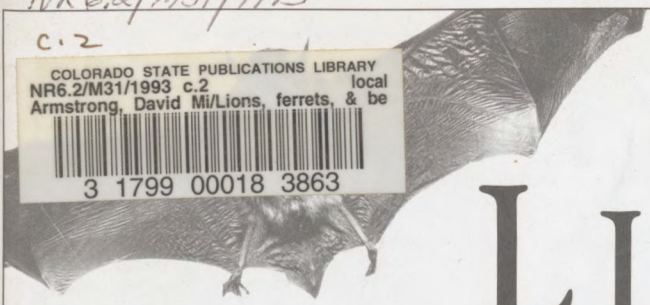
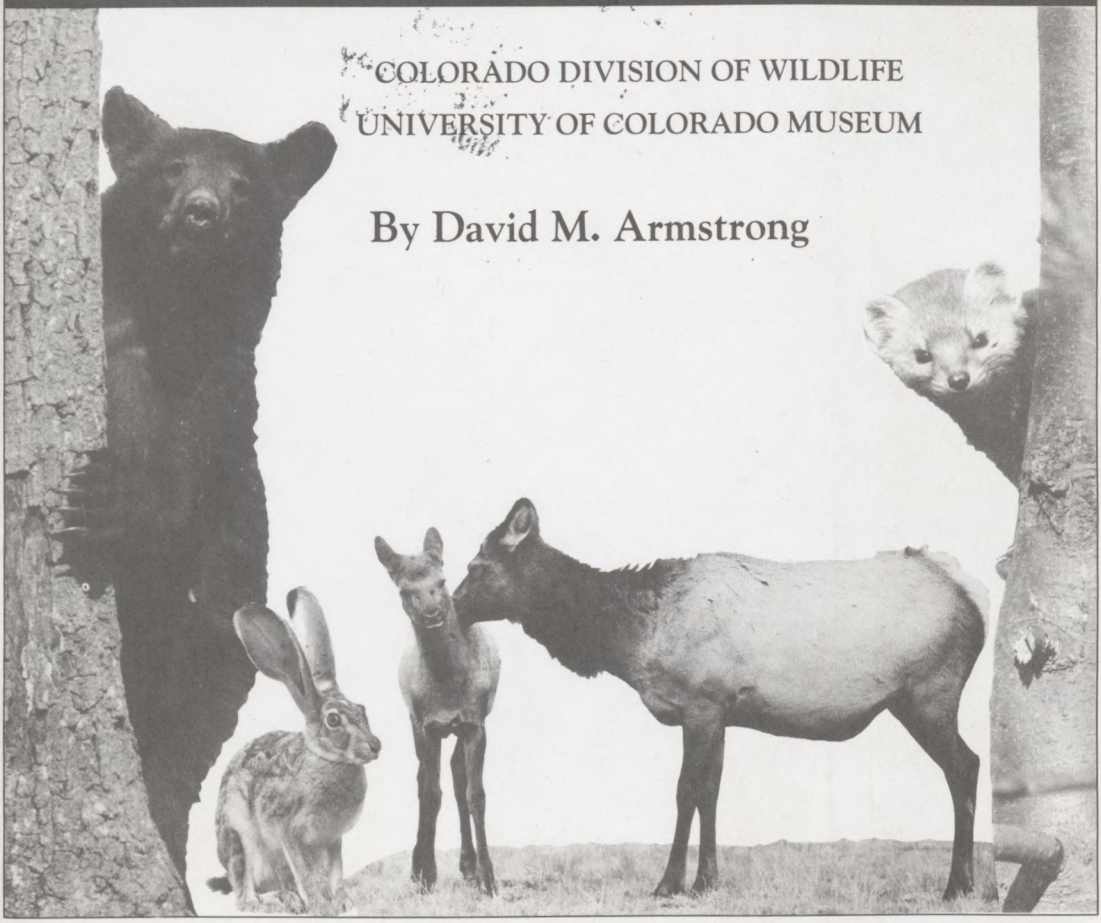


LIONS, FERRETS & BEARS

A Guide to the Mammals of Colorado

COLORADO DIVISION OF WILDLIFE
UNIVERSITY OF COLORADO MUSEUM

By David M. Armstrong



LIONS, FERRETS & BEARS

A Guide to the Mammals of Colorado

By David M. Armstrong, Director
University of Colorado Museum
Boulder, Colorado

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Cover photos:
Little brown bat, white-footed mouse,
black-tailed jackrabbit and black bear
by Leonard Lee Rue III
American marten by Irene Vandermolen
Elk cow and calf by Len Rue, Jr.

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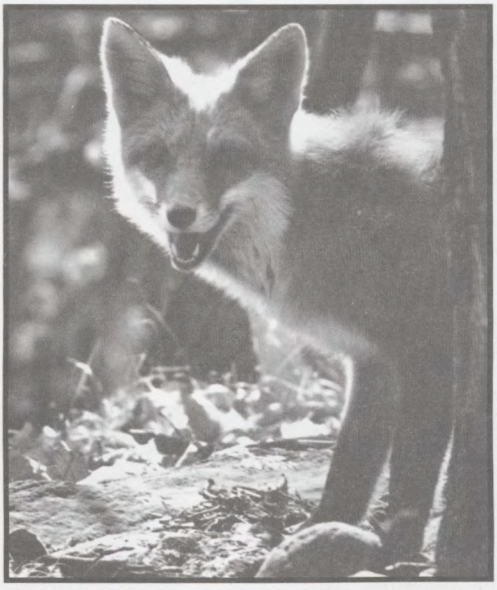
MOUNTAIN LION PHOTO BY LEONARD LEE RUE III

WHAT IS A MAMMAL?



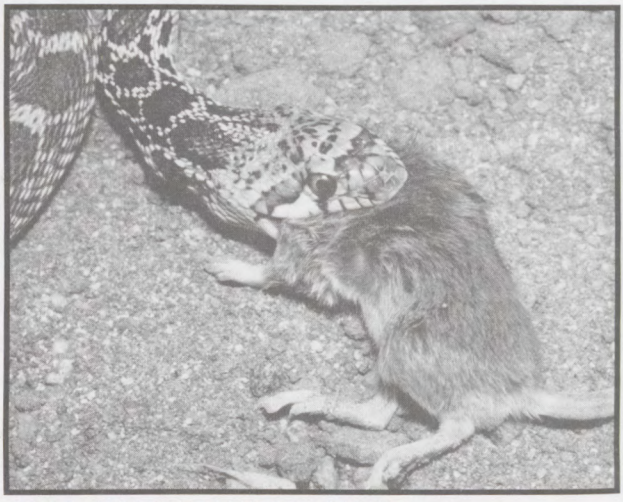
RED FOX
PHOTO BY DENISE HENDERSHOT

Mammals are vertebrate animals with hair. Vertebrates are animals with backbones. Other vertebrate animals are bony fish, sharks, amphibians, reptiles and birds. Like birds, mammals are warm-blooded. Their hearts have four chambers with separate channels to carry oxygen-rich blood to their brains, muscles and tissues. Once the oxygen gets used, blood is carried to the lungs for more oxygen.

Mammals are warm-blooded animals. That means they keep a high, constant body temperature even though the outside temperatures change. Insulation, such as hair or fat, helps keep mammals warm. Mammals arose from reptiles about 240 million years ago. They began to become really successful and important in ecosystems after dinosaurs became extinct about 65 million years ago. Mammals are different from reptiles in a number of ways.

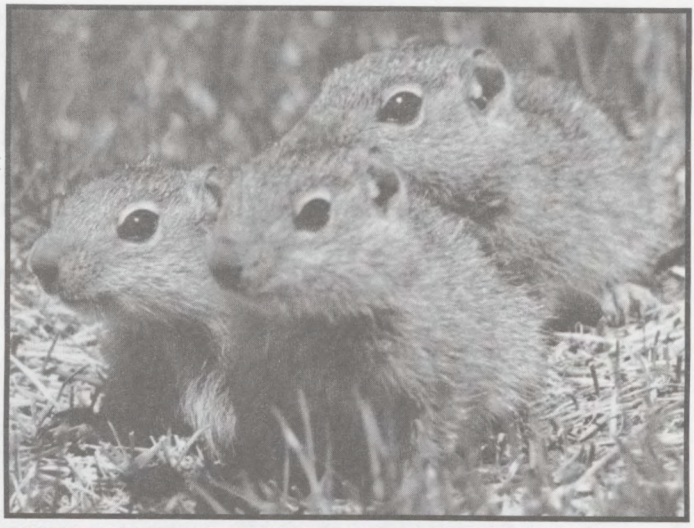
Reptiles have a lower jaw made up of several bones. Reptile jaws are attached loosely to their skulls. A snake, for example, can loosen its jaw and swallow a mouse fatter than the snake's own body. Mammals have one bone in their lower jaws. Their jawbones are firmly attached to their skulls. In mammals, the extra jaw bones of reptiles evolved into ear bones. In short, reptiles have three jaw bones and one ear bone. Mammals have one jaw bone and three ear bones.

Mammals' jaws move less than reptile jaws. But, the jaws of mammals are stronger, which help them use their fancy teeth better. Mammals' teeth have three distinct features. First, their teeth are specialized



BULL SNAKE EATING MOUSE
PHOTO BY DAVID F. TONEY

from front to back. Second, their teeth are set firmly in sockets. Third, mammals have two sets of teeth — "baby teeth" and permanent ones. Mammals have four kinds of teeth: incisors for nipping, canines for grasping prey, premolars and molars for crushing, shearing and grinding food. Molars are present only in permanent teeth.



YOUNG WYOMING GROUND SQUIRRELS
PHOTO BY LEN RUE, JR.

These special kinds of teeth help mammals chew their food better. Once the small bits of chewed food enter the digestive tract, they mix with digestive juices and are digested fast. That gives mammals fuel so they can stay active regardless of the temperature outside.

We think of mammals as reptiles glorified with hair. Many basic features of mammals are associated with their hair. Originally, their hair helped insulate them. But, their hair began serving other purposes

COYOTE
PHOTO BY LEN RUE, JR.

as well, such as helping them camouflage, sense their environment, warn them of dangers and recognize the opposite sex.

Attached to each hair is a tiny muscle that can raise the hair to trap warm air. In humans, muscles contract and raise "goose bumps" when they are cold. Each hair has a gland that secretes oil to waterproof hair. Sweat glands release water and salts that evaporate from the skin and hair, helping cool the body.

Cats have few sweat glands so they lick their fur to help cool off. Dogs pant, and evaporation off their tongues helps them cool. Many mammals also have hair glands that release musky odors. The odors serve as sexual attractions or as ways of recognizing each other.

Mammary glands produce milk, a mixture of water, carbohydrates, fats, proteins and salts. Milk gives newborn, nursing mammals a nutritional "jumpstart." Nursing also lets newborns interact with their mothers and littermates, helping them become trained and socialized.

The platypus and echidnas of Australia lay eggs like their ancestral reptiles did. In other mammals, embryos grow in their mothers and are given birth. An intimate relationship develops between mothers and embryos. What makes that happen is the placenta, made of tissues that feed and remove waste from the developing fetus inside. This doesn't happen, however, with marsupials, which are mammals with pouches for their young, such as kangaroos.

An advanced brain is another key to the success of mammals. The basic parts of mammals' brains were present in their ancestral reptiles and even in fish. Mammals, however, have developed parts of their brains used for learning.

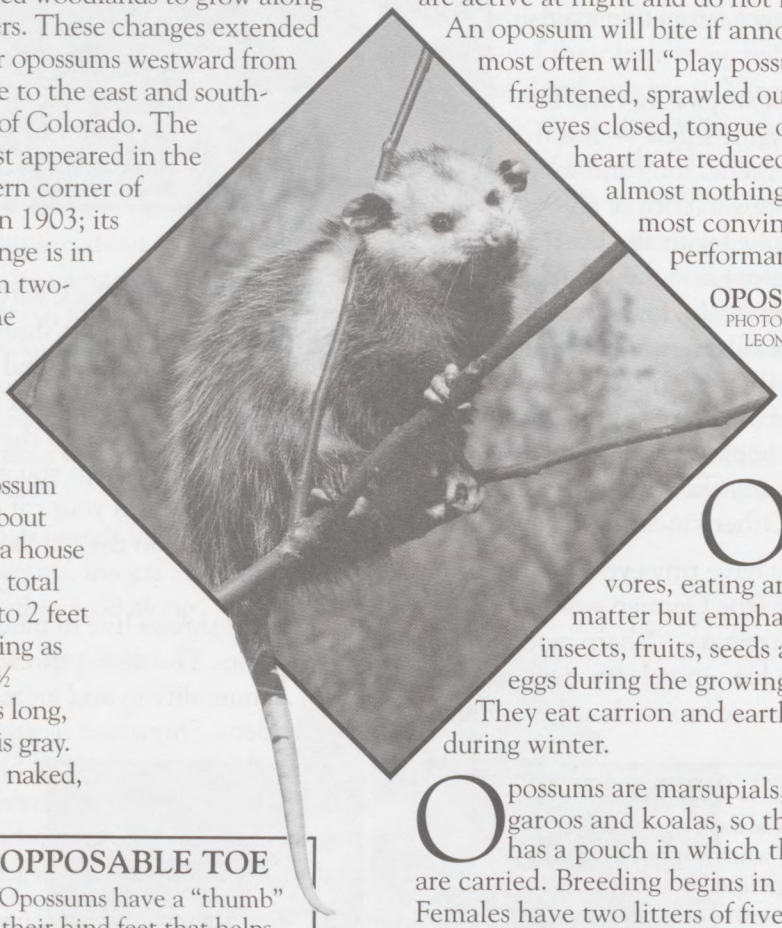
Mammals are more highly dependent on learning than most other animals are. Mammals don't rely much on instinctive ways of solving problems. Instead they piece together solutions based on experience. The cerebral cortex is their center of learning in their brains and is larger than in other animals.

There are about 4,400 species of living mammals, much fewer than species of birds, reptiles, fish or other invertebrates, such as insects and snails. Mammals impress us not by their number of species, but by the number of body types.The common ancestor of mammals that use placentas to feed embryos and of marsupials that carry their young in pouches was a rat- to opossum-sized mammal. That mammal was four-legged, ate plants as well as meat, and lived on land.

From those beginnings, many different kinds of mammals evolved, from bats and shrews the length of your little finger and the weight of a penny to blue whales as long as a tennis court and as heavy as three loaded freight cars.

VIRGINIA OPOSSUM

The opossum probably is a newcomer to Colorado. Settlers on the Great Plains planted trees to shelter their farms from wind and to beautify their towns. Control of floods and prairie fires allowed woodlands to grow along major rivers. These changes extended habitat for opossums westward from their range to the east and southeast parts of Colorado. The species first appeared in the southeastern corner of the state in 1903; its present range is in the eastern two-fifths of the state.



OPOSSUM
PHOTO BY
LEONARD LEE RUE III

The opossum is about the size of a house cat, with a total length up to 2 feet and weighing as much as 7½ pounds. Its long, coarse fur is gray. Its ears are naked, and the tail nearly so. The nose pad is pink; the big toe is clawless and works like a thumb. Opossums den in burrows made by other animals, or under rocks, brush, buildings or in hollow trees. They are active at night and do not hibernate.

An opossum will bite if annoyed, but most often will "play possum" if frightened, sprawled out with eyes closed, tongue out and heart rate reduced to almost nothing — a most convincing performance.

Opossums are omnivores, eating any organic matter but emphasizing insects, fruits, seeds and birds' eggs during the growing season. They eat carrion and earthworms during winter.

Opossums are marsupials, like kangaroos and koalas, so the female has a pouch in which the young are carried. Breeding begins in January. Females have two litters of five to 15 honeybee-sized young each year, but there are only 13 nipples in the pouch, so the excess young die. The young remain in the pouch for 90 to 100 days and mature at eight months. Average life span for opossums is about 16 months and rarely exceeds two years. Many are killed on highways.

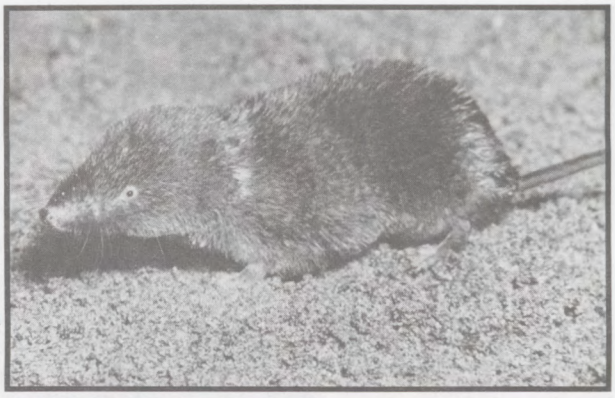
OPPOSABLE TOE

Opossums have a "thumb" on their hind feet that helps them climb. In other words, they have a toe that works in the opposite direction from the other toes. The "opposable toe" lets opossums grasp things the way humans do with their hands. They are the only furbearer with an opposable toe.

Furbearing Mammals of Colorado

SHREWS

Nine species of shrews live in Colorado, but most are seldom seen because they live under the vegetation on the forest floor. They are among the least known of our native mammals.



SHORT-TAILED SHREW
PHOTO BY LEONARD LEE RUE III

Most shrews are tiny. The pygmy shrew — less than 4 inches long and weighing in at barely a tenth of an ounce — is tied with the least shrew of Europe and the bumblebee bat of Thailand for the record of being the smallest mammal. Our largest Coloradan shrews (the water shrew and the southern short-tailed shrew) are giants by comparison, almost mouse-sized, weighing about three-quarters of an ounce. Other kinds are in between.

Shrews have tiny eyes, a pointed snout (the German word for shrew is *Spitzmaus* — "sharp mouse") and tiny ears hidden in velvety, dense fur. Most shrews are brown, but the beautiful water shrew is nearly black with a silvery white belly, and the desert shrew is gray. Shrews have a strong odor, and carnivores other than owls tend not to bother them much. House cats kill them but seldom eat them. Perhaps you are most likely to see a shrew if your cat catches one and leaves it on the porch as a "gift."

Most shrews live in moist habitats. The desert shrew seeks humidity in arid areas, such as woodrat dens. Shrews eat mostly insects — adults, larvae, pupae, eggs. Shrews can kill mice twice their size, however, and they also eat carrion. In fact, they eat meat in any form but little vegetation.

They are extremely active, with heart rates of 600–1,200 or more beats per minute. Shrews live in a hurry. A year-old shrew is a very old shrew. Shrews breed during the warmer months of the year. Gestation takes about three weeks.

CURIOUS BEHAVIOR

The shrew has been observed performing what might be called a shrew conga line. A family of mother and young will fall into line one behind the other, the first young grasping the fur around the mother's tail, the next grabbing the rear of the first baby and on down the line. The line then snakes it way through the undergrowth. By mimicking the movement of a snake, this may be a protective behavior that gives the family of tiny shrews some safety from predators.

Mary Taylor Gray

EASTERN MOLE

There is just one species of mole in Colorado, and it is restricted to the eastern plains, where it lives in sandhills, on sandy flood plains, fields lawns, cemeteries and golf courses.

Moles are torpedo-shaped mammals with velvety grayish fur, no neck, tiny eyes and ears and spade-like front feet. The naked, pointed snout is a sensitive probe by which the mole senses its dark, underground world. The animals are about 6 inches long, including the short tail. As insectivores (insect eaters), moles have sharp, white front teeth, unlike the yellow-faced nipping incisors of pocket gophers and other burrowing rodents. These are the only mammals with which they might be confused.

Moles search for earthworms, insects and other food along feeding tunnels near the surface of the soil, often pushing up a ridge of sod that marks their passing. Permanent burrows, which contain a nest of grass, are deeper. Excavated soil is thrown from a vertical hole, which forms a circular mound. Because of their burrowing habits, moles help build soil, mixing rich material from near the surface with mineral soil from deeper tunnels. They can be a nuisance in lawns, however.

Moles breed in late winter, and after a gestation period of about five weeks, females have a litter of about four naked young in March or April. Although owls, carnivorous mammals and snakes are known to eat eastern moles, flooding may be the most common cause of death.

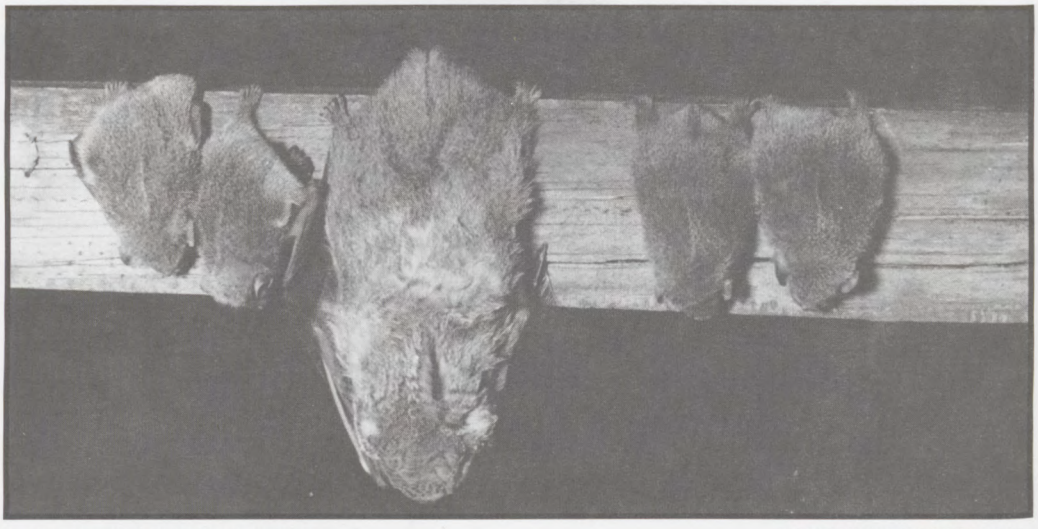
EASTERN MOLE
PHOTO BY LEONARD LEE RUE III

BATS

Colorado is home to at least 17 species of bats. Nearly 700 species live in Earth's tropical and temperate ecosystems. Coloradan bats include some of our most fascinating mammals, some of our least known and some of our most maligned and misunderstood. One or more species is present in most habitats in the state, but bats are most abundant and diverse in the southern and western counties and in the foothills of the Eastern Slope.

Bats are the only mammals that fly. Many species of bats are difficult to distinguish from one another, however. Most Coloradan bats are brownish, but the western pipistrelle is ashy gray. The spotted bat is black with three large white spots, the hoary bat is frosted white on brown, the silver-haired bat is black with silver-tipped hairs on its back, and the red bat is reddish. Ears vary from the small, rounded ears of the hoary and red bats to prominent black ears of modest size in several species and the magnificent ears of the spotted and western big-eared bats — ears so large the animals roll them up when they sleep. Our smallest bat, the western pipistrelle, is just 3 inches long and weighs only one-tenth of an ounce. The hoary bat is 5½ inches long and weighs seven-eighths of an ounce. Bats also have distinctive calls — although most of them are far too high pitched for humans to hear and must be altered electronically to be recognized.

Bats are not blind, but have tiny eyes. Coloradan bats depend upon their hearing to avoid obstacles and to find prey. They emit high-pitched sounds and listen for the echo from objects in their surroundings. All Coloradan bats eat insects, and nearly all of them eat insects only. The pallid bat may forage on the ground and eat scorpions, centipedes and non-flying insects, however. The hoary bat



RED BAT WITH YOUNG

PHOTO BY LEONARD LEE RUE III

UNDERSIDE OF LITTLE BROWN BAT

PHOTO BY LEONARD LEE RUE III

eats smaller bats when opportunity allows. Some bats will eat almost any insect, but others are specialists. The western big-eared bat and the long-eared myotis hover to capture single insects from leaves. Several species eat moths.

Bats search for food at night, mostly after dark (although the tiny western pipistrelle may begin to feed in late afternoon). Often they awaken to feed again before dawn. Then they move to a suitable day roost to sleep. Many species live in caves, crevices, mines and tunnels. The big and little brown bats frequently roost in houses. Silver-haired bats roost behind loose tree bark. Because their insect prey is a seasonal resource, Coloradan bats either hibernate or migrate when cold weather comes. Seven species of bats are known to hibernate in Colorado, and five are known to migrate. Where the other five spend the winter is unknown. That is just one example of how much we still don't know about these fascinating animals.

Most bats have a single young each year after a gestation period of about two months. Young develop quickly and learn to fly at about 1 month of age. A variety of predators (especially owls) capture bats. Senseless human harassment kills many of them, and some die because of the stress of hibernation. Maximum longevity in bats is remarkably long for a small mammal, however, over 30 years in the little brown bat. Bats sleep all day and most of the night, and they hibernate for eight or nine months of the year.

HOW MANY BUGS CAN A BAT EAT?

Adult bats are such swift, efficient hunters they can fill their stomachs in an hour. The little brown myotis is estimated to eat one-third its body weight in insects within half an hour. One bat expert figures Brazilian free-tailed bats being studied in Texas could consume nearly 20,000 tons of insects in a year statewide. Some adult bats can devour 12 mosquito-sized insects per minute. The 100,000 Brazilian free-tailed bats inhabiting the San Luis Valley could conceivably consume 72 million bugs in a one-hour feeding frenzy.

Mary Taylor Gray

NINE-BANDED ARMADILLO

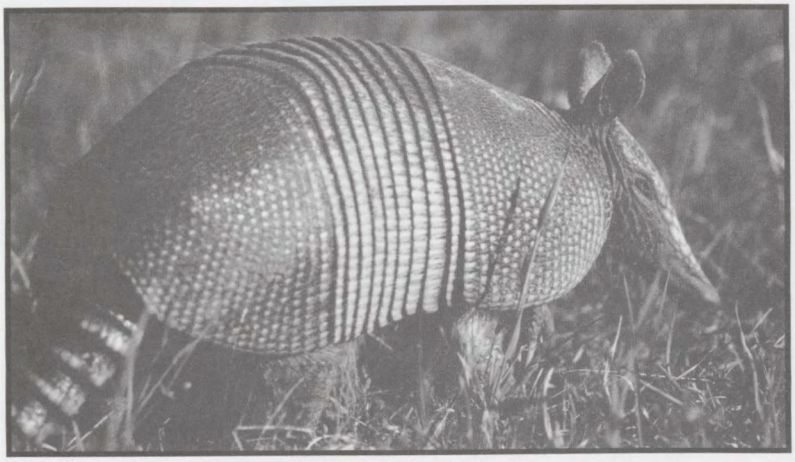
The armadillo is a relative newcomer to Colorado. There are only two or three reports of the animals to date, but we should probably expect to see them in increasing numbers. These are subtropical animals, originally from South America, but well established in Central America, Mexico and into the southern United States. In recent years they have moved into the central Great Plains.

The armadillo is an unmistakable mammal, with its unique, bony bands of "shell," leathery skin and piglike snout. Total length may be 32 inches, and adults weigh 6 to 9 pounds. They have simple, peglike teeth and eat insects, worms, slugs, fruits, eggs and some carrion. Their habitat is woodlands in river valleys where they dig deep burrows in banks and under vegetation. They can be a nuisance when they burrow in ditch banks, and root up melon patches and vegetable fields.

Armadillos do not hibernate, but spend cold, stormy weather deep under ground. They breed in late summer, but development of the young does not begin until early winter. After a gestation period of 120 days, a litter of identical quadruplets (four young from a single fertilized egg) is born. The fist-sized armadillos are ready to walk their first day.

Armadillos are well protected against most predators. Their first defense is to run (and they are remarkably fast for tanks!). Then they jump into the air and startle the predator. Finally they roll into an armored ball, impenetrable to all but the most persistent coyote and, of course, vehicular traffic.

Be alert for armadillos in eastern Colorado, and report them or their remains to Division of Wildlife personnel. Armadillos are not only interesting, but their increasing range may also be a telltale sign of global warming.



NINE-BANDED ARMADILLO
PHOTO BY WENDY SHATTIL/BOB ROZINSKI

PIKA

The pika is a close relative of the rabbits and hares, with two upper incisors on each side of the jaw, one behind the other. Its habitat is mostly alpine and subalpine talus and rockpiles. The animals are therefore restricted to mountainous parts of Colorado and other Western states.

Being rock-gray in color, pikas are seldom seen until their shrill, metallic call reveals their presence. Once located, they are fun to watch as they scurry around the mountainside, stopping frequently to squeak a warning. The animals are about the size and shape of a guinea pig, about 8 inches in length and weighing about 7 ounces. One commonly sees their tiny round droppings around rocks or their distinctive haypiles. Pikas are active year-round, so they harvest vegetation from alpine meadows during the short growing season and store it for winter food in bushel-sized mounds beneath boulders.

Pikas breed in March or April and have a litter of three or four young after a gestation period of about 30 days. Some females have a second litter. Like many mammals, pikas shed in late spring from their long winter coats to a shorter summer coat, then shed again in the fall. Because of the short warm season, the end of spring shedding can actually overlap the beginning of the fall shed so the animals look scruffy most of the summer.

Maximum life span is four to seven years. Predators of pikas include long-tailed weasels, ermines and martens. Coyotes and hawks probably take a toll as well, but pikas are fairly well protected from larger predators by their rocky habitat.

PIKA
PHOTO BY IRENE VANDERMOLEN

COTTONTAILS

COTTONTAIL RABBIT

Colorado is home to three different species of cottontail rabbits, one (Nuttall's cottontail) in the mountains and in the northwest, another (the desert cottontail) in the southwest and on the eastern plains, and a third (the eastern cottontail) in woodlands along watercourses in the east. Almost everyone recognizes rabbits, with their distinctive hopping gait and long ears. They are about 16 inches long and weigh about 2.2 pounds. Cottontails are smaller than jackrabbits and have shorter ears. The species of cottontails differ mostly by color and are difficult or impossible to distinguish in the field, except by habitat and geographic location.

Cottontails mostly live in brushy country. Therefore they may be favored by habitat disturbance, such as forest clearance, burning, and ornamental plantings. They eat vegetation, both herbaceous and woody, feeding early morning and late afternoon throughout the year. They spend the day in a shallow depression in the shelter of a thicket.

Reproduction takes place throughout the warmer months, with females giving birth to two to six litters of four to seven blind, pink young after a gestation period of about four weeks. Such high birth rates obviously must be balanced by high death rates or ecosystems would be overwhelmed by cottontails. Coyotes, foxes, hawks and owls eat adults. Weasels and rattlesnakes prey on the young, and disease and parasites take a toll on all age groups. Maximum life span in the wild is no more than about a year. Human hunters kill 300,000 or more cottontails some years.

YOUNG COTTONTAIL RABBITS IN NEST

PHOTOS BY LEONARD LEE RUE III

HARES — JACKRABBITS AND SNOWSHOE HARE

Jackrabbits are, properly speaking, not rabbits but hares, like the snowshoe hare. Hares have longer feet than rabbits and usually have longer ears. Most hares live in open country, whereas cottontails live in brushy habitats. Perhaps the most important distinction between them is that cottontails are born blind, nearly naked and helpless. Hares, by contrast, are born fully furred and ready to hop.

PHOTOS BY LEONARD LEE RUE III

WHITE-TAILED JACKRABBIT

SNOWSHOE HARE

The white-tailed jackrabbit lives in mountain parks, sagebrush country and native shortgrass prairie. The slightly smaller black-tailed jackrabbit lives in semi-desert country in southern and western Colorado, and on disturbed prairie in the east. Agriculture on the eastern plains probably has favored black-tailed jackrabbits over white-tails. Snowshoe hares live in subalpine forests, often in willow thickets. Snowshoe hares have relatively short ears for a hare, but their huge hind feet remind us that these are not rabbits. Jackrabbits are up to 2 feet long and weigh 6 to 9 pounds. Snowshoe hares weigh about half that. Black-tailed jackrabbits are a grizzly tan color year-round. Both white-tailed jackrabbits and snowshoe hares turn white in winter.

Hares are vegetarians, eating tender herbs in summer, and woody twigs and bark in winter. They also are food for coyotes, bobcats, foxes, large hawks and owls, and many jackrabbits are killed by automobiles.

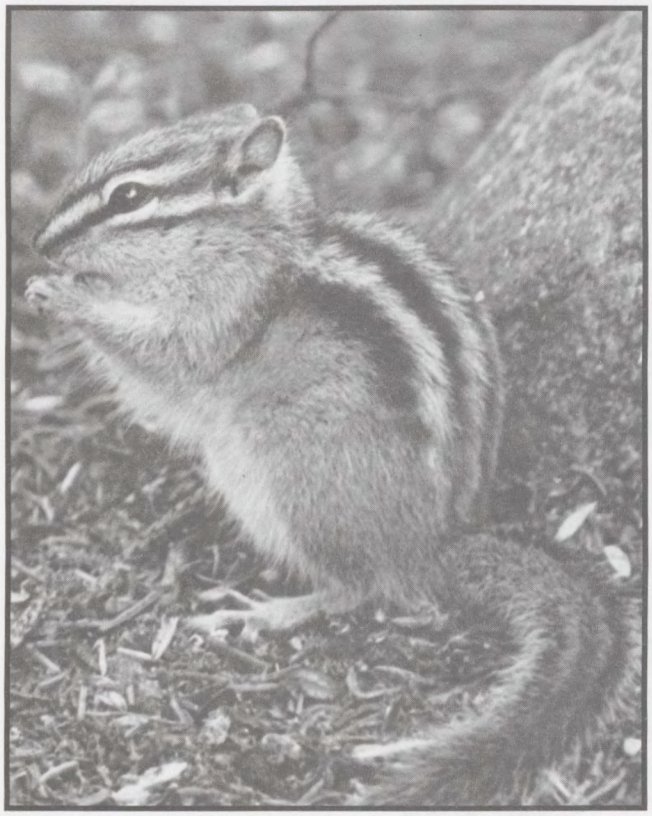
Snowshoe hares produce two litters of five young annually, between March and August. Jackrabbits may have four litters. Gestation is about six weeks.

BLACK-TAILED JACKRABBIT

CHIPMUNKS

Chipmunks are the smallest of ground squirrels, and Colorado is home to five species. The most widespread is the least chipmunk, which lives over most of the central and western parts of the state. The Colorado chipmunk lives in southern Colorado and northward along the foothills of the Eastern Slope nearly to Wyoming. The Hopi chipmunk occurs on the Colorado Plateau. The Uinta chipmunk is a species of the central mountains. The cliff chipmunk occurs in northwestern Colorado. Chipmunks are not easy to distinguish from each other in the field. They differ from other striped squirrels (the golden-mantled and antelope ground squirrels) by having stripes on the face. The larger chipmunks are up to 9 inches long and weigh about 2 ounces.

Chipmunks are lively and familiar animals, active by day and tolerant of people. In fact, they readily become beggars in picnic grounds. Like other wild mammals, however, one should not feed them. They do bite, they carry fleas that can bite and may carry diseases, and they tend to get overly dependent on handouts. Their native diet is seeds, berries, flowers and insects. They have cheekpouches in which they carry food to store in the burrow, usually beneath a rock, stump or root. Food is stored for winter, and the animals usually do not come above ground while the snow lies above their home. They sleep for several days and then arouse to feed, not depending on stored fat to sustain them like some deep hibernators do.



LEAST CHIPMUNK PHOTO BY LEONARD LEE RUE III

Chipmunks have a single litter of five to eight tiny, naked young per year, born in early summer after a gestation period of about 30 days. The young are weaned at 40 to 50 days old.

YELLOW-BELLIED MARMOT

The marmot is the largest of our ground squirrels, a close relative of the woodchuck of the East and Midwest. Marmots are widespread in western North America. We may associate marmots with alpine meadows, but they actually live in suitable habitat down to the lower foothills.

The yellow-bellied marmot is a heavy-set, brown to grizzled animal with white areas on the chin and (as the name suggests) a yellowish belly. Marmots can be waddling fat in the fall, and their long fur makes them look even fatter. Adults are about 26 inches long and weigh to 11 pounds.

Marmots burrow deep into the soil beneath boulders to den. Up to half of their summer weight is lost during hibernation, and animals with insufficient fat or a burrow too shallow to prevent freezing do not arouse in the spring. Successful hibernators emerge to mate as soon as green forage is available. After a 30-day gestation period, approximately five offspring (three to eight) are born. They are weaned in 20 to 30 days.

Preferred foods are flowering stalks, but marmots eat the leaves of a variety of grasses and forbs. Daily activity includes foraging, sunning, grooming and sleep.

Marmots are often colonial. A single male maintains a territory with a harem of several females, yearlings and young of the year. Predators include the coyote, badger, bobcat, golden eagle, hawks, owls, weasels and marten. However, predation probably is a less important cause of mortality than the stress of hibernation. Marmots are protected by a rocky habitat and a social system of alarm calls.

YELLOW-BELLIED MARMOT PHOTO BY CHARLES G. SUMMERS, JR.

GROUND SQUIRRELS

Every part of Colorado is home to at least one species of ground squirrel. On the grasslands of the eastern plains (and also in the southwest) are the thirteen-lined and spotted ground squirrels. Along the foothills and on western mesas and canyons lives the grizzled brown rock squirrel, with its distinctive long tail. The brownish gray, obscurely dappled Wyoming ground squirrel lives in mountain parks and sagebrush-covered basins. The white-tailed antelope squirrel lives in the hot desert shrublands of western valleys. And the golden-mantled ground squirrel lives throughout the mountains. All ground squirrels are active in the day;

THIRTEEN-LINED GROUND SQUIRREL

GOLDEN-MANTLED SQUIRREL

most are common and readily identified and observed. These are among our most popular nongame mammals.

Ground squirrels range in size from tiny spotted ground squirrels, barely larger than a chipmunk, to rock squirrels 20 inches long or as large as some tree squirrels. Ground squirrels feed mostly on seeds and fruits, although most will eat flowers, buds and some leaves and insects as available. In fact, the thirteen-lined ground squirrel thrives on grasshoppers in season, making it a valuable citizen on grazing lands.

Most ground squirrels mate in spring and have a single litter of a half dozen or more young a year after a gestation period of about a month. The rock squirrel is the exception to the rule, for females often have two litters. Most ground squirrels store fat for the winter and are deep hibernators. Again, the rock squirrel is an exception, arousing to feed periodically on stored seeds and acorns through the winter.

PHOTOS BY LEONARD LEE RUE III

ROCK SQUIRREL

PRAIRIE DOGS

Prairie dogs are among our most "watchable" wildlife. Three species occur in Colorado: the black-tailed prairie dog on the grasslands of the eastern plains; the white-tailed prairie dog in shrublands of North Park, the Wyoming Basin and the lower Colorado and Gunnison valleys; and Gunnison's prairie dog in the San Luis Valley, South Park and areas to the south and west.

Smaller than a marmot, but obviously larger than any other short-tailed ground squirrel, prairie dogs are distinctive rodents. To identify species, common names "tell the tale:" black-tails have black tails, white-tails white and Gunnison's gray ones. Prairie dogs are 16 to 20 inches long and when fattened in fall may weigh 2 pounds.

Burrows are up to 7 feet deep and 16 feet long with one or more volcano-shaped entrances that shed water and catch winds for ventilation. Vegetation around the burrow is clipped, apparently to allow better visibility. The black-tail is the most colonial prairie dog; some towns cover several hundred acres. In addition to noisy territorial barking, they make alarms, all-clear calls and distinctive "kissing" that seems to help them recognize each other.

Prairie dogs eat grasses and other vegetation, selecting succulent, actively growing plants. Between grazing and clipping, they may denude an area of vegetation. Often they are a symptom rather than a cause of rangeland damage, however. Overgrazing by livestock creates ideal conditions for prairie dogs, which evolved alongside migratory herds of bison. Prairie dogs are poisoned, shot and harassed by some landowners, but often the best control strategy is irrigation and improved grazing rotation. Predators include badgers, coyotes, hawks, eagles and black-footed ferrets — the last apparently gone from Colorado.

White-tailed and Gunnison's prairie dogs are deep hibernators, but black-tails in Colorado simply go dormant in bitter winter weather, arousing to feed in warm spells. Prairie dogs mate in early spring and have two to 10 pups after a gestation period of four to five weeks.

BLACK-TAILED PRAIRIE DOG FAMILY

PHOTO BY LEONARD LEE RUE III

TREE SQUIRRELS

Colorado is home to three kinds of tree squirrels. The rusty red fox squirrel is familiar in streamside and urban woodlands on the eastern plains. Abert's squirrel — with its striking black, or salt-and-pepper gray coat and magnificent eartufts — is a beautiful resident of ponderosa pine forests, and the smaller but noisier pine squirrel, or chickaree, occupies the high timber. Abert's and fox squirrels are about the same size (up to 20 inches long and 2 pounds in weight), although Abert's has longer fur and therefore looks larger. The pine squirrel is much smaller — up to 14 inches long and weighing only about 9 ounces.

PINE SQUIRREL

PHOTO BY LEONARD LEE RUE III

All three tree squirrels build nests of leaves or needles depending on habitat. Fox squirrels eat fruit, nuts and buds, and bury nuts for winter. (And because they are forgetful they plant a lot of trees.) Abert's squirrel does not hoard food, but eats whatever part of its host tree, ponderosa pine, is available in season: cones and inner bark of twigs. Pine squirrels harvest and store vast quantities of cones (spruce, fir, Douglas fir and lodgepole pine), often beneath a feeding area.

Predators vary with habits and habitat. Fox squirrels spend some time on the ground and are killed by coyotes and foxes. Magpies, hawks and snakes eat nestlings. Martens are a major predator on pine squirrels. The forest-dwelling goshawk eats Abert's squirrels.

Tree squirrels have two litters of two to five young, one litter in spring, the other in early summer. Gestation is five weeks for chickarees, and up to seven weeks for their larger cousins.

POCKET GOPHERS

VALLEY POCKET GOPHER PHOTO BY LAUREN J. LIVO/STEVE WILCOX

Several kinds of burrowing rodents are sometimes called "gophers," but we should avoid such loose talk and reserve the term for pocket gophers. These are remarkable and distinctive animals. Their pockets are external, fur-lined cheekpouches that carry food and nesting material.

Every part of Colorado has some kind of pocket gopher. The northern pocket gopher lives in the mountains and northwest, the valley pocket gopher inhabits southern and western valleys, the chestnut-faced pocket gopher is found in the southeast, and the plains pocket gopher, logically enough, lives on the plains. The animals vary widely in color, often matching the soil in which they live: dark in mountain meadows and ashy pale in the San Luis Valley. Size ranges from a diminutive gopher (less than 8 inches long and less than 4 ounces) in the sagebrush hills of Moffat County to a whopping 12 inches long and nearly 11 ounces in some plains pocket gophers.

Gophers are underground animals and are seldom seen. Mole-shaped, they are neckless with tiny eyes and ear flaps, but their yellow-faced front teeth are unmistakable. Their burrows also are distinctive. They usually are plugged (so the mound of excavated soil has no hole in it), and they are deep enough that a ridge of turf is not created. Northern and valley pocket gophers create solid ribbons or "garlands" of excavated soil beneath the snow, which are exposed with spring thaw.

Burrows may be 200 yards long, produced by moving 4 tons of soil, in pursuit of a diet of mostly roots, tubers and succulent stems under meadows, pastures and haylands. They can be a nuisance when they burrow through ditch banks or throw mounds in the path of a mower. They aerate the soil, however, and provide deep channels that conserve runoff.

Pocket gophers breed just once a year, in late winter or spring, producing two to five pink, blind hairless young after a gestation period of perhaps three to four weeks. Coyotes and badgers excavate and eat pocket gophers. Gopher snakes and weasels are slim enough to follow them home, and spring floods kill nestlings. In their brief trips above ground, they can be caught by owls. A gopher that survives these perils may live five years.

POCKET MICE

Colorado is home to five species of pocket mice. The Great Basin pocket mouse occurs only in the northwest, and the hispid pocket mouse lives on the eastern plains. The plains and silky pocket mice live on the plains as well, but also in the San Luis Valley and on the Colorado Plateau. The olive-backed pocket mouse lives in the northwest and also at the foot of the Front Range.

SILKY POCKET MOUSE
PHOTOS BY CLAUDE STEELMAN/WILDSHOTS

Pocket mice are smaller cousins of kangaroo rats. Most movement is quadrupedal, and they hunker down on their hind legs while feeding, packing their cheekpouches with their dainty forepaws. The smallest species is the silky pocket mouse, about 4 inches long and weighing just one-fifth of an ounce; the largest is the hispid pocket mouse, twice that long and 10 times as heavy. All but the hispid pocket mouse (which is large and has distinctly harsh, bristly fur) are difficult to distinguish from each other.

The most likely opportunity to see pocket mice is at night along roads through sandy rangeland. Frequently they will "freeze" in the headlights. The animals make extensive burrows that are plugged during the day.

Pocket mice eat mostly seeds of grasses and forbs. Seeds stored for winter but unused for food may germinate to help re-establish grassy prairies. When grain is taken, it mostly is gleaned from the ground; the mice are too small to harvest wheat themselves.

HISPID POCKET MOUSE
PHOTOS BY WENDY SHATTIL/BOB ROZINSKI

Active year-round, pocket mice seem to breed throughout the warmer months, producing litters of two to nine young after gestation periods of around four weeks. Owls are major predators, and owl pellets are a major source of information on the distribution of these secretive animals.

ORD'S KANGAROO RAT

Ord's kangaroo rat lives at lower elevations throughout Colorado — the eastern plains, the San Luis Valley and the major valleys of the Western Slope. Expect to see them at night along country roads through sandy rangelands, making two-footed jumps 6 feet long and 1½ feet high, and changing direction in mid-air, using their tufted tail as a rudder.

Kangaroo rats are distinctive, up to 11 inches long but weighing only about 2½ ounces. Their elegant tail is longer than their head and body. The fur of the back is yellowish to reddish buff, and the belly is a fastidious white. The hind feet are huge, the forepaws dainty. Seeds and nesting materials are carried in external, fur-lined cheekpouches. Their diet of seeds is supplemented by up to 20 percent insects. Water is unnecessary; they can get all they need as a by-product of digestion of fat in their diet. They do not hibernate but are active all year, living on stored seeds during bad weather.

The animals make conspicuous burrows in dunes or blowouts, along borrowpits, beneath shrubs, yucca or prickly pear. Burrows are plugged as a defense against predators (although coyotes, badgers, snakes and owls kill them in large numbers) and as protection against water loss. This species adapted to the periodic disturbances of the prairie by bison. Thus they are helped by moderate livestock overgrazing.

They breed throughout the warmer months, although there may be a lull in midsummer. Litters of two to five young are born after a gestation period of about 30 days. Newborn are blind and naked, cheekpouches are absent, and the tail is short. However, they are full-grown within six weeks.

ORD'S KANGAROO RAT
PHOTO BY WENDY SHATTIL/BOB ROZINSKI

BEAVER

The beaver lives throughout Colorado in suitable habitat, although it is most abundant in the subalpine zone. As abundant as beavers are today, it is difficult to believe that once they were on the verge of extinction, trapped for their underfur, which was used to make felt for beaver hats. In the mid-19th century, silk hats replaced beaver felt as a fashion, and that probably saved the beaver from extinction. But before it ended, the beaver trade opened the mountains of Colorado to European exploration.

HOW LONG DOES IT TAKE A BEAVER TO CUT DOWN A TREE?

It takes a beaver approximately 30 minutes to fell a 5-inch diameter tree. Beavers feed on the upper, tender branches, leaves and bark of trees. They do not eat the inner wood.

Beavers are well known and distinctive. Our largest rodents, they measure more than 3 feet long and weigh up to 55 pounds, with a broad, nearly naked, flat tail and webbed feet. Their sign is familiar: dams, lodges, bank dens, gnawed stumps of aspen, alder, willow or cottonwood, canals and slides. Many mountain ponds, willow thickets and meadows also are the works of beavers over time. No mammal other than humans has as great an influence on its surroundings. This is a "keystone species" in riparian communities; without them the ecosystem changes dramatically.

Beavers are active year round. Their ponds provide navigable water beneath the ice. Food consists of grasses and forbs in summer, and bark in winter. The den houses a nuclear family: parents, yearlings and four or five kits. There is a single litter of young each year, born in spring after a gestation period of about four months. Beavers are fairly well protected from predators by their large size and aquatic habits. Mink eat some kits, and coyotes can capture a beaver waddling on dry land. Aside from that, floods may be the largest cause of death.

BEAVER PHOTOS BY LEONARD LEE RUE III

HARVEST MICE

WESTERN HARVEST MOUSE
PHOTO BY WENDY SHATTIL/BOB ROZINSKI

Two species of harvest mice inhabit Colorado, the western harvest mouse and the plains harvest mouse. Both live on the eastern plains, and the western harvest mouse also inhabits the valleys of western Colorado and the San Luis Valley. These are dainty, brownish mice. Plains harvest mice are only 5 inches long (of which half is tail) and weigh three-eighths of an ounce; western harvest mice are about an inch longer and half again as heavy. The animals are so small that they often huddle for warmth. The two species are hard to distinguish, but the plains harvest mouse has a narrower black stripe on its tail and tends to have a blackish patch on the back. Plains harvest mice live in open grasslands, whereas western harvest mice like a diversity of ecosystems, including shrubby grasslands, weedy borrow pits and riparian woodland. Harvest mice are smaller than deer mice and have grooves on the faces of their incisors.

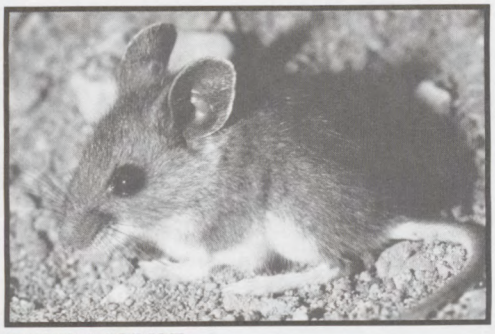
Reproduction occurs throughout the warmer months. Females produce several litters of three to five hairless, blind young after a gestation period of about three weeks. Young are reared in a golf ball-sized hollow in a tennis ball-sized globe of grasses built in the crotch of a stem. At 3 weeks old they are weaned, and they may breed at 4 weeks of age.

Harvest mice eat mostly seeds of grasses and forbs, but like many granivores they also eat some insects as available. They are active year-round. They fatten in fall but do not store food. Virtually all nocturnal, carnivorous animals feed on harvest mice — owls, foxes, weasels, skunks — but the mice are too small to be a dependable staple.

WHITE-FOOTED MICE

Colorado is home to six species of white-footed mice — the deer mouse, brush mouse, piñon mouse, canyon mouse, rock mouse and just plain white-footed mouse — and only the wettest habitats in the state are without one or more species. The deer mouse lives statewide. The other five species are more restricted to smaller parts of the state. Common names hint at habitats of four of the species: brush mice live in oakbrush, piñon mice in juniper-piñon woodland, canyon mice in slick-rock canyons on the Western Slope, rock mice in the rocky foothills of the Eastern Slope. The white-footed mouse occurs in woodlands along the Arkansas River and its tributaries, and the deer mouse lives just about everywhere that is not under water, paved or previously occupied by a bigger white-footed mouse.

PINON MOUSE
PHOTO BY CLAUDE STEELMAN/WILDSHOTS



DEER MOUSE
PHOTO BY CLAUDE STEELMAN/WILDSHOTS

These animals differ in size (from 6 to 8 inches long), color of tail, and length of ear. All produce several litters of five or more blind, hairless young after a gestation period of about three weeks throughout the warmer months of the year. All eat seeds, fruits, flowers, leaves, a little carrion and a lot of insects. All are active throughout the year. Deer mice (which occur at higher elevations than the other kinds) are quite active beneath the mountain snowpack, but they also become dormant for hours and days at a time.

White-footed mice often are abundant, and they are important food for predators, including snakes, owls, foxes, weasels, badgers and bobcats. They sometimes become pests in backcountry cabins, but generally are less of a nuisance than the introduced house mice.

NORTHERN GRASSHOPPER MOUSE

PHOTO BY CLAUDE STEELMAN/WILDSHOTS

NORTHERN GRASSHOPPER MOUSE

Imagine a "coyote in mouse's clothing," and you have a grasshopper mouse. These diminutive hunters are rodents by heritage but carnivores by habit, and they are among our most fascinating nongame mammals. Adults are reddish tan above and white below. Juveniles and the elderly (perhaps over 4 years old) are gray. These are stocky mice, only about 6 inches long but often weighing over 1½ ounces (that is, normal mouse length but twice mouse weight).

Grasshopper mice live on grasslands of the Eastern Plains, in shrubby habitats in the San Luis Valley and in valleys on the Western Slope. They are common along fence rows, which tend to have better cover than open pastures, and like areas of heavy grazing, which have more insects to eat and sandy areas essential for dust bathing.

Grasshopper mice eat 75 to 100 percent insects, depending on the season. Beetles, grasshoppers, spiders, scorpions and pill bugs are eaten, as are rodents as large as prairie voles and cotton rats, some carrion and seeds. Their incisors are not the usual broad rodent chisels, but are narrow, piercing daggers.

As is typical in well-armed animals that harm each other, courtship is complicated. Females produce three to six litters of one to six young throughout the warmer months, with a gestation period of four weeks. Unlike most rodents (but like many carnivores), the male provides the female with food and thus helps to provide for the nursing young.

Grasshopper mice are highly territorial, and initial encounters between individuals are vocal and violent. Once dominance is established, the subordinate mouse assumes a submissive posture and prevents further aggression. Owls, coyotes, foxes and badgers kill grasshopper mice, but no predator can afford to make them a staple. Grasshopper mice are a step higher in the food chain than usual rodents, and hence populations are smaller.

FEROCIOUS MICE

The northern grasshopper mouse ambushes its prey rather than chasing it down. It tracks prey by smell. Coming upon a likely meal, it rushes suddenly upon the victim, seizing it with sharp claws and killing it with a bite to the neck. Then it devours the kill, head and neck first, and the rest until nothing is left but bone and scraps of fur.

Mary Taylor Gray

HISPID COTTON RAT

HISPID COTTON RAT

PHOTO BY RICHARD FORBES

The hispid cotton rat is a mammal of the southern United States and Mexico, probably a fairly new arrival in Colorado. Climatic warming and irrigated agriculture have both encouraged its movement westward along the Arkansas Valley to the vicinity of Pueblo.

These are modest-sized rats, to 11 inches long and about 3½ ounces. Their fur is blackish brown, the color of watermelon seeds, and harsh to the touch (hence the common name). Their tail is nearly naked, and the ears are largely obscured in fur. Cotton rats are smaller than woodrats and differ in habitat, favoring moist fields, borrow pits, vegetable and melon fields and other grassy areas. Unlike the introduced Norway rat, they seldom live around buildings or dumps. They resemble voles superficially, but are much larger and have longer tails.

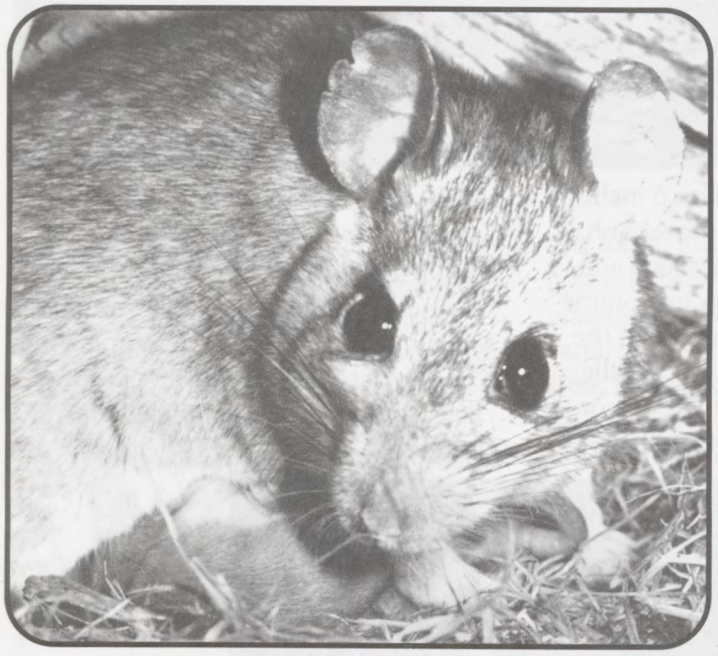
Cotton rats consume mostly plants, but will eat birds' eggs, nestlings and young voles. They feed on forbs and grasses, and harvest far more plant material than they actually eat as they construct and mark runways through vegetation. They are active at dawn and dusk and are nocturnal.

Cotton rats nest in depressions or shallow burrows and breed through the warmer months, producing several large litters (to 10 or more) of well-haired young after a gestation period of 27 days.

Foxes, owls and snakes take their toll on these animals, and early litters often die in late spring freezes. Cotton rats seldom live more than one year.

WOODRATS

Woodrats — familiarly known as "pack rats" — are beautiful and interesting animals that hardly deserve the negative stereotype most people have of "rats." Most parts of Colorado have one or another of the state's six rat species, but the Colorado Plateau — where rough, broken terrain of canyon and mesa walls provide ideal habitat — has the most kinds. The eastern woodrat lives in riparian woodlands on the eastern plains, and the gray woodrat occurs in southeastern Colorado, denning in holes around cholla cactus.



WHITE-THROATED WOODRAT WITH YOUNG
PHOTO BY CLAUDE STEELMAN/WILDSHOTS

Desert woodrats (12 inches long, 4½ ounces) are the smallest of Coloradan species; the bushy-tailed woodrat of mountain talus slides and mining camps (to over 16 inches long and 11 ounces) is the largest. These are fastidious, beautiful animals. Color differs from gray (gray woodrat) to blackish brown (Mexican woodrat), to rich reddish tan (bushy-tailed woodrat), and most have white to grayish bellies.

Pack rats are so called because they pick up any curious object they find in their habitat and "pack" it home to the den, where bits of rock or wood, cow chips, bones and hardware all add to the strength of the house. Many generations of woodrats may use a choice den site, adding to the house, latrine and a sticky accumulation of urine. The urine catches pollen and other debris blown from the surrounding area and thus captures a sample of the environment of a particular time. Dated by carbon-14, fossil woodrat middens, or manure piles, have provided information to reconstruct changing habitats of the Southwest over the past 10,000 years.

Inside the house is a grass-lined nest where the animals spend cold weather and rear young. Females produce up to four litters of one to six young after a gestation period of four to five weeks. Woodrats are fairly well protected in their dens, but still owls and coyotes take a toll as do gopher snakes and rattlesnakes. Adults may live several years.

VOLES, OR MEADOW MICE

Many people distinguish "meadow mice" from "field mice" by the fact that meadow mice (more properly called "voles") have blunt snouts and short ears barely visible through the fur. Many of them also live in meadows, but the sagebrush vole lives in sagebrush and the Mexican vole in ponderosa pine savannah. Most of the eight species of voles that make Colorado home are brownish in color, but the sagebrush vole is gray and the southern red-backed vole has a brick-red patch on its back.

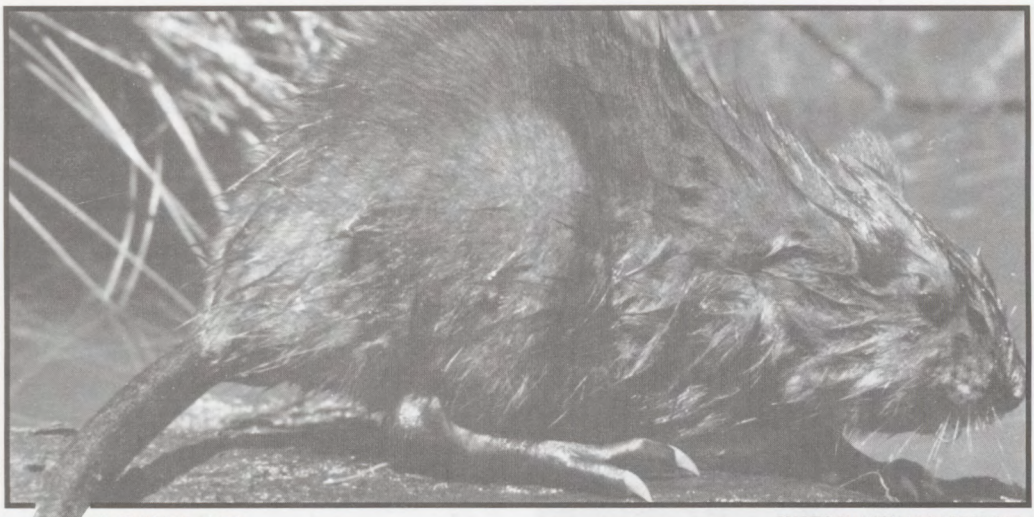
Size ranges from less than 6 inches and 1 – 1½ ounces for sagebrush voles to about 7 inches long and up to 2½ ounces for meadow and prairie voles. Except for prairie uplands in the east and the southwestern desert valleys, most parts of Colorado support one or more species of voles. Most species select habitats with good ground cover where their presence is revealed by runways, 1½ inches wide, often beneath a roof of thatch and littered with cut grass stems.

Voles eat mostly plants. Red-backed and heather voles eat fungi, fruits, seeds and some leaves, but other voles mostly are grazers. Like other mammals that feed on abrasive grasses, they have ever-growing cheekteeth that are continually replaced from below as the crowns wear away.

Females have several litters of one to seven young through the growing season. Young are born blind and helpless, but young of early litters mature and breed their first year. Predators include owls, snakes, foxes and weasels, depending on the environment. The populations of a number of species cycle in abundance. (Lemmings are arctic voles.)

PRAIRIE VOLE PHOTO BY WENDY SHATTIL/BOB ROZINSKI

MUSKRAT



MUSKRAT

PHOTO BY LEONARD LEE RUE III

The muskrat is an overgrown, semi-aquatic vole. Muskrats have dense underfur and a nearly waterproof "overcoat." Their feet are webbed and fringed with stiff hairs. The ankles are rotated out so the hind feet work as paddles (but rather inefficient as walking feet). The tail is flattened side-to-side and serves as a rudder. The animals are dark brown in color, about 26 inches in length (of which the tail comprises 9 inches) and weigh about 2 pounds.

Muskrats live statewide in marshes, ponds and slow streams, often in areas dammed by beavers. Their lodges, made mostly of cattails and other aquatic plants, may be 3 feet high and 6 feet across. Feeding stations are similar but smaller. Inside the lodge is a nest chamber accessible only from below the water. Once inside the lodge, muskrats are safe from predators other than mink and occasionally snapping turtles. Moving awkwardly on land, however, they are killed by coyotes, foxes and large owls. Floods also kill muskrats, and fluctuating water levels increase the risk of death.

Like other voles, these are runway builders and herbivores, eating mostly grasses, cattails, bulrushes and other marsh plants. They occasionally damage cornfields on flood plains, and their burrowing sometimes weakens ditch banks and levees.

Females breed in spring and summer and produce two or three litters of one to 10 (average about six) young after a gestation period of about 30 days. The newborn young are blind, naked and vole-like, with round tails. Soon they acquire the muskrat's proper flattened tail, and at two weeks they can swim and dive.

JUMPING MICE

JUMPING MOUSE
PHOTO BY RICHARD FORBES

A bounding flash through dense streamside grass is the only glimpse most naturalists ever get of these beautiful mice. Two species occur in Colorado, the western jumping mouse in the mountains and the meadow jumping mouse on the Colorado Piedmont in a triangle connecting Greeley, Fort Collins and Denver.

These are beautiful, yellowish brown mice with pure white bellies and a prominent buff stripe on the side. The species are difficult to distinguish in the field except by geography. The animals are about 10 inches long, of which more than half is the thin, nearly naked tail. Weights are about an ounce.

Jumping mice live in vegetation near ponds and streams. Willow thickets or grassy aspen forests are prime habitat for the western jumping mouse. The habitat of the meadow jumping mouse probably has been greatly restricted by converting prairie potholes and other wetlands to irrigation reservoirs. Their diet is mostly grass seeds, spiced with occasional insects. Jumping mice are the smallest of our true hibernators. In late summer they store fat for fuel before retiring to a burrow in a well-drained area below the frost line for the long winter (September to May).

Jumping mice produce a single litter of four to eight young each summer; additional litters probably would have insufficient time to fatten for hibernation. Gestation takes about 18 days, and the young are weaned at one month of age. For small mammals, jumping mice are long-lived, commonly living four years or more. (A vole twice the size of a jumping mouse would be in advanced old age at less than one year.) Perhaps their life span, like that of bats, is related to hibernation.

PORCUPINE

The porcupine is familiar to nearly everyone. Second in size only to the beaver among Colorado rodents, porcupines are 27 to 32 inches long (of which 10 inches is tail). Their long, yellowish guard hairs and dense coat of quills give them a waddling gait and make them look fatter than they really are. Weighing up to 33 pounds, these are large mammals.

Porcupines occur throughout Colorado in wooded and brushy habitats, but probably are most common in forests of ponderosa or piñon pine. The animals may den in unimproved rock shelters, but often spend the night propped on their muscular tails in a crotch of a tree. Several evenings of eating bark can severely damage the tree. The bulk of their summer diet is herbs.

These are solitary animals, coming together only to breed, from November to December. Females usually produce a single young (rarely twins) after a gestation period of about seven months. That is very long for a mammal of this size. The newborn porcupine is well developed with eyes wide open and a full coat of quills, which harden when exposured to air.

PORCUPINES PHOTO BY LEN RUE, JR.

PORCUPINES CANNOT THROW THEIR QUILLS

Starting at the forehead and growing thicker and longer toward the hump of the back, the quills of a porcupine can reach 4 inches long. A single animal has between 15,000 and 30,000 quills. Although a threatened porcupine will spin quickly, slapping with its tail, it cannot throw its quills as popular belief suggests. Yet each quill is needle-sharp and is barbed with tiny hooks that will pull it into the flesh of any animal or human unlucky enough to come within striking distance.

Jeff Rennicke

COYOTE

The coyote is the size and shape of a small shepherd dog, about 4 feet in length with a full, black-tipped tail 14 inches long. Weights are 30 to 40 pounds. Their long hair varies in color with geography and season from pale grayish buff to rich reddish brown. The ears are rusty red behind.

COYOTE PHOTO BY LEONARD LEE RUE III

Coyotes live statewide in Colorado and in many areas are quite common. They thrive despite widespread attempts to control or eradicate them because of their alleged attacks on livestock. Individuals may be very bold, coming to poorly managed garbage dumps where carcasses of poultry or livestock are discarded.

Coyotes eat plants and meat. On a hunting circuit three or four miles long, they forage for birds, eggs, mice, rabbits, carrion of large wild mammals or livestock and occasional insects and fruit — in short, just about anything organic. They are active day or night, but mostly at dawn and dusk.

Females breed just once annually, in January to March, and produce a litter of about six pups after a gestation period of nine weeks. The expectant female burrows up to 20 feet into a hillside or bank to prepare a nursery den for the young, and frequently digs a second burrow in case the litter is disturbed in the first. The male brings food to the the nursing mother. The young weigh only about 9 ounces at birth, but develop rapidly and are weaned at 7 weeks. As they mature, pups spend much time and energy in aggressive interactions with littermates that eventually influence their social position. Coyotes may live up to 20 years, but 10 years is a rough average.

THE WILEY COYOTE

From 1915 to 1947, bounties were paid on 1,884,897 coyotes in the United States, on 294,000 in 1946 alone. The animals have been shot from airplanes, injected with chemicals, trapped, run down with snowmobiles and buried alive in dens. The result of this extermination effort is surprising. Coyotes have actually expanded their range in North America. In Colorado, coyotes are probably more abundant today than they were before the arrival of the first settlers.

Jeff Rennicke

PHOTO BY CLAUDE STEELMAN/WILDSHOTS

PHOTO BY MARILYN MARING

FOXES

Four species of foxes make Colorado home. The red fox lives in riparian woodland and wetlands on the plains and in forest-edge communities in the mountains. The gray fox is found mostly in brushy areas in canyons and along the foothills. The tiny swift fox is a species of the eastern plains and its near relative, the kit fox, lives in desert shrublands in the western valleys.

RED FOX
PHOTO BY IRENE VANDERMOLEN

Red and gray foxes are 3 feet long and weigh 9 to 11 pounds. Red foxes are reddish orange above, white below, and have a white-tipped tail and black ears and feet. Gray foxes have a black-tipped tail, reddish ears and feet and a mane of stiff black hairs on their grayish brown back. Swift and kit foxes are only 27 to 36 inches long, their tails are as long as their bodies. They weigh just 4 to 7 pounds.

Foxes mostly eat rodents, rabbits and birds. The smaller fox species eat large quantities of insects. The gray fox is distinctive in that it sometimes forages in trees for fruit and nestling birds.

PHOTO BY CLAUDE STEELMAN/WILDSHOTS

KIT FOX

Red and gray foxes are most active at dawn and dusk; the smaller, arid-land foxes are more nocturnal.

PHOTO BY WENDY SHATTIL/BOB ROZINSKI

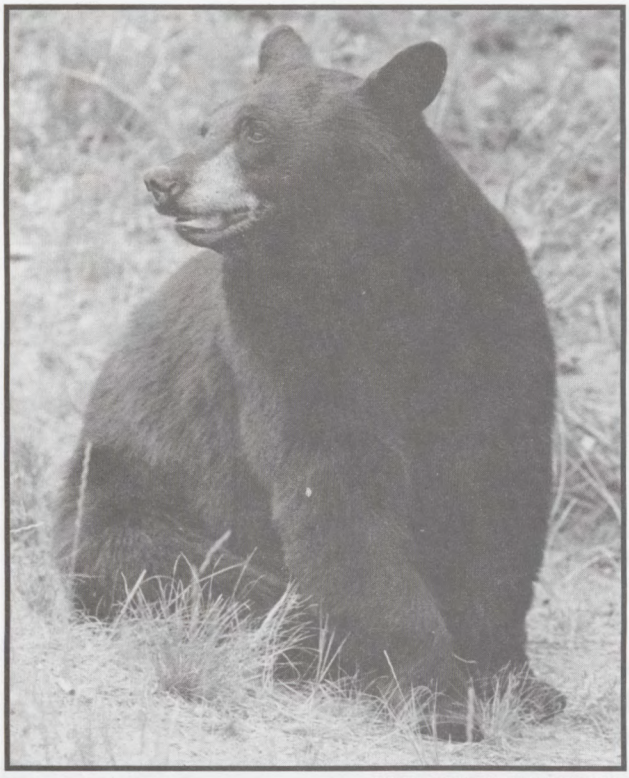
SWIFT FOX

Our foxes all produce a single litter of young per year. Gestation periods range from 7 to 8 weeks, and litter sizes probably average around four. Gray and kit foxes are not particularly common in most of their range in Colorado. Red foxes have increased greatly with the growth of irrigated agriculture on the plains. Swift foxes were nearly driven to extinction as an unintended side effect of programs to eradicate wolves and coyotes, but now are recovering.

PHOTO BY MARILYN MARING

GRAY FOX

BLACK BEAR



BLACK BEAR PHOTO BY LEONARD LEE RUE III

Black bears are familiar to everyone, and with the demise of the grizzly bear they are the largest of Colorado's carnivores: 4 – 6 feet long (only 4 inches of which is tail) and weighing 200 – 450 pounds. The animals are black (or occasionally brown) in color.

Black bears are animals of central and western Colorado, from the foothills across the mountains to the high mesas of the Western Slope. Typical habitat is forest, woodland or brush. It makes little sense for any mammal the size of a bear to be a picky eater. Black bears are omnivores, eating about anything in good supply: carrion, fruit, nuts, honey (bees, waxy comb and all), young deer and elk, birds, eggs, insects. Bears have no enemies other than humans.

In fall, black bears fatten and then enter their dens to hibernate under a fallen tree, a cutbank or other hollow. From late November to March they are dormant, living on stored fat.

Mating occurs in summer. The embryos do not actually implant in the uterus until November, however, and two or three fist-sized (9 ounces) cubs are born to a sleeping mother during hibernation. Emerging from the den five weeks later, the cubs' weight has doubled four or five times, to 6 to 9 pounds, and the young play among themselves. The young den with their mother their first winter and go off on their own as yearlings. Cubs don't reach their full size until about five years of age and breeding begins the fourth summer. Thereafter females breed every other year. Longevity in the wild may exceed 20 years.

WHAT TO DO IF YOU MEET A BLACK BEAR

Stay calm. As you move away, talk aloud to let the bear discover your presence.
Back away slowly while facing the bear.
Don't make eye contact.
Don't run or make sudden movements.
Speak softly to reassure the bear that no harm is meant to it.

Living with Wildlife

RINGTAIL

Although sometimes called "ringtailed cat," this beautiful and seldom-seen mammal actually is a relative of the raccoon, a kinship hinted by the bushy, ringed tail. In color, ringtails are yellowish gray above, gray below, with a prominent white eye ring. The tail is tipped with black. The animals are about 28 inches long, of which half is tail; weight is about 2 pounds.

Ringtails are mammals of the desert Southwest and mostly occur in southern Colorado, although they have been seen along the foothills of the Front Range and along the major canyons of the Western Slope. Typical habitat is canyon and mesa country, and most sightings are near water. In fact, the first reports of ringtails in an area often are of animals caught in traps set for mink.

Ringtails are remarkably agile climbers. The spectacular tail helps them balance. Their ankles can rotate to let them go headfirst down a cliff or tree. They forage exclusively at night, feeding on mice, birds and insects. They are slim enough to hunt woodrats in dens. Frequently they hunt in pairs and in autumn forage as family groups. Ringtails have efficient kidneys and may not need to drink, thriving instead on the moisture in their prey. Three or four blind, nearly naked young are born in May or June. Development is rapid, however, and the young are weaned at about five weeks of age.

RINGTAIL PHOTO BY IRENE VANDERMOLEN

RACCOON

Raccoons need no introduction. With their ringed, bushy tail, yellowish brown fur (with a blackish wash) and black facemask, they are unmistakable. Only their slim, grayish-buff cousin, the ringtail, has a similar ringed tail. Adults are 2 to 3 feet long (of which one-third is tail) and weigh 8 to 22 pounds (heaviest in autumn). The animals walk flat on their feet, as humans do, and their familiar tracks include an elongated hind foot and a hand-like forepaw.

Raccoons live statewide at moderate elevations, but once they lived only along riparian corridors on the eastern plains. Raccoons have been greatly helped by permanent human settlement, development of irrigated agriculture, planting of shelterbelts and ornamental shrubs and trees and casual disposal of garbage.

Raccoons eat just about anything: fruits, carrion, nestling birds and eggs, rodents, roosting bats, insects, crayfish and mollusks. They may damage crops, especially corn and melons. They feed near water and rinse the food, perhaps as an aid to sensation rather than because they are fastidious.

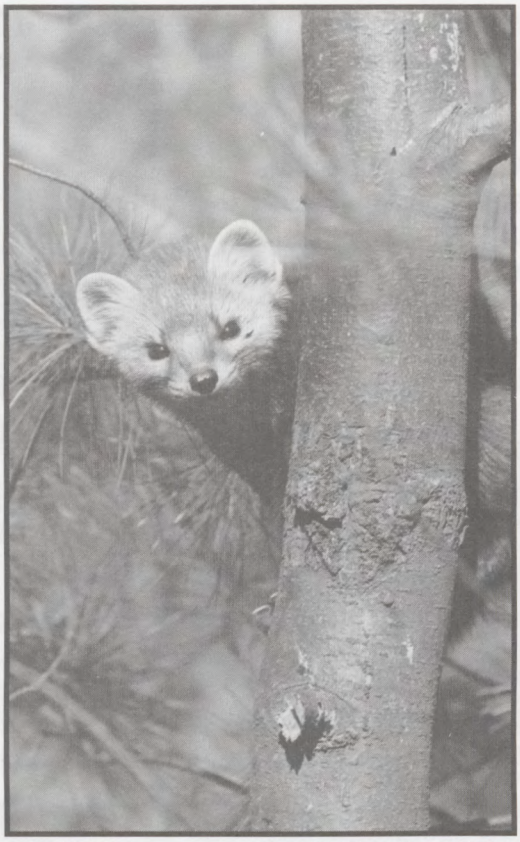
Females produce a single litter of three or four young after a gestation period of about nine weeks. Blind and nearly naked at birth, the cubs have pigmented skin where their facemasks and tail rings will be. Growth is rapid, and the young are weaned by four or five weeks of age. Large owls and other predators kill raccoons, but automobiles may be the greatest cause of death today. Maximum life span is over 10 years, but 2 or 3 years is average.

RACCOON PHOTO BY IRENE VANDERMOLEN

PHOTO BY LEONARD LEE RUE III

MARTEN

The marten (often called pine marten or American marten) is a weasel that lives in trees. Males are 2 feet long, with an 8-inch tail, and weigh 1½ pounds. Females are 10 to 20 percent smaller and weigh only half as much as males. The animals are brown, right to the tip of the tail, and a paler yellowish orange beneath.



MARTEN PHOTO BY IRENE VANDERMOLEN

Martens are mammals of coniferous forests in northern and western North America. In Colorado, favored habitats are old-growth subalpine forests of spruce and fir or lodgepole pine. In the dense timber, martens may move in the trees for hundreds of yards without dropping to the ground. There they pursue their preferred food, the chickaree or pine squirrel, as well as nestling birds. On the ground they also capture red-backed voles. Martens are tolerant of humans and easily accommodate to feeding areas. In the old days, a marten was the resident mouser in many a miner's cabin. No species habitually preys on martens; trapping and habitat destruction from clear-cutting trees probably are the most important sources of mortality.

Martens are mostly nocturnal, but when they are hungry they are active any time, day or night. As other weasels, martens are active year round. In coldest weather they may den in a tree hole or chickaree nest.

Mating occurs in summer, but embryos don't implant until early spring. One to five young are born in April after about a month of gestation. Typical of weasels, the young are blind and nearly naked, but develop rapidly and are weaned about two months of age.

WEASELS

Of the 11 members of the weasel family known in Colorado, only two actually are called weasels: the long-tailed weasel and the short-tailed weasel, or ermine. Both of these species have black-tipped tails, but they are readily distinguished from each other by size. The long-tailed weasel is 14 – 18 inches long, weighs about 5 ounces, with a tail about half the length of the body. Short-tailed weasels are 8 – 10 inches long, weigh only 1½ ounces with a tail less than one-third the length of their body. Typical of weasels, males are about 20 percent larger than females. Both species turn white in winter, except for the tip of the tail, and both are brown in summer, although the long-tailed weasel is yellowish to orange below. The short-tailed weasel is white.

PHOTO BY IRENE VANDERMOLEN

SHORT-TAILED WEASEL IN WINTER

SHORT-TAILED WEASEL IN SUMMER
PHOTO BY CHARLES G. SUMMERS, JR.

Long-tailed weasels live statewide in Colorado in most habitats, perhaps favoring brushy areas at the edge of forests where their rodent prey is most abundant. Short-tailed weasels occur mostly in the mountains. In addition to mice, weasels eat shrews, chipmunks, small ground squirrels, nestling rabbits and ground-nesting birds. They are quite capable of subduing animals larger than they by wrapping their long body around the prey and killing it with a quick bite at the base of its skull. Although owls take a few weasels, no predator can afford to make a staple of another predator.

Reproduction involves mating in summer, a long delay in implantation of embryos and gestation of about 30 days. Four to nine tiny young are born in April.

LONG-TAILED WEASEL IN SUMMER
PHOTO BY LEONARD LEE RUE III

MINK

The mink is a large, brown, semi-aquatic weasel. Males are 20 – 24 inches long, females about one-fifth smaller. The tail is less than half the length of the body. Weights range about 3½ pounds. Mink are dark brown, slightly more pale beneath, with the tip of the tail nearly black. Their toes are partially webbed.

Mink live statewide in Colorado but are most abundant in the mountains, near beaver ponds. The beaver pond provides stillwater habitat and an abundance of food: muskrats, nestling waterfowl, frogs, salamanders, fish, beaver kits and insects. On the plains, crayfish may be a staple in season. Mink kill more food than they can eat at once, and excess food is stored, especially in winter. Mink live in burrows, dens of muskrats or tree hollows but are only weak burrowers.

Breeding occurs in summer, but implantation of embryos is delayed. Gestation takes 5 – 10 weeks, with one to six (usually four) young born in April or May. Newborns are tiny, but grow quite rapidly, doubling their weight five or six times to reach 40 percent of adult weight by the time they wean at 7 weeks of age.

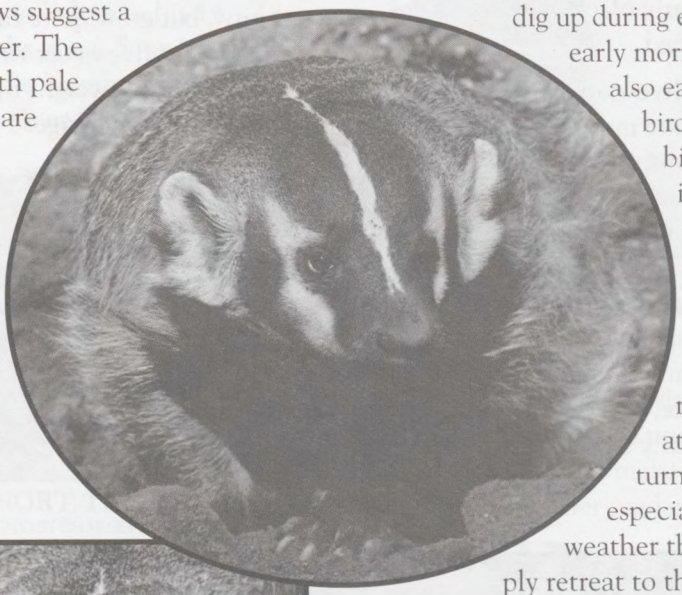
Although coyotes, red foxes or great horned owls occasionally kill them, combat with other mink is a greater cause of death than all predators combined. Beyond that, harvest by humans for their beautiful winter fur is the strongest control on numbers of mink over most of their range.

MINK

PHOTO BY LEONARD LEE RUE III

BADGER

With their flattened, oval shape, abundant grizzled brownish fur, distinctive white stripe on the forehead (sometimes continuing down the back) and powerful build, badgers are easily identified. They are the "bulldozer" of the weasel family. Large front claws suggest a capable burrower. The face is black with pale marks, the feet are black and the belly is pale. Total length is 28 – 32 inches, the short tail only 4 – 6 inches long. Weights range from 11 to 22 pounds.



BADGER PHOTOS BY LEONARD LEE RUE III

Badgers are animals of open country. Their oval burrows (to 10 inches across and 4 – 6 inches high) are familiar features of grasslands, on sandy or loamy soils on the eastern plains or in shrub country in the mountain parks or western valleys. Occasionally badgers live above timberline.

Badgers eat mostly burrowing rodents, such as ground squirrels and pocket gophers, which they dig up during evening or early morning. They also eat nestling birds and rabbits, as well as insects. When frozen ground protects burrowing rodents from attack, badgers turn to mice. In especially cold weather they may simply retreat to their burrow to sleep.

Badgers mate in late summer. Embryo implantation is delayed until about February. One to four young are born in early spring. They grow quickly and leave their mothers during their first autumn. They first breed first as yearlings.

Badgers are well protected from most predators by a thick hide and generally unpleasant disposition. Some are killed for fur, but habitat loss and vehicular accidents probably are greater causes of mortality.

SKUNKS

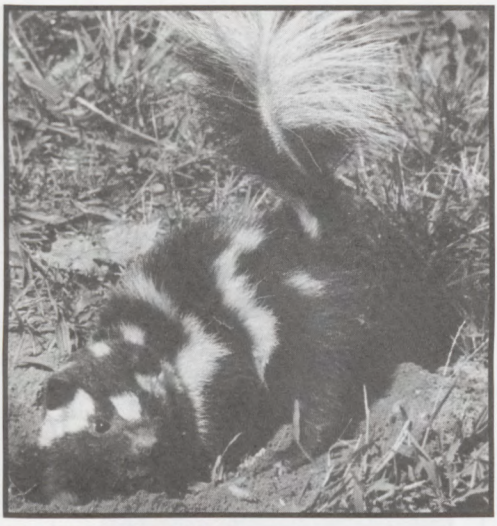
Four species of skunks are known in Colorado: striped, eastern and western spotted, and hog-nosed. All skunks have the familiar warning colors of white on black, except for the hog-nosed skunk, which has a broad white stripe on the back. The striped skunk (24 – 32 inches long, weighing to 9 pounds) is the largest and most widespread, occurring statewide. The spotted skunks are the smallest (16 – 20 inches long), the most weasel-like in movements and occurs in rocky foothills, mesas, canyons and along major rivers of the High Plains. The hog-nosed skunk is nearly as large as the striped skunk and is known to have lived only in southeastern Colorado. No specimens has been reported in the past half century, and the species may not live in Colorado now.

Skunks are omnivorous, eating carrion, mice (especially nestlings), fruit, insects, larvae, birds and bird eggs. The spotted skunk is the most agile climber, best mouser and birder. Hog-nosed skunks seem to "root" for insect larvae more than the other species, but a shallow, snout-sized "test-hole" is a common sign of skunks in general.

STRIPED SKUNK
PHOTO BY WENDY SHATTIL/BOB ROZINSKI

Although coyotes and owls eat a few, skunks have no habitual predators. As a general rule, any animal large enough to kill a skunk is also smart enough not to bother. The skunk's defense is useless against automobiles, so skunks (especially striped skunks) are frequent traffic casualties.

Western spotted skunks delay embryo implantation. They mate in autumn and give birth to young in spring. Eastern spotted skunks and striped skunks have a simple nine-week gestation period, breeding in spring. Spotted skunks have four or five young, and striped skunks average seven.



SPOTTED SKUNK
PHOTO BY LEONARD LEE RUE III

RIVER OTTER

The river otter is the longest of our weasels, ranging from 3 to 4½ feet, of which the powerful, cylindrical tail (which thickens toward the base) comprises about one-third. Webbed toes and water-resistant fur suit the animal to a life spent largely in water. Otters sometimes paddle, but the force for swimming comes mostly from eel-like movements of the body and tail.

RIVER OTTER

PHOTO BY LEONARD LEE RUE III

Otters are rich brown in color, with silver brown beneath. The otter is about twice as long and five times as heavy as mink, and is the only other aquatic carnivore in the Rockies.

Once otters probably occurred in major streams statewide in Colorado, although they apparently have never been abundant. With settlement, subsequent water pollution and control of streamflows, otters disappeared from the state by the early part of this century. In the 1970s, however, the Colorado Division of Wildlife began to restore populations to several drainages in the state, including the Upper Colorado, the Dolores and the upper South Platte rivers.

Otters live in riparian habitat, where aquatic animals like crayfish, frogs, fish, young muskrats and beavers are favored foods. Otters usually live in bank dens abandoned by beavers. They are active mostly at dawn and dusk, and appear to spend large amounts of time just playing, sliding on ice, snow and mud, and swimming gracefully for no apparent reason beyond swimming.

Otters breed in spring. Embryo implantation is delayed until the following winter, and one to four young are born in early spring. While the female is nursing one litter, mating occurs again.

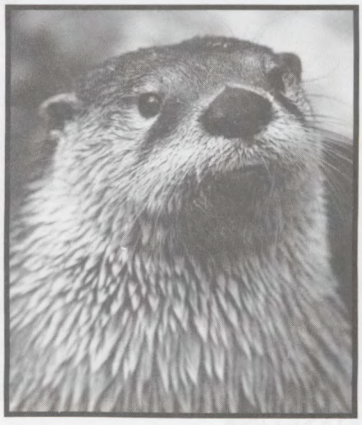


PHOTO BY WENDY SHATTIL/BOB ROZINSKI

MOUNTAIN LION

The mountain lion is called by more names than any other Colorado mammal — cougar, puma, panther, catamount or just plain lion — and all connote respect for a magnificent hunter. Colorado's largest cat, adult lions are more than 6 feet long, with a graceful, black-tipped tail 32 inches long. They weigh 130 pounds or more. Color is reddish to buffy, paler below.

MOUNTAIN LION

PHOTO BY LEONARD LEE RUE III

Cougars have the largest geographic range of any native American mammal other than humans — from western Canada to Argentina. Once they ranged from coast to coast in the United States, but today eastern populations are extinct or endangered. The West is their stronghold, and in Colorado they are most abundant in foothills, canyons or mesa country. They are more at home in brushy areas and woodlands than in forests or open prairies.

IF YOU MEET A MOUNTAIN LION

Stay calm if you come upon a lion. Talk calmly yet firmly to it. Move slowly.

Stop or back away slowly. Do not run.

Raise your arms to appear larger.

If the lion behaves aggressively, throw stones, branches or whatever you can get your hands on without crouching down or turning your back.

Fight back if a lion attacks you. Lions have been driven away by prey that fights back.

Living with Wildlife

Active year round, the lion's staple diet is deer. Adults maintain their condition by eating a deer a week. Cougars hunt by stealth, often pouncing on prey from a tree or rock overhanging a game trail. The deer is often killed cleanly with a broken neck. The cat gorges on the carcass until it can eat no more, covers the remainder with leaves or conifer needles, then fasts for a few days, digesting and resting.

Mountain lions may breed at any time of year, but mating peaks in spring. Births are most common in July, after a gestation period of about 14 weeks. Two or three spotted, fist-sized (about 1 pound) kittens are a typical litter. They are weaned about six weeks of age, at eight times their birth weight, and the mother teaches them to hunt, practicing on rodents and rabbits.

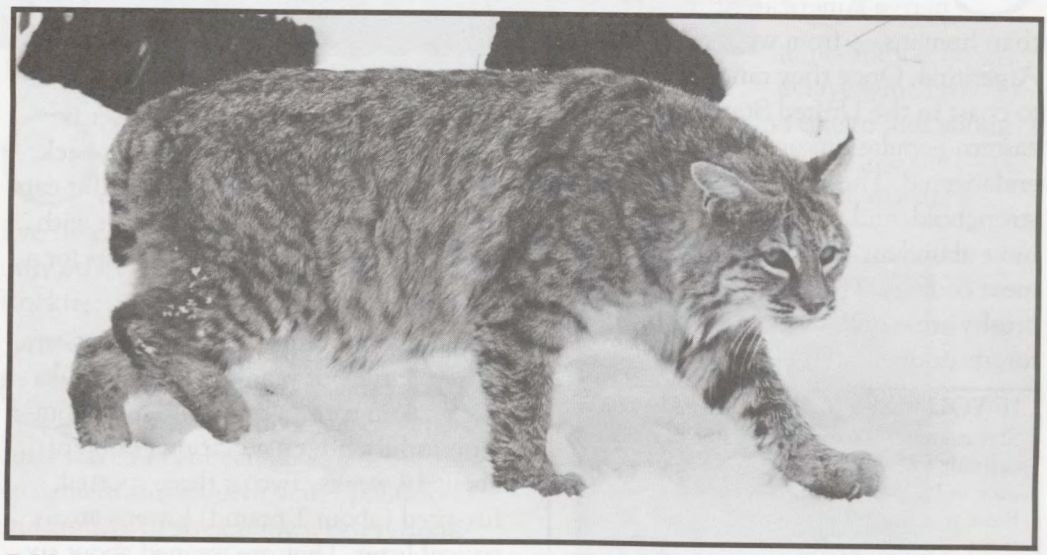
BOBCAT

The bobcat is a familiar animal, but it is secretive and seldom seen. The animals are 32 – 37 inches long with a tail about 6 inches in length. Bobcats are similar in appearance to their cousin, the lynx. Indeed, they are especially difficult to distinguish in the Southern Rockies, where the local bobcat is large and pale in color. (Several points of contrast with lynx are provided in the description of that species.) Hasty observers sometimes confuse mountain lion kittens — which are spotted — with bobcats or lynx, but that is a careless error because young cougars have distinctly long tails.

Bobcats occur widely in North America, from southern Canada to central Mexico, and they range statewide in Colorado. They are most abundant in foothills, canyons, mesas and plateaus, where brush and woodland provide suitable habitat. Bobcats tend to avoid open prairies, tundra, heavy subalpine timber and wetlands.

The staple fare of bobcats is rabbits. Like other native cats they hunt by hiding or stealth rather than engaging in long chases. When rabbits are scarce, bobcats eat mice, voles and birds. They are active throughout the year.

Bobcats breed in late winter and spring and produce a single litter each year of one to seven (typically three) young after a gestation period of about 10 weeks. The nursery is a simple natural shelter — under a rock or log. The young are weaned at about 8 weeks of age.



BOBCAT

PHOTO BY MARK WILSON

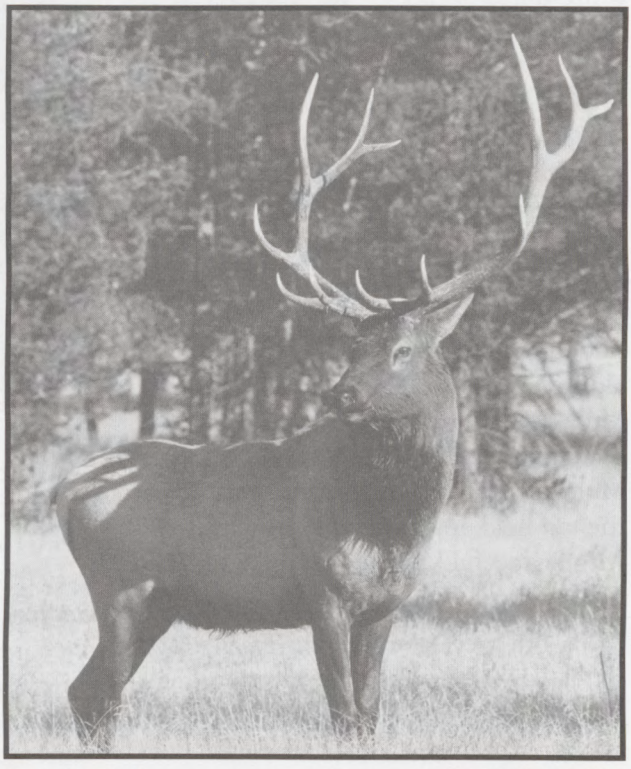
WAPITI, OR ELK

The wapiti, or elk, is the largest of Colorado's native deer (7 – 9 feet long, with a 4- to 6-inch tail, and weighing 450 – 900 pounds). Commonly called "elk" in this country, wapiti is a preferred name because elsewhere in the world "elk" refers to the animal we call moose. Our wapiti is a Holarctic species, which means it occurs in both North America and Eurasia, and in Eurasia it is known as the red deer. Whatever we choose to call it, this is an impressive and important animal in Colorado. The wapiti is brownish tan in color, with a yellowish rump and a dark mane on the shoulders. Mature males have large antlers, typically with six tines branching from each beam.

Before the arrival of European settlers, wapiti ranged nearly throughout the area that is now Colorado, including the eastern plains. Market hunting nearly drove Coloradan elk to extinction. By 1910 only a few hundred elk remained, and restoration of the herds was helped by transplants from Yellowstone. Now wapiti range throughout mountainous parts of the state, foraging in meadows and alpine tundra.

Wapiti are grazers. That is, they eat mostly grasses, when available. In summer, the diet may be 80 to 90 percent grasses. Bark and twigs of trees and shrubs may contribute half the winter diet. Wapiti sometimes congregate at haystacks in severe weather.

Wapiti are gregarious animals, sometimes moving in herds of several hundred individuals. In the fall rut, bulls spar for dominance and possession of harems of several cows. Mating is over by mid-October. Usually a single, obscurely spotted calf is born in May or June, after a gestation period of 8½ months. Females breed first at 3 years of age, males about 4. Hunters harvest 40,000 to 50,000 wapiti in Colorado each year, the largest number of any state.



BULL ELK PHOTO BY LEN CLIFFORD

DEER

MULE DEER DOE
PHOTO BY IRENE VANDERMOLEN

MULE DEER BUCK
BY IRENE VANDERMOLEN

WHITE-TAILED DEER
PHOTO BY LEONARD LEE RUE III

Two species of deer live in Colorado, the mule deer and the white-tailed deer. "Mulies" — with their rope-like tails, evenly forked antlers and extravagant ears — are abundant statewide. White-tails — with smaller ears, antlers with a single main beam bearing smaller tines, and, of course, broad white tails — have become increasingly common in streamside woodland and nearby crop lands along the rivers of the eastern plains. Mule deer occupy any "edge" habitat, including suburban residential areas. Mule deer bound with a stiff-legged gait, the tail held down; white-tails move with a graceful lope, the flag-like tail held erect.

Both species of deer are 4 – 6 feet long and stand 3 feet or more high at the shoulder. Weights of large bucks range over 400 pounds, but does are only half that size. Adult males begin to grow antlers in spring, used in jousts for dominance and breeding rights in autumn. Antlers are shed in winter.

Deer are browsers, feeding mostly on woody vegetation, including twigs and leaves of shrubs and trees, including ornamentals. They also forage on crops, especially corn. Because they eat little grass, they tend not to compete seriously with livestock or elk. Deer breed from October to December. After a gestation period of 6½ months, spotted young (usually twins) are born. Deer are frequent traffic casualties, and mountain lions, coyotes and packs of feral dogs prey upon them. Licensed hunters take 50,000 to 80,000 deer annually in the state from a population estimated at 700,000 animals statewide.

PRONGHORN

PRONGHORN DOE AND BUCK
PHOTO BY LEN CLIFFORD

The pronghorn is a unique North American native. Mistakenly called "antelope," the pronghorn's resemblance to those Old World members of the cow family is rather superficial. No other mammals have branched horns over a bony core. Males especially shed the outer sheath of the horn after breeding.

Pronghorns are reddish tan in color, with a prominent white rump patch. Our smallest hoofed mammals, they are only 4 – 5 feet long (with a 4- to 8-inch tail), and less than 3 feet tall at the shoulder. Weights are 85 – 110 pounds.

Our fastest mammals, pronghorns may achieve speeds over 60 miles per hour over short distances. Speed and a herding habit adapt pronghorn to the wide open shrub and grasslands of the eastern plains, the mountain parks and the western basins.

Pronghorns are largely browsers, subsisting on sagebrush, supplemented by leafy forage in summer. These food habits allow them to persist alongside cattle (and once alongside bison) with little competition. Mostly they feed in early morning and late afternoon, often lying to rest and ruminate at midday.

Males are territorial during the autumn rut, and there are threats of combat, but little actual contact. Gestation takes eight months, and kids (usually twins) are born in June.

Just after the turn of the century, pronghorns were nearly extinct because of unregulated hunting. Today the pronghorn is a big game animal, with annual licensed harvest of about 8,000 animals, from a total Coloradan population of about 50,000.

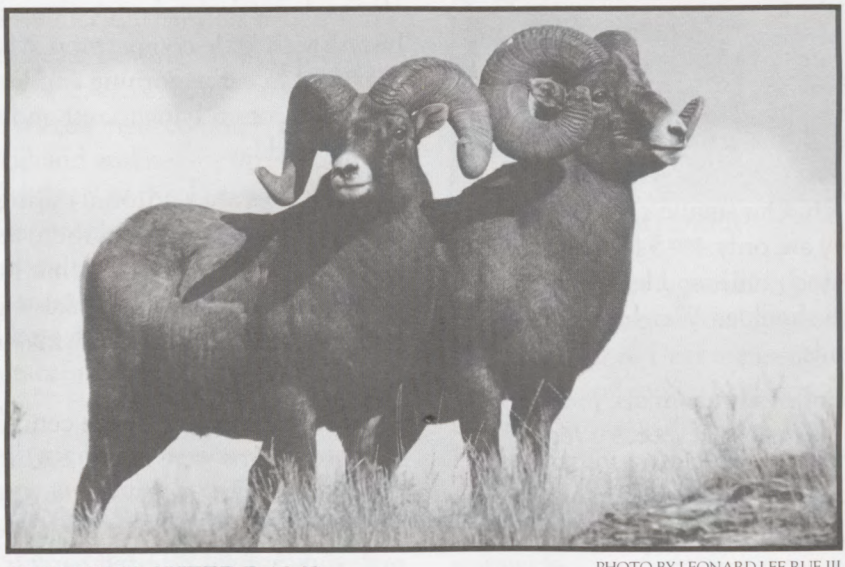
BIGHORN SHEEP

The bighorn sheep is the mammalian symbol of Colorado, and Colorado is home to the largest population of the species anywhere. The animals are 5 – 6 feet long with a tail 3 – 6 inches in length. Rams weigh 150 – 250 pounds, ewes 120 – 200. Males are about 3 feet high at the shoulder, ewes slightly less. Color is usually grayish brown, with a paler belly and a white rump patch. The massive, coiled horns of mature rams may make up 10 percent of the body weight. Ewes have spike-like horns.

Bighorns are grazers, feeding in meadows, open woodland and alpine tundra. They often retreat to rest on inaccessible cliffs. Once they migrated from winter range at the edge of the plains and the foothills to the high mountains for summer. Many bands now spend all year near timberline on what used to be their traditional summer range. Transplants from crowded areas have restored bighorns in several places in the foothills where sheep have become easily "watchable" wildlife.

The rut takes place in late fall, with rams butting their massive horns to assert their dominance, thus increasing their chances of breeding. Females breed first at 3 years, but rams usually are considerably older when they finally achieve sufficient status to mate. A single lamb is born in May or June after a gestation period of 6 months.

Hunting bighorns is carefully regulated. Approximately 100 sheep are harvested annually, but there is wide variation. Parasitic disease is common in bighorns. Coyotes, mountain lions and eagles prey on them, and some bighorns succumb to accidental falls.



BIGHORN SHEEP RAMS

PHOTO BY LEONARD LEE RUE III

ENDANGERED SPECIES: BLACK-FOOTED FERRET

The last record of a black-footed ferret in Colorado was in 1946. Whether the animals live in Colorado today is doubtful. Black-footed ferrets are considered an endangered species by both federal and state authorities.

These are large weasels, about the size of a mink, 18 – 22 inches long with a 4- to 6-inch tail. In color, they are yellowish brown above, with a blackish wash on the back, black feet and face mask, and a black-tipped tail. They are difficult to distinguish from domestic ferrets, but they are larger and heavier than the long-tailed weasel (which in Colorado seldom has a face mask).

Black-footed ferrets seem never to have been abundant in Colorado. They ranged statewide. Their habitat included the eastern plains, the mountain parks and the western valleys — grasslands or shrub lands that supported some species of prairie dog, the ferret's primary prey.

Little is known about the natural history of this rare mammal. Females do not exhibit the delayed implantation of embryos typical of the weasel family. Instead they mate in early spring and give birth to a litter of three or four mouse-sized pups after a seven-week gestation period.

Black-footed ferrets are reported to be killed by owls and coyotes. They are susceptible to distemper, and vehicles have killed them. However, it is reasonable to assume that plowing the prairie for agriculture and programs to eradicate prairie dogs drove the black-footed ferret to the verge of extinction.

BLACK-FOOTED FERRET

PHOTO BY JEFF VANUGA

WOLVERINE

Wolverines have a reputation larger than life, but they are impressive weasels by any standard. Wolverines are 3 feet long, with a rather short tail, just one-quarter the total length. Otters are longer, but wolverines are the heaviest of weasels, tipping the scale at 20 – 30 pounds or more. They are stocky mammals, built like a small bear. Their fur is dark brown to black, and the sides have a characteristic yellowish brown to whitish stripe. Like other weasels, wolverines have anal musk-producing glands.

Wolverines are mammals of the dense forest, in both North America and Eurasia. In Colorado, historical and recent reports show nearly all wolverines are from higher elevations, in areas of heavy timber. However, wolverines may follow their considerable appetite into open country.

By day, wolverines rest in an informal den beneath a boulder or windthrown tree. By night they wander to eat rodents and carrion. Occasionally they may eat weakened deer or other large prey, especially when bogged in deep snow. Wolverines are legendary marauders of the North, renowned for their strength, cunning and viciousness. Pound for pound, they are probably no stronger than the next weasel. "Cunning" and "vicious" are terms best reserved for people. People can be cunning and vicious. Wolverines probably are just hungry and quite capable of satisfying it.

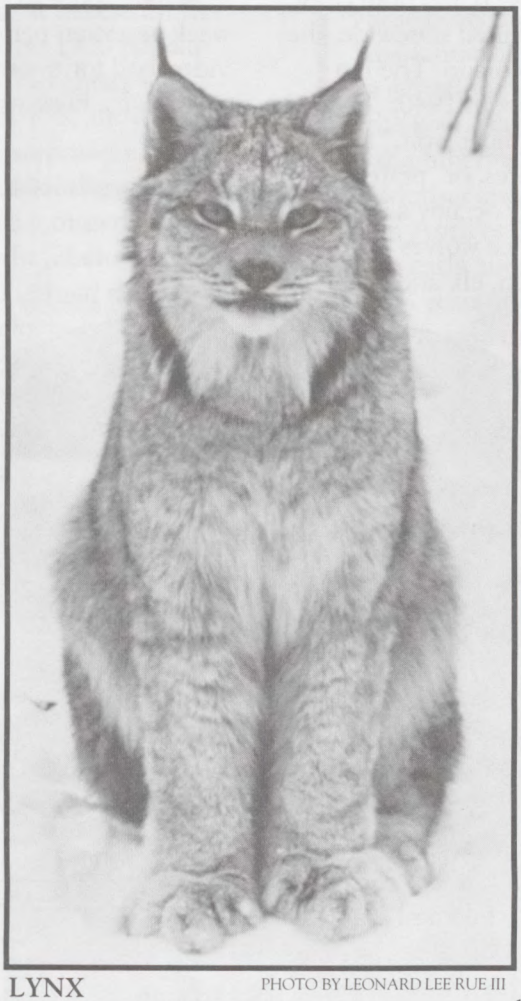
Wolverines breed during the warmer months. Embryos implant in January. Two to four young are born in late March or early April. Growth of the blind, toothless newborns is rapid, and they will be half-grown when they disperse in autumn.

WOLVERINE PHOTO BY LEONARD LEE RUE III

LYNX

The lynx is a large, bob-tailed cat, 3 feet long with a black-tipped tail only about one-eighth the total length, and only about half the length of its huge hind foot. Weights are 20 – 30 pounds. The coat is grayish, with obscure spots. The magnificent ear tufts may be nearly as long as the actual ears.

The lynx is easily confused with its more common and more widespread relative, the bobcat. The lynx is slightly larger than the bobcat, has grayish (rather than reddish) fur, less prominent spots, a conspicuous ear tuft, and a solid black tip (rather than a black tip broken with a reddish band) on the tail. The lynx's tail is relatively shorter and its hind foot is much longer (greater than 8 inches, versus less than 8 inches in the bobcat).



LYNX PHOTO BY LEONARD LEE RUE III

The lynx lives in North America and Eurasia. In Colorado, recorded sightings are few, scattered throughout mountainous areas of the state. The lynx is found in dense subalpine forest and willow-choked corridors along mountain streams and avalanche chutes, the home of its favored prey species, the snowshoe hare. The typical hunting strategy is patience, stalking prey or crouching in wait beside a trail. Often the surprised quarry is overtaken and dispatched in a single, furious bound. Lynx also eat some carrion, and capture ground-dwelling birds (like grouse) and small mammals. Lynx are active throughout the year; their huge hind feet help them move across heavy snow.

Lynx breed in late winter, and after a gestation period of about nine weeks, females produce a litter of about four kittens in April or May.

EXTIRPATED SPECIES: GRAY WOLF

The gray wolf ranges across Eurasia and in North America from the Arctic to Mexico and from coast to coast. Once distributed statewide, the wolf is gone from Colorado. The last ones were killed by about 1940. Sometimes called "timber wolf," to distinguish it from coyotes, or "prairie wolf," wolves actually occupy a wide range of habitats. Once wolves fed on the vast herds of bison, elk and deer, supplemented by rabbits, rodents and carrion. When market hunters decimated the large mammals that were their staple diet, wolves naturally turned to a new food resource in the developing frontier: livestock. Because of their depredations of domestic animals, wolves in Colorado were systematically eradicated by shooting, trapping and poisoning.

Wolves are large dogs, up to 5 feet long (of which 14 inches is a bushy tail). The color is pale gray washed with buff and overlain on the back and legs with black.

Wolves den in burrows in banks where the female bears 6 – 10 pups in March after a nine-week gestation period. The male provides food for the nursing mother. A pair may have a hunting territory 10 square miles.

Proposals have been made to restore wolves to wilderness ecosystems of Colorado, where they could provide a natural check on populations of elk, for example. The suggestions have met with considerable opposition from some ranchers, however.

GRAY WOLF
PHOTO BY LEONARD LEE RUE III

WHAT IS AN EXTIRPATED SPECIES?

An extirpated species is an animal that no longer exists in the wild in its historical habitat, but still exists elsewhere. An example of a species extirpated in Colorado is the gray wolf. Although gray wolves no longer exist in the wilds of Colorado, they can be found in captivity in zoos and wildlife parks.

GRIZZLY BEAR

The grizzly bear is the largest of North American terrestrial carnivores. Once they occurred throughout Colorado, and they apparently were fairly common in the western three-fifths of the state at least until the turn of the century. After 1900 populations declined rapidly. No grizzly was killed in the state from 1952 until 1979, when naturalists were surprised to learn that a grizzly was killed by a hunting guide in the San Juan Mountains, apparently in self-defense.

Grizzly bears are unmistakable, not only because of their large size (to 7 feet long, and weighing 500 pounds or more), but due to conspicuously humped shoulders, front legs longer than rear legs, a dished-in face, and front claws over 4 inches long. Color is mostly yellowish to reddish brown.

Grizzlies are too large and hungry to be picky eaters. They eat carrion (once commonly of bison), fruit, young shoots, roots, bulbs, fish and larval and adult insects. They seldom chase down adult hoofed mammals, but do take elk calves and fawns they stumble upon. Sometimes they excavate marmots and other rodents.

These bears breed in July. Embryo implantation is delayed, and after a gestation period totaling 26 weeks, the young (usually twins) are born to the hibernating sow in her winter den. Mother and cubs emerge from the den in April or May. The young are weaned in early autumn. Females first breed at 3½ years and thereafter produce cubs every second or third winter.

The grizzly bear is classified as an endangered species in Colorado, but it probably is gone from the state. Some have argued that because grizzly bears are native to Colorado's wild lands they should be re-established here, but the Colorado Wildlife Commission is on record as opposing restoration.

GRIZZLY BEAR IN ALASKA
PHOTO BY LEN CLIFFORD

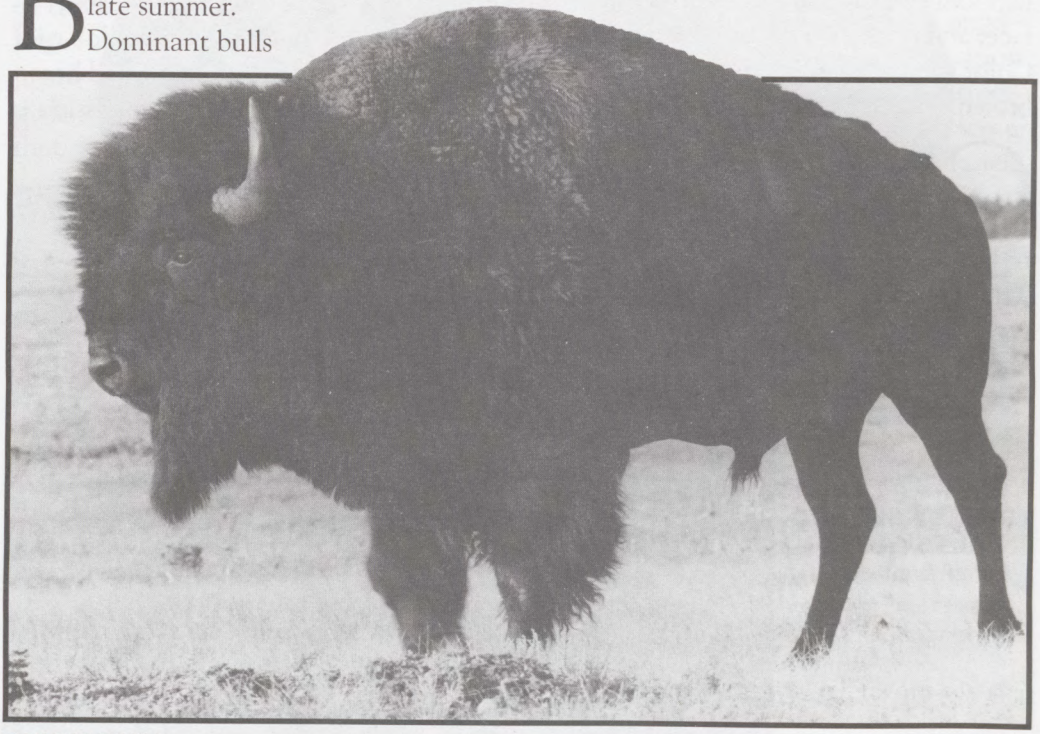
BISON

Once bison lived nearly statewide in Colorado, most abundant on the plains, in the mountain parks and western basins. They also lived in forests and above timberline. Bison were migratory, moving in huge herds in a vast circuit across the plains, responding to the opportunity of new grass just beyond the horizon.

The largest of our hoofed mammals, bull bison are 10 feet long (not counting the 20-inch tail), and weigh nearly a ton; cows are more than 6 feet long and weigh up to 1,000 pounds. They are dark brown, have a massive hump over the shoulders, a shaggy head and horns on both sexes.

Bison breed in late summer. Dominant bulls mate with several cows. A single calf is born after a gestation period of about 9½ months. Cows are mature and breed at three; bulls seldom have sufficient status to breed until they are seven or eight. Longevity is 20 – 30 years.

Once wolves and grizzly bears preyed on young and old bison, but large size and herding habits protect bison from most non-human predators. No match for the firearms of the market hunters, bison no longer occur in Colorado in the wild — the last of them were killed in South Park in 1897. Today, captive herds in Colorado are officially called "livestock," not wildlife.



BISON BULL

PHOTO BY MARILYN MARING

INTRODUCED SPECIES: DELIBERATE

Two hoofed mammals (ungulates) have been introduced deliberately to Colorado in the last half century, in part to provide trophy-hunting opportunities. The first such introduction was in 1947, when 14 mountain goats were obtained from Montana (in a one-for-one swap for Coloradan bighorn sheep) and placed in the Collegiate Range. Later, additional mountain goats were obtained from British Columbia.

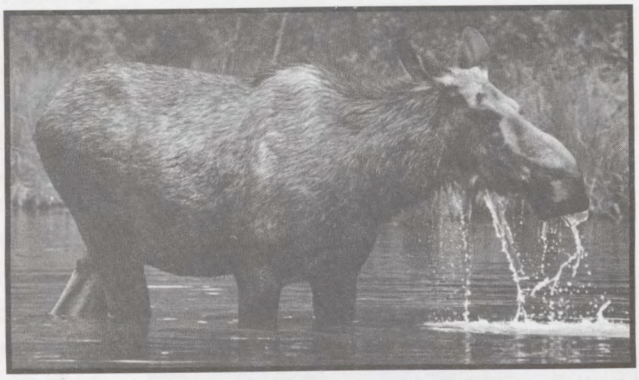
ROCKY MOUNTAIN GOAT

In March 1993 the Colorado Wildlife Commission proclaimed the Rocky Mountain goat a native species. After two years of historical research, accounts were found that described mountain goats in Colorado in the 1880s.

With their shaggy white wool coats and black horns, these are beautiful and distinctive animals. Billies range to 5 feet long and weigh up to 250 pounds. Mountain goats eat grasses, mosses, lichens and some shrubbery.

Moose have wandered into Colorado on occasions since European settlement, but there was no breeding population until a dozen animals from Utah were introduced to North Park in 1978, followed by another dozen from Wyoming in 1979. The population has expanded, and the animals now have moved into adjacent Larimer and Grand counties. They also have been introduced in Southwest Colorado.

Moose are the largest of deer, bulls ranging to 9½ feet long (of which just 4 inches is tail), 6 feet tall at the shoulder. They weigh over 1,000 pounds. Flattened antlers, a peculiar drooping upper lip and a prominent "bell" or dewlap on the throat make them unmistakable. Moose are semi-aquatic, often feeding on aquatic plants and willows in summer. In winter they may turn to grazing and thus compete with native wildlife and domestic livestock.



COW MOOSE FEEDING PHOTOS BY LEONARD LEE RUE III

INTRODUCED SPECIES: ACCIDENTAL

Two Eurasian rodents came to Colorado with settlers, the house mouse and the Norway rat. The house mouse is all too familiar to most Coloradans. These unsavory immigrants are the only mice many people know, and they have given all mice a bad name. House mice are about the size of a deer mouse, 6 – 7 inches long and about three-fourths of an ounce. However, the scaly, naked tail is as long as the body. The mice are grayish as adults, and the belly is grayish to buffy, never white.

House mice live mostly around buildings, moving into weedy fields and borrow pits in summer and into buildings (homes, barns, poultry houses) in winter. They feed on stored grain, carrion and just about anything in the pantry that is not canned or bottled. House cats, owls, weasels and spotted skunks are good mousers and should be encouraged in the task.

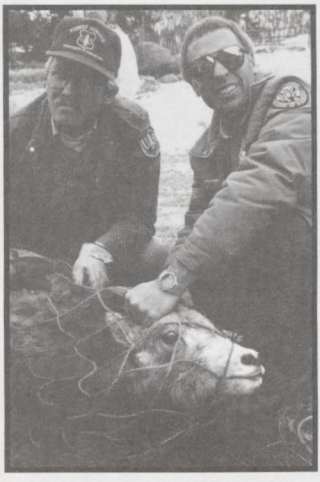
HOUSE MOUSE PHOTO BY LEONARD LEE RUE III

The Norway rat is a large (14 – 18 inches in total length, with a 6 – 8 inch tail), heavy-bodied (7 – 14 ounces) rat. Unlike native woodrats, which it may equal in size, it has a naked, scaly tail, dark brown to blackish fur and a gray (rather than white) belly.

Norway rats arrived in Denver in the 1880s and occur mostly in urban areas (ill-kept alleys, storm sewers, unsanitary dumps), around livestock feedlots and under outbuildings. Like the house mouse, they may breed throughout the year, bearing several litters of 2 – 14 young. Large house cats and dogs kill rats, and so do owls and a variety of native mammalian carnivores. Where Norway rats are present, they may need to be trapped or even poisoned. They are bold and aggressive animals and are known to bite children. A third immigrant rodent, the black rat or ship rat, may occur in Colorado only as wild populations of albinos escaped from laboratory populations. These animals are slimmer than the Norway rat, and their tails are longer than the head and body.

WILDLIFE MANAGEMENT

Colorado's native mammals, like other wildlife species, are the property of the state of Colorado. By law, management of wildlife is entrusted to the Colorado Division of Wildlife, whose task is to protect, preserve, enhance and manage wildlife for the use, benefit and enjoyment of the people of Colorado and visitors to the state.



BIGHORN SHEEP ARE TRAPPED AND INNOCULATED
PHOTO BY BUD SMITH

For purposes of planning and management, the Division of Wildlife has divided Coloradan mammals into several categories. Big game species include deer, elk, bighorn sheep, pronghorn, bear and mountain lion. Small game species include some species (rabbits, tree squirrels) that are commonly hunted for food as well as a number of species that sometimes become agricultural pests (prairie dogs, some ground squirrels, pocket gophers) and might be partially controlled by sport-hunting. Furbearers include opossum, beaver, muskrat and a variety of carnivores that may be trapped for their fur. The category "nongame wildlife" include bats, insectivores, the armadillo, and most of the rodents. These are animals that are not pursued by humans for food, fur, or sport, and mostly they persist in the diverse ecosystems of the state without direct management.

Six mammalian species are classified by the state of Colorado as endangered: gray wolf, grizzly bear, black-footed ferret, river otter, wolverine and lynx. The first two species no longer occur in Colorado, and the black-footed ferret may be gone. The river otter was wiped out but has been restored in recent years. Wolverines and lynx probably are present in very small numbers. Note that all of the designated endangered species of mammals are carnivores. Several species are large and all of them are fairly easy to monitor, at least in comparison with some of the state's smaller mammals. One can only wonder how many of the more obscure species — those that are difficult to observe, track or identify — might also be endangered. Surely Colorado is the poorer without black-footed ferrets, and river otters have a following of vociferous advocates. But what about the fringed myotis and the spotted bat? And who will speak for the meadow jumping mouse or the olive-backed pocket mouse? Their habitats have been disturbed by the spread of civilization. They may never have been abundant, their status is poorly understood. Perhaps they are endangered too. Would their extinction diminish our lives? Many thoughtful people believe so, because they value the intact, functioning ecosystems of which these obscure but intriguing native mammals are a part.

WATCHABLE WILDLIFE

MOTHER AND YOUNG RACCOON PHOTO BY LEONARD LEE RUE III

Recognizing that wildlife viewing is a favorite recreational activity of most Coloradans, the Colorado Division of Wildlife has established a program to encourage and facilitate "Watchable Wildlife." Nearly all wildlife is "watchable wildlife," if you have the patience. The Colorado Division of Wildlife lists some good-sense rules for wildlife watching etiquette:

1. Observe animals from a safe distance. Get close by using binoculars, a spotting scope or a camera with a telephoto lens. You probably are too close if animals are looking at you with head up and ears pointed toward you or are "jumpy" when you move or make a noise. If you see these signs, sit quietly or move slowly away until the behavior changes. Be especially sensitive to adults with young.

2. Move slowly and casually, not directly at wildlife. Allow animals to keep you in view; do not surprise them.

3. Never chase or harass wildlife; harassment of wildlife is unlawful.

4. Leave pets at home. At best they hinder wildlife watching; at worst they can chase, injure or kill wildlife.

5. Using the animals' behavior as a guide, limit the time you spend watching if animals appear to be stressed.

6. Respect others who are viewing the same animals.

7. Do not feed wild mammals.

8. Respect private property; ask first to watch on private land.

9. Resting is critical behavior for many animals; don't encourage them to "do something" for you or your camera.

10. Avoid animals that behave strangely or aggressively. They may be ill.

CHECKLIST OF MAMMALS OF COLORADO

CLASS MAMMALIA

ORDER MARSUPICARNIVORA

FAMILY DIDELPHIDAE — OPOSSUMS

___Virginia Opossum — *Didelphis virginiana*

ORDER INSECTIVORA

FAMILY SORICIDAE — SHREWS

___Masked Shrew — *Sorex cinereus*
___Pygmy Shrew — *Sorex hoyi*
___Merriam's Shrew — *Sorex merriami*
___Montane Shrew — *Sorex monticolus*
___Dwarf Shrew — *Sorex nanus*
___Water Shrew — *Sorex palustris*
___Southern Short-tailed Shrew — *Blarina hylophaga*
___Least Shrew — *Cryptotis parva*
___Desert Shrew — *Notiosorex crawfordi*

FAMILY TALPIDAE — MOLE

___Eastern Mole — *Scalopus aquaticus*

ORDER CHIROPTERA

FAMILY VESPERTILIONIDAE — COMMON BATS

___California Myotis — *Myotis californicus*
___Long-eared Myotis — *Myotis evotis*
___Western Small-footed Myotis — *Myotis ciliolabrum*
___Little Brown Bat — *Myotis lucifugus*
___Fringed Myotis — *Myotis thysanodes*
___Long-legged Myotis — *Myotis volans*
___Yuma Myotis — *Myotis yumanensis*
___Silver-haired Bat — *Lasionycteris noctivagans*
___Western Pipistrelle — *Pipistrellus hesperus*
___Big Brown Bat — *Eptesicus fuscus*
___Red Bat — *Lasiurus borealis*
___Hoary Bat — *Lasiurus cinereus*
___Spotted Bat — *Euderma maculatum*
___Townsend's Big-eared Bat — *Plecotus townsendii*
___Pallid Bat — *Antrozous pallidus*

FAMILY MOLOSSIDAE — FREE-TAILED BATS

___Brazilian Free-tailed Bat — *Tadarida brasiliensis*
___Big Free-tailed Bat — *Nyctinomops macrotis*

ORDER EDENTATA

FAMILY DASYPODIDAE — ARMADILLOS

___Nine-banded Armadillo — *Dasypus novemcinctus*

ORDER LAGOMORPHA

FAMILY OCHOTONIDAE — PIKAS

___Pika — *Ochotona princeps*

FAMILY LEPORIDAE — RABBITS AND HARES

___Desert Cottontail — *Sylvilagus audubonii*
___Eastern Cottontail — *Sylvilagus floridanus*
___Nuttall's Cottontail — *Sylvilagus nuttallii*
___Snowshoe Hare — *Lepus americanus*
___Black-tailed Jackrabbit — *Lepus californicus*
___White-tailed Jackrabbit — *Lepus townsendii*

ORDER RODENTIA

FAMILY SCIURIDAE — SQUIRRELS

___Cliff Chipmunk — *Tamias dorsalis*
___Least Chipmunk — *Tamias minimus*
___Colorado Chipmunk — *Tamias quadrivittatus*
___Hopi Chipmunk — *Tamias rufus*
___Uinta Chipmunk — *Tamias umbrinus*
___Yellow-bellied Marmot — *Marmota flaviventris*
___White-tailed Antelope Squirrel — *Ammospermophilus leucurus*
___Wyoming Ground Squirrel — *Spermophilus elegans*
___Golden-mantled Ground Squirrel — *Spermophilus lateralis*
___Spotted Ground Squirrel — *Spermophilus spilosoma*
___Thirteen-lined Ground Squirrel — *Spermophilus tridecemlineatus*
___Rock Squirrel — *Spermophilus variegatus*
___Gunnison's Prairie Dog — *Cynomys gunnisoni*
___White-tailed Prairie Dog — *Cynomys leucurus*
___Black-tailed Prairie Dog — *Cynomys ludovicianus*
___Abert's Squirrel — *Sciurus aberti*
___Fox Squirrel — *Sciurus niger*
___Pine Squirrel, or Chickaree — *Tamiasciurus hudsonicus*

FAMILY GEOMYIDAE — POCKET GOPHERS

___Valley Pocket Gopher — *Thomomys bottae*
___Northern Pocket Gopher — *Thomomys talpoides*
___Plains Pocket Gopher — *Geomys bursarius*
___Yellow-faced Pocket Gopher — *Cratogeomys castanops*

FAMILY HETEROMYIDAE — POCKET MICE AND ALLIES

___Olive-backed Pocket Mouse — *Perognathus fasciatus*
___Plains Pocket Mouse — *Perognathus flavescens*
___Silky Pocket Mouse — *Perognathus flavus*
___Great Basin Pocket Mouse — *Perognathus parvus*
___Hispid Pocket Mouse — *Chaetodipus hispidus*
___Ord's Kangaroo Rat — *Dipodomys ordii*

FAMILY CASTORIDAE — BEAVER

___Beaver — *Castor canadensis*

FAMILY CRICETIDAE — NATIVE RATS AND MICE

___Western Harvest Mouse — *Reithrodontomys megalotis*
___Plains Harvest Mouse — *Reithrodontomys montanus*
___Brush Mouse — *Peromyscus boylii*
___Canyon Mouse — *Peromyscus crinitus*
___White-footed Mouse — *Peromyscus leucopus*
___Deer Mouse — *Peromyscus maniculatus*
___Northern Rock Mouse — *Peromyscus nacutus*

___Piñon Mouse — *Peromyscus truei*
___Northern Grasshopper Mouse — *Onychomys leucogaster*
___Hispid Cotton Rat — *Sigmodon hispidus*
___White-throated Woodrat — *Neotoma albigula*
___Bushy-tailed Woodrat — *Neotoma cinerea*
___Eastern Woodrat — *Neotoma floridana*
___Desert Woodrat — *Neotoma lepida*
___Mexican Woodrat — *Neotoma mexicana*
___Southern Plains Woodrat — *Neotoma micropus*
___Southern Red-backed Vole — *Clethrionomys gapperi*
___Heather Vole — *Phenacomys intermedius*
___Long-tailed Vole — *Microtus longicaudus*
___Mexican Vole — *Microtus mexicanus*
___Montane Vole — *Microtus montanus*
___Prairie Vole — *Microtus ochrogaster*
___Meadow Vole — *Microtus pennsylvanicus*
___Sagebrush Vole — *Lemmiscus curtatus*
___Muskrat — *Ondatra zibethicus*

FAMILY MURIDAE — OLD WORLD RATS AND MICE

___House Mouse — *Mus musculus* (introduced)
___Norway Rat — *Rattus norvegicus* (introduced)
___Black Rat — *Rattus rattus* (introduced)

FAMILY ZAPODIDAE — JUMPING MICE

___Meadow Jumping Mouse — *Zapus hudsonius*
___Western Jumping Mouse — *Zapus princeps*

FAMILY ERETHIZONTIDAE — PORCUPINES

___Porcupine — *Erethizon dorsatum*

ORDER CARNIVORA

FAMILY CANIDAE — DOGS AND ALLIES

___Coyote — *Canis latrans*
___Gray Wolf — *Canis lupus* (extirpated)
___Kit Fox — *Vulpes macrotis*
___Swift Fox — *Vulpes velox*
___Red Fox — *Vulpes vulpes*
___Gray Fox — *Urocyon cinereoargenteus*

FAMILY URSIDAE — BEARS

___Black Bear — *Ursus americanus*
___Grizzly Bear — *Ursus arctos* (extirpated)

FAMILY PROCYONIDAE — RACCOONS AND ALLIES

___Ringtail — *Bassariscus astutus*
___Raccoon — *Procyon lotor*

FAMILY MUSTELIDAE — WEASELS AND ALLIES

___Marten — *Martes americana*
___Ermine — *Mustela erminea*
___Long-tailed Weasel — *Mustela frenata*
___Black-footed Ferret — *Mustela nigripes*
___Mink — *Mustela vison*
___Wolverine — *Gulo gulo*
___Badger — *Taxidea taxus*
___Western Spotted Skunk — *Spilogale gracilis*

___Eastern Spotted Skunk — *Spilogale putorius*
___Striped Skunk — *Mephitis mephitis*
___Hog-nosed Skunk — *Conepatus mesoleucus*
___River Otter — *Lutra canadensis* (extirpated, restored)

FAMILY FELIDAE — CATS

___Mountain Lion — *Felis concolor*
___Lynx — *Felis lynx*
___Bobcat — *Felis rufus*

ORDER ARTIODACTYLA

FAMILY CERVIDAE — DEER

___Wapiti, or Elk — *Cervus elaphus*
___Mule Deer — *Odocoileus hemionus*
___White-tailed Deer — *Odocoileus virginianus*
___Moose — *Alces alces* (introduced)

FAMILY ANTILOCAPRIDAE — PRONGHORN

___Pronghorn — *Antilocapra americana*

FAMILY BOVIDAE — CATTLE AND ALLIES

___Bison — *Bison bison* (extirpated, present as livestock)
___Mountain Goat — *Oreamnos americanus* (introduced, declared native)
___Bighorn Sheep — *Ovis canadensis*

BEAVER TOWING BRANCH UNDERWATER PHOTO BY IRENE VANDERMOLEN

Species Index

COTTONTAIL RABBIT

PHOTO BY LEONARD LEE RUE III

LEARN MORE ABOUT MAMMALS

Your school or public library is a fine place to learn more about mammals. Look in the catalog under "mammal" or "wildlife." Browse the shelves for interesting titles. *Mammal Tracking in Western America*, by James C. Halfpenny is a valuable guide to the sign of mammals. There is no comprehensive guide to Coloradan mammals in print, but *Rocky Mountain Mammals*, by David M. Armstrong, covers the mountain species (and many of the widespread kinds), and *Mammals of the Northern Great Plains*, by J. K. Jones and colleagues, treats the species of the eastern part of the state. Your library may have R. R. Lechleitner's *Wild Mammals of Colorado*. *Colorado Wildlife*, by Jeff Rennicke, has color photographs of many familiar Colorado mammals.

Another place to explore Colorado's mammals is in a natural history museum. Colorado is fortunate to have a major exhibits museum, the Denver Museum of Natural History in City Park. The University of Colorado Museum in Boulder and the Museum of Western Colorado in Grand Junction also exhibit some mammals. Also, smaller local museums frequently display wildlife from their vicinity. Enjoy the exhibits, but remember, the best place to learn about wildlife is outdoors, firsthand. Colorado is a wonderful place to watch wildlife.

PHOTO BY WENDY SHATTIL/BOB ROZINSKI

We've Made a Few Changes Where the Deer and the Antelope Play

People have changed the environment. What were once elk calving grounds are now shoppettes below ski areas; deer migration routes are cut by six-lane highways. As much as 30,000 acres of traditional wildlife habitat is converted to human use in Colorado every year. Because of that, we must manage our wildlife resources more carefully than ever. Hunting and fishing are key tools in the science of wildlife management, helping wildlife managers control the size of wildlife populations to keep them in balance with their habitat. The money hunters and anglers pay for their licenses also funds wildlife management activities from research to law enforcement. No tax money is used. Thanks to sound management, wildlife is thriving in Colorado.

A Public Service Message from the Colorado Division of Wildlife