorns have been clocked at speeds over 60 miles per hour, and may be the world's fastest mammal.

A few of these interesting mammals may still be found in western Kansas.

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**MUSKOX**

The muskox is a strong little ungulate, or hoofed mammal, that stands about four feet at the shoulders. A large bull might weigh as much as 900 pounds. They are covered with a long, shaggy coat, and the broad hoofs on the short, sturdy legs permit them to walk across deep snow and tundra.

The horns are not shed, and the horns of the bull are much larger than those of the cow muskox. Though it somewhat resembles an ox, the muskox is really a member of the goat-antelope group. They inhabit the vast wilderness that extends from the last timber to the polar seas, and do not migrate southward to escape the extreme cold and snows of the Arctic winter.

It has recently been found that the very fine hairs under the longer guard hairs can be stripped from the animal and woven into a fine "wool" of the highest quality. This may turn out to be a source of income for the Eskimos of the area.
BIGHORN

Bighorn sheep get their name from their massive, curling horns, thick at the base and tapering sharply toward the tip. A large ram may be up to 70 inches long, 42 inches high, and weigh as much as 300 pounds.

This hoofed mammal is found on high mountainous ridges, usually above timberline. Unlike the antelope and the deer, it is primarily a grazing animal. However, it lives so high in the mountains that it is in little if any competition with man's cattle.

Man is the main predator upon this animal today, hunting it for meat and the great set of horns, which are usually mounted as a trophy.
All giraffes have a pair of small fur-covered horns. They are the tallest of all living mammals. Their basic color is white with a complex pattern of shades of brown. They prefer the dry savannas of Africa, and feed on leaves and branches fifteen to twenty-five feet above the ground. They are good runners, moving both legs on a side at the same time.

Their vocal accomplishments consist of a whistling sound to a rather gurgling whimper. They can go almost as long without water as can a camel. Unlike most wild animals, they cannot swim, and stay out of even small rivers. They are seldom seen lying down.

Once giraffes were found in large herds, but hunting has caused their extermination in some sections.
Bactrian camels have two humps, and inhabit rocky deserts and snowy wastes. They have thick, brown winter coats. They act as beasts of burden, provide hair for clothing, hides for leather, milk and flesh for food, and droppings for fuel. They once traveled in great caravans across the desert, moving more slowly than the Arabian camels.

Arabian camels have but one hump, and longer, thinner legs and more slender bodies than Bactrian camels. They are completely unknown in the wild state, and have been domesticated since at least 1800 B.C. They can drink as much as fifteen gallons of water at a time, which is stored in their stomachs, not their humps. The hump is for the storage of excess energy in the form of fat. Their broad feet let them walk on the soft desert sand.

A camel may carry up to 1000 pounds across the hot desert, and have been known to live for 40 years. The two kinds of camels may be crossed, the offspring having one hump, and being heavier and more vigorous than either of the parents.

At one time they were very important in desert warfare, but modern roads and vehicles have replaced them in most cases.
One form of extinct rhinoceros, known as Baluchitherium, was the largest land mammal that ever lived, standing some 18 feet in height. Of the many rhinoceratines that once roamed the earth, only four genera survive today—two in Asia and two in Africa. One genus has only one horn, the others have two.

The one-horned rhinoceros appears to be marked for extinction, being far too specialized to survive in a world with so many men and other annoyances. The "horn" is really congealed hair, and the high esteem for it as medicine, especially in China, has had probably the greatest effect in bringing this huge mammal to the brink of extinction.

One of the two-horned species may already be extinct, and the other is much reduced in its range. Plant-eating herbivores with poor eyesight, they are easy prey for hunters with high-powered rifles. Lions may sometimes kill young rhinos, but man and mosquitoes are the main source of their troubles.
The African elephant is the largest of land mammals. Huge bulls have been recorded up to over twelve-and-a-half feet at the shoulder. One set of tusks measured eleven-feet-five-inches in length, and weighed 293 pounds.

They can be told from their Asian cousins by their huge ears and tall front shoulders. They travel in family groups of from 20 to 40 animals.

These huge mammals have few natural enemies. As a result, they may increase in numbers until they threaten to eat themselves out of "house and home." It is then necessary to kill off part of the herd to protect their environment. They also may raid the natives' fields, or even run wildly through their villages. Natives kill them for food and ivory. Elephant hunting on the great preserves of Africa is now carefully regulated to preserve the remaining herds.

The African elephant has only recently been tamed and domesticated.
The Asian elephant has been domesticated for many centuries. It was once used in warfare, but now is used primarily as a beast of burden. They are among the most intelligent of animals, and have actually been reported to have learned their master's language, and to follow his spoken instructions.

They are not as large as the African elephant, and do not have the great flapping ears. Their tusks are not as large, being under nine feet in length at the most, and weighing less than 160 pounds.

The life span is about the same as that of man. The gestation period is 18 to 21 months.

The giant herbivores may eat several hundred pounds of plant material a day, and drink 30 to 50 gallons of water. They appear to sleep but seldom, and then for only short periods.

Though the elephant appears to be slow, it may attain a speed of up to 30 miles per hour.

The walrus is an Arctic mammal. They have always been prized for their ivory and hides. They also furnished the Eskimos with flesh to eat and fat and blubber for oil and food.

They are huge creatures, large males sometimes reaching a length of over twelve feet and a weight of over a ton and a half. They feed on shellfish, starfish, and sea urchins, sometimes diving down a hundred feet to feed. The herds migrate southward in the fall. Some naturalists consider them the noisiest animals of the polar regions.

Their greatest natural enemies are the killer whales, which do not hesitate to attack even the largest walrus. Modern man has seriously reduced the herds of walrus through excessive hunting.
1972-1973 AUDUBON SERIES

The KSTC Biology Department and Special Events will again offer three Audubon Screen Tours during the 1972-1973 school year:


All programs will start promptly at 7:30 p.m. in Albert Taylor Hall on the KSTC campus.
For further information contact Dr. John Ransom, KSTC Biology Department, 343-1200, Extension 311.

KABT Fall Meeting—October 14—Sacred Heart College, 3100 McCormick, Wichita.

Statewide Fall KATS Meeting—October 14—Hays.