FOREWORD

Few things stir the imagination of the outdoorsman as much as the subject of furbearers. Oregonians, in particular, trace their history back to the days of the fur trade. The early explorers who blazed the trails later followed by the wagon trains were trappers in search of beaver, the animal for which the state was nicknamed.

There is need to clarify the definition of furbearing animals in the light of changing concepts. The legislature has classified certain animals as furbearers, based on the value of their pelts. Beaver, bobcat, fisher, mink, marten, muskrat, otter, raccoon, red fox and gray fox are among those protected under this classification. Although protected, statutes allow the taking of red fox and bobcat when they are damaging livestock. As conditions change, it is probable that there will be future additions and deletions to the furbearing mammal list.

It was common practice in the past to regard all cougars, bobcats, coyotes, foxes, and a host of other species as predators. Since such animals preyed on livestock or game birds and animals valuable to man, it was obvious they were "bad actors" and should be destroyed. Some of this feeling continues today but a definite shift in thinking is apparent. Modern studies indicate that such species have a definite place in the natural environment and, as a result, removal of problem animals rather than general control of the entire species is being practiced. It is quite probable that complete protection of some animals considered predators today may be necessary in the future to prevent their disappearance from the Oregon scene. Classification of the cougar as a game animal is a step in this direction. In recognition of the changing times, all species will be referred to as furbearing animals in the discussion that follows.

The Oregon Department of Fish and Wildlife sincerely dedicates this booklet to all who are interested in the study and conservation of these interesting wildlife forms.

*Life history information from:
HISTORY

The early history of Oregon can be traced back to the fur traders who were the first to push westward and establish outposts in the Oregon Country. George W. Fuller in his book, "A History of the Pacific Northwest," documents the sequence of events.

Captain Cook's third voyage searching for the Northwest Passage in 1778 was the forerunner of expeditions to follow. In trading with the Indians at Nootka Sound on the west coast of Vancouver Island, Cook picked up a cargo of sea otter pelts which were later sold in Canton, China at fabulous prices. The brisk demand which developed for these beautiful pelts encouraged Spain and Russia to enter the competition, followed by the Americans shortly after acquiring independence. Within a decade the Americans became the most active and continued to operate trading voyages until about 1805 when the demand in China fell off.

The early sea trade was followed by land-based operations when British fur companies pushed westward seeking beaver to supply the European market with material for hats. Early expeditions were outfitted by the North West Company which was formed in 1775 for the purpose of developing the western fur trade. Although the first trading posts were established on the upper Columbia and Fraser Rivers, the goal of the British firm was to lay first claim as far west as the Pacific. In this they failed since John Jacob Astor's American firm, the Pacific Fur Company, established Fort Astoria at the mouth of the Columbia River in 1811. The American threat was short-lived, however, as the War of 1812 and word of an approaching British warship encouraged the Astorians to sell out to the North West Company.

Further attempts by the Americans met with failure and all fur trading of consequence in the Oregon Country remained under British control. The North West Company combined with the rival Hudson's Bay Company in 1821 and Dr. John McLoughlin subse-

quently was appointed as chief factor to head all operations for the vast region west of the Rockies. Fort Vancouver, which was completed in 1825, served as headquarters until 1849 when the base of operations was transferred to Vancouver Island, thus ending an exciting era in Oregon's history. This era was not forgotten, however, and the importance of fur was recognized when the newborn state emblazoned her flag with a symbol of the beaver. Oregonians today proudly boast of hailing from the Beaver State.

While the search for fur-bearers was responsible for early travel and exploration throughout Oregon, fur's place in the state's history did not end with the exodus of the free-ranging trapper. Early settlers found trapping to be an important source of revenue during the winter months. So important, in fact, that exploitation threatened the survival of certain species while others such as wolves, cougars, bobcats, and coyotes preyed on the growing herds of livestock and became damned as predators. Bounties were first established by the Territorial Government in 1843 to control such losses.

Encroaching civilization finally prompted the enactment of laws protecting fur-bearers. The first such act was passed by the legislature in 1893 and provided for a closed season on beaver in Baker and Malheur Counties. This was followed by a state-wide closure in 1899 which remained in effect until 1917.

Comprehensive trapping laws were enacted by the legislature in 1913 and many of the provisions remain in effect today. The Act classified otter, mink, fisher, marten, and muskrat as fur-bearers, provided for an open trapping season from November 1 to February 28, prohibited the use of game birds or animals for bait, prescribed a penalty for disturbing the traps of others, and required all trappers to report their catch annually.

Protective regulations based on the 1913 law have continued to be enforced, although changed through the years. One of the most important changes was made in 1932 when the legislature granted the Game Commission authority to set trapping regulations. Another significant change was made in 1961 when the state discontinued bounty payments, thus recognizing the inadequacy of this program as an effective means of controlling predators. The regulation and management of all fur-bearers remains an important function of the Department of Fish and Wildlife today.
While clumsy on land the beaver is very agile in the water and can swim rapidly, stay under for as long as 15 minutes, and feed while submerged. The broad tail is used as a rudder for steering, as a prop for standing, and as an alarm system for striking the water surface to warn of danger.

Beavers are skillful and industrious engineers as illustrated by their dam-building activities. Dams constructed of sticks matted in place with mud are built across smaller streams to raise and stabilize water depths, thus providing deep ponds for protection and safe storage space for winter food supplies. Beavers prefer a bank den with an underwater entrance but will construct large lodges or houses of sticks and mud when suitable den sites are not available. Streams too large for dam construction are inhabited by animals which move from one place to another as food and water conditions change.

Beavers are vegetarians, living mainly on the bark and cambium layer of deciduous trees such as willow, aspen, cottonwood, and alder. Trees up to five feet or more in diameter may be felled by gnawing, after which the bark from smaller branches and twigs is eaten. Regular gnawing is necessary to wear off and control the growth of the long front teeth. Water plants, roots, and green vegetation on the banks are added to the diet when available. Limbs are anchored in the mud near lodges or bank dens during the autumn in areas where freezing weather is expected. The winter food cache remains accessible through channels beneath the ice.

From two to six, and occasionally eight, young are born in April and May after a gestation period of almost four months. The young remain in the bank den or house and are nursed by the mother until old enough to dive through the underwater entrance, after which they begin to feed on vegetation. Families stay together through the first winter or as long as food supplies are ample.

Beavers were the most important furbearers in Oregon's early history with many of the first settlers following trails blazed by trappers. Value of the fur remains an important economic asset today. Aside from the fur, beavers provide other important services. Dams on small streams stabilize water flows, provide habitat for fish and wildlife, and control erosion. Beaver colonies move on as sediment accumulates, leaving moist meadows valuable for grazing. Beaver ponds are a mixed blessing, however, and dams in irrigation ditches or across culverts often flood fields and roads. Other damage problems include undermining dikes, feeding on orchards and ornamental trees, and grazing on alfalfa and other crops adjacent to streams. The economic value of beavers far exceeds their destructiveness and problem colonies can be controlled readily by trapping.
MUSKRAT (Ondatra zibethicus)

Muskrats are the most numerous furbearers in Oregon. Although called “marsh rabbits” because of their preference for such areas, muskrats are not closely related to either rabbits or rats. The fact that the animal resembles a rat and has two musk glands at the base of the tail accounts for its name.

The adult muskrat weighs 2 to 3 pounds, measures 17 to 25 inches long, and stands 4 to 5 inches high at the shoulders. Other features include long, partially-webbed hind feet; a scaly, rat-like tail flattened vertically; and small eyes and ears. The underfur is dense and partially concealed under shiny, coarse guard hairs. Colors range from glossy dark brown on the back to paler brown on the sides and gray on the belly.

Originally, muskrats were most common in the Columbia, Snake, Deschutes, John Day, Malheur, and Owyhee drainages as well as the Malheur Lake area. They did not occur in Klamath or Lake Counties until introduced from Wisconsin by fur farmers in the late 1920s. Today the animals occupy most lowland marshes and slower-moving stream systems throughout the state. Unlike the beaver, muskrats are not common in timbered habitat at higher elevations. The availability of preferred foods rather than altitude limits distribution and abundance.

Except for not building dams or cutting trees, muskrats are similar to beavers in general habits. Both species are aquatic in nature and construct houses as well as bank dens. Muskrat houses or lodges are made of cattails, reeds, and some sticks and coarse vegetation cemented with mud. Although houses may reach a height of five or more feet, they settle rapidly and seldom last more than three years. A single room is located in the center of the house and may be occupied by the entire family of six to eight animals, with greater numbers often present during the winter. Two or more doorways provide access and alternate escape routes. In an emergency materials used in constructing the house serve as food. Over-populations virtually eat themselves out of house and home under extreme conditions.

Roots, tubers, basal portions of cattails and sedges, and other succulent vegetation furnish the major portion of the diet. While most feeding is done in or near the water, muskrats may travel overland to reach crops such as clover, alfalfa, grain, and vegetables. Unlike the beaver, a muskrat will eat meat when available. Mussels, crayfish, and carrion, including dead muskrats, are consumed.

The average litter contains four to six young, although as many as eleven may be produced. Females can raise up to three litters yearly with the first young being born in May or June after a gestation period of about 30 days. The young weighs three-quarters of an ounce at birth, is four inches long, and is blind, naked, and helpless. Weaning takes place within a month depending on the size of the litter. Small litters may be weaned as early as three weeks. Young are not allowed to remain with the mother after weaning since space is needed for the new arrivals.

From the standpoint of numbers, muskrats contribute more pelts to Oregon trappers than any other furbearer. The meat has some value, although not as popular for table use here as in southern and eastern states. An additional by-product of trapping is the musk which is used in making perfume and trap scent.

Digging to create dens causes considerable damage to dikes and irrigation ditches. The activities of the animals are not always detrimental, however, and muskrats serve an important function in marshes. By eating and utilizing tules for house construction the colonies provide open water needed by waterfowl. Muskrat houses also provide convenient nesting platforms for geese.
The mink, being semi-aquatic, is fairly common along the streams, lakes, and coast line of Oregon. Although the animals are at home in forested areas and will travel overland, they are seldom found far from a permanent source of water. Much of the state provides suitable habitat except for the high mountain and desert areas.

A mink on the hunt generally follows the water's edge, moving at a hunchbacked lope, but is a good overland traveler also and can climb trees with ease. Being fearless, the animal will attack almost anything suitable as food and many a dog bears witness to the ferocity of a cornered mink. At home in the water, the mink can dive and swim rapidly enough to capture fish.

Except when caring for the young, the mink is a nomad ranging over a wide area. Muskrat dens, rabbit burrows, or depressions under the bank serve as temporary quarters which are changed at intervals. Males range much farther than the females during the course of a year.

It is probably a good thing that the mink prefers to live alone and spends so much time in the water. The male in particular is a real stinker, spreading musk willy-nilly along his route of travel.

The mink is a carnivore, feeding on crustaceans, fish, and other aquatic life which supply a major part of the diet. Small mammals such as muskrats, rats, mice, squirrels, and some birds also are eaten, including domestic poultry when available. Most food is consumed in the den.

The males are polygamous and travel widely during the breeding season but often settle down with the last mate and assist in caring for the young. Gestation requires approximately a month and a half, although the period may vary from 40 to as long as 75 days depending upon the delay in attachment and growth of the embryos. Only one litter a year is produced and averages five to six young which are born in April or May. Youngsters remain in the den until old enough to follow the mother in search of food. The family breaks up in late summer.

Mink fur has remained a luxury item on the market for over a century and continues to set standards for the trade. Much of this popularity is due to quality achieved by the selective breeding programs of fur farmers but wild-trapped pelts still command a high price. An iron deficiency in the diet of wild mink, especially in the Willamette Valley, causes the animal to produce a very poor quality pelt. Such pelts, known as "cotton mink," are of little value.

In its relationships with man, the mink is a Dr. Jekyll and Mr. Hyde. The control of undesirable rodents is beneficial but this is offset by some destruction of game birds and nests as well as the occasional poultry flock. The mink definitely is an asset to the state with fur values and other benefits outweighing any losses caused by the animals.
OTTER

probably the best swimmer of any of our land mammals, the river otter is a clown at heart. It lacks the vicious temper of the weasel and mink and is easily tamed. Otter's philosophy seems to be "play now and worry later."

Next to the rare wolverine, otters are the largest members of the weasel family in Oregon. The body is long, low, and oval in shape. Other features include a flattened head, small eyes and ears, short legs with webbed feet, and a long, tapered tail. Males weigh an average of 20 pounds, measure 3½ to 4½ feet long, and stand 9 to 10 inches high at the shoulder while females are much smaller. The general color is dark brown, shading to a grayish-brown on the muzzle, throat, and underparts. Dark, glossy guard hairs overlay the very dense underfur.

Otters formerly occupied nearly all permanent streams and lakes in Oregon and lesser numbers are found today over much of the original range. Availability of food rather than altitude determines distribution and the animals may be at home on the highest lakes if fish are present. Otters may move overland many miles during the winter in search of fast-flowing streams free of ice. While capable of digging, the animals prefer to use natural depressions in the bank, hollow stumps, or abandoned muskrat and beaver dens as temporary homes and nurseries.

Although adapted to live on both water and land, otters prefer the water where they move with the speed and grace of a seal. The animals travel long distances up and down streams and make overland trips when necessary. Otters appear awkward on bare ground but can move rapidly in a series of gliding slides when snow is present.

The favorite pastime is sliding. Selecting a steep bank, the family follows the leader in "belly whopper" dives. Winter does not end the fun since snow and ice provide even better toboggan runs.

When leaving the water otters roll in the grass or snow to dry off. Another habit is that of twisting grass tufts together for use as scent stations. Nearly every passing otter will leave his calling card at such locations.

Fish is the favorite food and an otter can stay underwater for lengthy periods in the pursuit of prey. Availability determines choice and all species of fish appear to be suitable. The diet is varied with shellfish, frogs, and other aquatic animal life included. Muskrats, squirrels, waterfowl, and other small game will be taken when possible. Fish remains the staple item, however, and the otter will move considerable distances in search of an adequate supply.

Males may mate with several females during the breeding season. The young are born in April after a gestation period of approximately two months. Litters average two to four young which are blind until five weeks old and must be taught to swim and hunt. The youngsters remain with the mother until almost a year old, leaving her company before birth of the next litter.

Otters produce a pelt which is rated more durable than any other fur. The pelts command a high price but population numbers are inadequate to support much trapping pressure. The animals compete with man for game fish, particularly in trout-rearing ponds, but the culprits are easy to remove by trapping. Occasional losses of waterfowl and other desirable wildlife do not reach serious proportions.
MARTEN (Martes americana)

The saying, "curiosity killed the cat," applies equally well to the marten whose insatiable curiosity often leads to his downfall. Also called the pine or rock marten and American sable, this species is a tree-dwelling member of the weasel family.

Although similar in size to the mink, the marten appears larger due to its long legs. Large eyes, long rounded ears, and a bushy tail distinguish the animal. The toes are webbed at the base and fitted with curved claws for climbing. Anal glands are present as well as an elongated scent gland under the belly skin of the male. Males weigh up to 3 pounds and measure 22 to 30 inches long and 7½ inches high at the shoulders. Females are about one-third smaller. The color is dark brown, shading to blackish-brown on the feet and end of the tail. Sides of the neck, face, and ears are paler with an orange or yellowish-white patch on the throat, extending as a thin line down the center of the belly in some individuals. The fur is thick and soft with few guard hairs.

Marten are forest inhabitants, preferring the spruce and fir timber at higher elevations in the Blue, Wallowa, Cascade, Siskiyou and Coast Ranges. The animals are rare in the north end of the Coast Range and cannot be considered abundant anywhere in the state.

At home in the trees, the marten also travels on the ground and will cover 10 or more miles during a night of hunting. Such travels do not follow regular routes but criss-cross at random. Although most active at night, the animal does move about during the daylight hours and rests only when it feels the need. Shelters located in a hollow tree or among the rocks are used as temporary resting places and are changed often. The marten avoids water like the plague and crosses streams on windfalls or other natural bridges. Being rugged by nature, the animal remains at higher elevations throughout the winter and refuses to become inactive except during the most severe storms.

The marten is quarrelsome and does not socialize with others of its kind except during the mating season. Curiosity overcomes caution in the case of man and the animals cannot resist investigating any person who comes along. Some become quite tame in parks and other areas where protected. This curiosity makes the marten an easy animal to trap. There are few natural enemies other than man and only the fisher is capable of catching a marten in a race through the trees. Great horned owls and other winged predators do prey on the young.

Unlike the weasel and mink, the marten is not bloodthirsty and kills only what is needed to eat. Unused portions are buried for a later meal. Tree squirrels are favorite prey and woe be the individual caught away from home. Other forest-dwelling rodents as well as small birds are included on the bill of fare and some insects and berries are eaten when available. Carrion is not avoided.

Breeding takes place in mid-summer and both sexes may have several mates. As with other members of the weasel family, embryo implantation is delayed and it is nearly nine months before the young are born in April. An average litter contains two to three youngsters which remain blind for four weeks. The young are very active after leaving the nest in mid-summer, playing games of tag through the treetops. By fall they are full-grown and ready to hunt for themselves.

Although marten fur is very high quality, few pelts are marketed. The scattered distribution and inaccessible terrain occupied by the animals limit trapping pressure. Some small game is consumed but such losses are more than offset by the large numbers of rodents destroyed. The marten is a definite asset to man.
In 1961 eleven animals were obtained from trappers in British Columbia and released in the Mountain Lakes Wild Area of Klamath County. An additional 13 were released on the Minam River in Wallowa County. While remnants of native animals may have persisted in the southern Cascade and Coast Ranges and the Siskiyou Mountains, the future rebuilding of fisher populations will depend on transplanting efforts.

Although primarily a tree dweller, the fisher is at home on the ground and can cover four feet at a jump. Nothing without wings, including the marten, can escape in a fair chase through the trees. Hunting is done mostly at night but hungry animals will remain active during daylight hours.

The home range is large and the fisher is solitary in habits, moving from one temporary shelter in a hollow log or tree to another. Unlike the marten, the fisher may migrate to lower elevations during the winter and also has no fear of water. Wooded swamps are favorite hunting areas.

A mean temper and a lack of fear are characteristics which leave the fisher few enemies except man. The bobcat, coyote, and dog are no match for this ferocious animal and larger carnivores cannot cope with its speed in the trees.

Few animals are as persistent hunters as the fisher which will continue in pursuit until the prey is exhausted. Foxes, raccoons, and an occasional bobcat may be run down but the main bill of fare consists of rodents such as mice, squirrels, rabbits, marmots, beavers, and wood rats. Other foods include small birds and eggs, frogs, snakes, berries and nuts in season, and the unsuspecting marten. Unused food generally is buried for consumption at a later date.

The fisher is fond of porcupine, flipping the animal over and disemboweling it with a single stroke of the paw. Quills apparently cause little discomfort, although death due to starvation may result if the face becomes heavily studded.

A thief at heart, the fisher robs bait from traps and especially enjoys stealing fish which have been captured by other animals or birds.

Breeding occurs in April but, because of delayed implantation, the young are not born for nearly a year. An average of three young per litter is produced, although the number may vary from one to five. The female mates again shortly after giving birth. Young fishers are blind until seven weeks of age and begin hunting with the mother at the end of three months. The family separates by late fall.

While the fur is valuable, particularly that of females, the scarcity and isolated distribution of fishermen limit their importance for trapping. Some small game is eaten but such losses are more than offset by the large number of rodents consumed. As a predator on porcupines, the fisher is most beneficial in controlling tree damage by this pest.
The wolverine has a limited range in Oregon, being restricted to the higher elevations of the Cascade Range. An adult male was shot by a deer hunter in the Three Fingers Jack area during the fall of 1965, verifying the continued existence of the species. Prior to that time the animal was believed to be extinct since the last observation was recorded in 1912. Wolverines are considered a rarity in the state and their preference for wilderness habitat makes it improbable that the animals will ever become common.

The wolverine lives at high elevations near timberline and covers an immense territory as a solitary wanderer. Although fiction and fancy accord supernatural powers to the animal, much of its reputation for cunning and deviltry has been earned. The "devil bear," scourge of the northern trapper, is hated for raiding traplines, breaking into cabins, and destroying food caches.

Moving in a hunchbacked lop e, the wolverine covers ground tirelessly and does not hesitate to climb trees or swim when the need arises. The animal remains active throughout the winter, continuing to hunt in the face of a storm.

Tremendous strength, ferocity, and a total lack of fear leave the wolverine no enemies except man. Even the grizzly bear and cougar have been known to abandon a kill to the angry carcajou. And when cornered, look out! Nothing on four legs cares to stand its ground in the face of such an adversary.

Meat of all kinds and conditions is acceptable but carcasses found dead or killed by other carnivores probably furnish most of the food. The wolverine is a natural glutton and will camp near a kill until everything edible is consumed. Tiring of the diet, it will defile the remainder with musk and move on. Rodents and ground-roosting birds are cornered and killed. Rocks and logs as well proffer little refuge as the powerful animal can expose nearly every hiding place used by the hapless prey. A cunning hunter, the wolverine will attack animals as large as moose and caribou and has been known to disembowel a black bear, quite wise enough to give battle. Only the porcupine is able to undo the wolverine which prefers to pass up this meal unless hungry. The animal lacks the finesse of the fisher and may pay with its life for an attack on the "quill pig."

Mating takes place in March, after which the male returns to his solitary ways. The two to three young are born in June and are weaned eight or nine weeks later. Mother and youngsters remain together until early winter, then separate after the first snowfall.

Wolverine fur is prized for wearing in the arctic since the guard hairs do not collect frost, making the pelt a favorite material for trimming parka hoods and cuffs. Due to scarcity, most pelts are used for such specialized purposes. Activities of the wolverine have little effect on man since their paths seldom cross. The thrill of seeing one in the wild would far outweigh the small number of game birds and animals consumed as food. Sad indeed will be the day when the last wolverine disappears.
WEASELS

WEASEL (Mustela erminea)

The weasel is considered the most bloodthirsty of all mammals and may kill far more than necessary, apparently losing all self-control as long as prey is available.

Longtail and shorttail weasels are present in Oregon and, except for body size and length of tail, the two forms are similar in appearance. The typical animal is long and slender, has short legs, a small flattened head, beady eyes, and low rounded ears. Soles of the feet are hairy and the claws are sharp and curved for climbing. Anal glands secrete a strong musk. Long, glistening guard hairs overlay the soft underfur. The summer coat is dark brown above and white underneath, turning completely white during the winter in areas where snow covers the ground. Tip of the tail remains black all seasons.

Male longtail weasels measure 9 to 11 inches long with the tail making up 4 to 6 inches of the total length. Weights vary from 6 to 9 ounces. Shorttail weasel males seldom exceed 9 inches in length, the tail varies from 2 to 4 inches long, and weights range from 2 to 4 ounces. Females of both forms are much smaller and may be only half the size of the males.

Weasels are widely distributed over Oregon wherever food is available. Longtail weasels are the most numerous and widespread while the shorttails are restricted generally to the Coast Range, west slope of the Cascades, and portions of the Wallowa and Blue Mountains.

The weasel lives and hunts on the ground, searching every nook and cranny which may contain prey. While not particularly fast, the animal moves in an undulating glide and seldom remains still. Its agility and quickness are difficult to match. A confident tree climber, the weasel also swims when necessary.

Old buildings, brush piles, or the dens of ground-dwelling rodents provide favorite home sites. Generally, a den is occupied until the surrounding food supply diminishes and the animal is forced to move on. The home range varies dependent on the availability of prey but averages less than a quarter of a mile in radius. Solitary by nature, the weasel prefers to live alone, although some males may assist in caring for the young.

Courage is an outstanding characteristic. The little animal fears neither man nor beast and will attack almost any creature in its path. Boldness, curiosity, and a lack of caution make the weasel fair game for many predators. Included as enemies are others of its kind, for weasels are cannibalistic.

Meat is the staff of life and may include everything from insects to rabbits. Using its nose, the savage little hunter locates prey, then dispatches it with lightning-fast bites to the base of the skull or jugular vein. Blood from the wound serves as an appetizer, followed by the remainder of the carcass which usually is eaten in the den. Excess food is stored, this being the only carriion of much interest to the weasel. Hunting is continuous even through the winter for the adult must consume food equal to a third of its weight each day.

Despite its agility the weasel is not always an efficient killer. The lack of well-developed claws for holding larger prey is a handicap and the tenacious attacker may be injured or killed in the struggle.

Mating occurs in early summer but gestation is delayed and birth does not take place until the following spring. The average litter contains four to six young which remain blind and helpless for the first nine days. Although weaned after five weeks, the youngsters hunt with the mother until fall when the family separates.

Occasional raids on the chicken house give the weasel a bad name, much of which is unearned. Such losses can be prevented by sealing all entrances and are far outweighed by the large number of rodents consumed. More farmers are beginning to recognize the value of weasels in controlling mouse and rat populations. While the fur is not too valuable, it does provide some income to trappers each year. The white winter fur, known as ermine, commands a higher price than the brown summer pelt.
Many facts regarding family life remain unknown. Apparently the animals mate in early autumn and gestation is delayed with the young being born in May or June. Litters may vary in size from one to seven, although three is the usual number. The young- 
ner remain blind for a month to six weeks and are weaned when half grown. Males may assist in caring for the family.

Although not of major importance, badger fur is used to some extent in trimming coats. The best shaving brushes once were made from the bristles or guard hairs but synthetic materials have captured the market today. Badgers have acquired a bad reputation among stockmen who fear the possibility of horses breaking a leg when stepping into the holes. Also, ditch banks may be damaged from digging activities. Such complaints, however, are more than offset by the badger’s value in checking rodent populations.

A narrow white stripe extends along the top of the head from the muzzle to the shoulders. White crescents behind each eye offset the black face. Males and females are similar in size, weighing an average of 15 pounds and measuring about 30 inches long and 9 inches high at the shoulders.

Badgers may be found throughout eastern Oregon exclusive of the higher Cascades. Some also have been reported in the upper Rogue River Valley. The sagebrush areas of southeastern Oregon are favored by the animals, probably due to the presence of light soils which provide easy digging and an abundance of ground squirrels.

The badger moves earth with a vengeance and can disappear before the eyes. When cornered and unable to escape by digging, the animal is quick to attack and few dogs can withstand the onslaught. Such fierceness and the ability to escape underground protect the badger from most enemies except man.

Hunting takes place mostly at night, although some animals may be abroad during the late evening and early morning hours. Daytime is spent at rest in a convenient burrow, usually an enlargement of one constructed by a ground squirrel. Generally solitary except during the breeding season, the badger ranges only far enough to secure food. Wide travels may become necessary when rodents are scarce.

Winter in cold climates is a period of rest when the badger becomes inactive and lives on stored fat reserves. This is not a true hibernation, however, as a warm spell will rouse the animal temporarily from its sleep. The ability to retire during cold weather is a blessing as ground squirrels, the most important source of food, hibernate early in the fall.

The badger is not a fussy eater and quantity is more important than quality. Any meat, whether caught alive or found as fairly fresh carrion, is acceptable. Ground squirrels supply the major part of the diet but other rodents such as mice, gophers, and rabbits are taken when available. Also included in lesser amounts are ground-nesting birds, eggs, insects, and some vegetation.
STRIPED SKUNK \((Mephitis mephitis)\)

Translated, the scientific name of the striped skunk means “foul stench,” which is a most appropriate description. This sharp shooter of the animal kingdom is able to spray nauseating musk with deadly accuracy and the unlucky receiver is seldom anxious to repeat the experience. Also known as the polecat, the skunk is not likely to be confused with any other animal.

The skunk is stout-bodied and about the size of a house cat. Distinguishing features include a small head with pointed nose, small eyes, short ears, a large bushy tail, and short legs. Powerful muscles control the discharge of a yellowish, oily musk from scent glands near the tail. The general color is shiny black or brownish-black, offset with white bands running along each side and joining at the nape of the neck and base of the tail. A narrower white stripe often extends down the forehead to the nose but this and other markings vary between individuals. Males are slightly larger than the females and may reach a weight of 8 to 10 pounds, although the average is less. Length of the adult varies from 24 to 30 inches while height at the shoulder ranges from 7 to 8 inches.

Much of the state is occupied except for densely timbered areas and those portions of southeastern Oregon where water is lacking. Open fields interspersed with fence rows and brush patches are favorite home sites but the higher valleys and foothills also are inhabited. Water is a requirement and the animal seldom wanders far from a stream or lake. Agriculture and lumbering have improved conditions for the skunk by providing open areas and timbered edges where food abounds.

Although equipped for digging, the skunk prefers using the burrows of other animals, abandoned buildings, rock crevices, or other natural sites for temporary resting places. The home range is small, seldom exceeding a quarter mile from the den. Hunting takes place at night and the skunk generally retires shortly after daylight. The animal is unsociable by nature and prefers a solitary existence except during the breeding season and in winter when one or more families often occupy the same den.

The winter home usually is underground and several animals may den together, apparently for warmth. Since activity varies with temperature, the winter’s sleep is not a true hibernation. Warm spells will encourage skunks to venture forth and the animals remain active most of the winter where the climate is mild.

Skunks have few natural enemies other than man and the great horned owl. Most predators respect the defensive ability of the animal and avoid contact unless hard-pressed for food. Although mild-mannered when left alone, the skunk doesn’t hesitate to meet
force with force. With tail erect and beady eyes aglow, the animal makes short runs toward its adversary, stamps its feet, and otherwise warns of the dire consequences to follow. The squirt guns are accurate to ten feet and can be fired from almost any angle, even over the shoulder. Once drenched with the yellowish mist, the unwary target becomes a social outcast for some time to come.

The skunk is gentle by nature and quite clean in habits. Youngsters captured at an early age make affectionate pets but can be guaranteed “safe” only if the scent glands are removed.

Small rodents are most important in the diet, including such species as mice, gophers, moles, shrews, and ground squirrels. Insects, particularly grasshoppers and beetles, also are eaten, along with a variety of fruits and vegetable matter. Carrion is consumed as well as fish and birds or eggs when available. In fact, the skunk has such a varied diet that it is difficult to name many items not acceptable. Most food is secured on or beneath the ground since the animal does not climb and hates to get wet unless necessary.

Breeding occurs as early as February and gestation requires nine weeks. Most young are born in May or June, after which the male leaves the den and the female assumes full responsibility. Litters average four to six young but may number up to ten. The blind and hairless newborn are about the size of a mouse and remain sightless for three weeks. Youngsters begin to follow the mother after the fourth or fifth week and are weaned when two months old. By fall they are on their own.

Unfortunately, the skunk has a bad reputation. Much of this is due to the offensive odor of the animal which is used only in defense. True, skunks will raid beehives and poultry, eat bird eggs and, like other carnivores, carry rabies if bitten by an infected animal. The apiary and hen house can be protected by fencing, however, since the striped skunk does not climb and reports of being bitten by a rabid skunk are extremely rare. As a control over destructive rodents and insects, this night prowler has few equals and such qualities should be recognized when passing judgment on the animal. The fur is soft and durable and provides some revenue to trappers.
The spotted skunk is small and slender, has a weasel-like face, large eyes, short legs, claws adapted for climbing, and a plumelike tail. Broken bands of white spot a shiny black coat and the end of the tail also is white. Adults are about half the size of a house cat, weigh 1 to 2 pounds, measure 14 to 22 inches long, and stand about 6 inches high at the shoulders.

While not numerous, spotted skunks are widely distributed throughout the state except for the higher mountain ranges. The greatest number are found west of the Cascades, preferring the timber and brushlands rather than the open fields inhabited by striped skunks. Canyons and rimrock areas in eastern Oregon are favored even though some distance from water.

Abandoned buildings, rock slides, brush piles, and the dens of burrowing animals provide temporary refuge for daylight resting. Feeding takes place mostly at night, both on the ground and in trees or brush. Most animals live a solitary existence except during the breeding season. Spotted skunks retire for the winter in cold climates but may remain active throughout the year in western Oregon.

The spotted skunk proves bold and fearless in the face of danger but is otherwise as playful as a kitten. When the chips are down the little fellow equals the striped skunk in chemical warfare ability. Delivery of the “perfume” often is preceded by hand stands which serve as a warning signal. Few predators other than the horned owl tangle with the spotted skunk unless very hungry.

Almost anything available will be taken as food, including carrion. Insects furnish a large part of the diet and small rodents also are important. The spotted skunk is speedy and effective in catching such prey as rats, mice, chipmunks, lizards, snakes, and even some birds. Eggs are not immune and nests will be raided when handy. Many kinds of fruits and vegetable matter, including mushrooms, are favorite food items.

Males become very pugnacious during the mating season and may bite or fire a barrage at anything in sight. Such antics lead to false reports of hydrophobia but the spotted skunk is no more likely to carry rabies than any other susceptible animal.

Little is known of the breeding habits. Mating takes place in late winter and the four or five young are born in early spring. The youngsters are blind and almost naked at birth but grow rapidly and begin to follow the mother after the fifth week. They reach adult size and become independent by fall.

The spotted skunk will raid young poultry at night and birds, as well as their eggs, are not overlooked. However, few cats are as effective at catching mice and rats. In controlling rodents and insects, the spotted skunk is most valuable and its good qualities far outweigh the amount of damage done. Few animals are trapped as the fur is of low value.
A black face mask and ringed tail distinguish the raccoon from other furbearers. The scientific name, which means “washer”, refers to the animal’s habit of dunking its food in water. Also called coon or ring-tail, the raccoon is one of the few mammals in Oregon without European relatives.

The raccoon is stockily built and similar in size to a small dog. Erect ears and a pointed face masked with black across the eyes and forehead produce a mischievous look. The front feet are small with long, sensitive fingers while the hind feet resemble those of a baby, leaving unmistakable tracks in the shoreline mud. Six or seven black bands encircle the grayish, bushy tail. Black-tipped guard hairs overlay the yellowish-brown underfur, giving the animal a grizzled appearance. Weights of adults vary from 10 to 25 pounds, although an occasional individual may weigh as much as 40 pounds. The grown animal measures 30 to 36 inches long and about 12 inches high at the shoulders.

Raccoons are common along the lakes, streams, and coastline of Oregon and are absent only in the high mountain areas. Some cover is necessary for protection and timbered areas serve this purpose in western Oregon while brushy stream bottoms surrounded by rocky canyon walls afford ideal conditions east of the Cascades. Most animals live near water, although some distant foraging occurs when food is scarce. The raccoon does not avoid man and may adapt to city life if living conditions are satisfactory.

Foraging takes place mostly at night while the daylight hours are spent in a hollow log, tree den, cave, or other dark retreat. A capable climber, the raccoon uses trees mostly as living quarters and does most of its traveling on the ground. The animals enjoy others of their kind and several families may associate. Nightly journeys in search of food average two or more miles of shoreline travel, including an occasional trip overland between bodies of water. Raccoons are good swimmers and enter the water readily to escape danger.

Although not true hibernators, raccoons do become inactive during cold weather when food is scarce. Females and their young generally retire together while the males are most likely to spend the winter alone. The favorite den is high above the ground in a hollow tree but a hollow log, cave, or an abandoned burrow may also be used as a home site. Warm spells in eastern Oregon will find the animals up and about while they remain active all winter west of the Cascades.

The raccoon is courageous and a match for most dogs, particularly in the water where the tormentor may be drowned. Although such defensive ability discourages most predators, horned owls, foxes, coyotes, and bobcats do take some of the younger animals.

Man is the most dangerous threat to survival, both as a trapper and hunter with hounds. Being slow afoot, the raccoon resorts to cunning when chased and uses every trick in the book to escape. A cornered animal fights to the death and may cripple several hounds in the process.

The raccoon does not turn down anything edible, dead or alive. Shellfish, frogs, water insects, and small fish are favorite foods but other items such as reptiles, earthworms, eggs, small birds, poultry, and rodents are taken. Vegetable matter makes up a large share of the diet, including ripe fruits, grain, nuts, and corn and melons which are particularly enjoyed. Whenever possible, the raccoon washes food before eating but will not insist on this practice if water is not available.

Mating takes place in February or March and the young are born in April or May after a gestation period of about two months. The average litter contains four or five young which remain blind for three weeks. Youngsters begin to venture forth on the nightly hunting excursions at the end of two months, often accompanied by the father who assists in the training program. Mother and young remain together until the following spring when each goes its separate way.

Since demand for the fur varies with current styles, prices may fluctuate between years. Hunting with hounds at night is a popular sport and many hunters claim the roasted meat is tasty. Opinions vary as to whether the animal is beneficial or harmful to man’s interests. Undoubtedly, raccoons are destructive to crops, particularly sweet corn, melons, and fruit. Small game, waterfowl nests, and some poultry also are destroyed but such losses are offset in part by the importance of the raccoon as a sporting animal and a fur resource. As with many other forms of wildlife, economic values depend on the point of view.
The scientific name means "clever little fox," which describes the appearance of this seldom-seen creature. Other common names include cacomistle and miner's cat, referring to the fact that early day miners tamed the animals for catching mice around their cabins.

Although related to the raccoon, the ringtail cat is smaller and more slender in outline. The head is small with a tapered muzzle while the eyes and ears are large in proportion to the other features. Short legs and a bushy tail as long as the body are other distinguishing characteristics. Eight black bands encircle the upper surface of the whitish tail but do not meet on the underside as do those of the raccoon. Upper parts are brownish to yellowish-gray with black-tipped guard hairs while the underparts are creamy white. White spots are present above and below the eyes and in front of the ears. The adult weighs 2 to 3 pounds and measures 2 to 2½ feet long and 6 inches high at the shoulders.

The ringtail cat is common in the arid southwest and extends its range northward into southwestern Oregon. Small numbers are found in the foothills of the Rogue and Umpqua Valleys with an occasional individual being seen along the west side of Upper Klamath Lake. Forested or brushy canyons with broken ledges and caves are preferred but the animals also range over lower mountain slopes some distance from rocks. A nearby source of water is necessary. Few people have seen the ringtail cat for it is nowhere numerous and is active only at night.

The ringtail hunts in the dark and is equipped with good vision, excellent climbing ability, and speed. Daylight hours are spent asleep in a rocky crevice or hollow tree. Two animals may den and hunt together and individuals seldom stray far from the birthplace.

Shyness is an outstanding characteristic, although the animals become gentle around people and often live under buildings where a supply of mice is available. While musk glands are present, the odor is not too offensive and the musk is seldom secreted except during fright. Their shy nature, agility, and nighttime habits protect ringtails from most predators. Great horned owls, other large birds of prey, and the bobcat may take a few, along with man and his traps.

Meat makes up a large part of the diet and mice, wood rats, squirrels, and smaller birds are favored items. Insects and the occasional fish found dead along the bank are eaten when other food is scarce. Wild fruits and berries are enjoyed, particularly if sweet.

The female usually selects a tree hole protected from the elements for homemaking. An average litter contains three or four young which are born in May or early June. Blind and toothless at birth, the youngsters grow rapidly and begin to follow the mother on nightly hunts at eight to ten weeks of age. The male may accompany the family on such journeys. Weaning takes place at four months of age, after which the family separates.

The ringtail cat is so scarce that its importance as a furbearer is limited. Loss of the few birds on which it preys is more than offset by the large number of rodents consumed. As a native fur-bearing species, the continued presence of the ringtail in Oregon should be encouraged.
OPOSSUM (Didelphis marsupialis)

The opossum represents one of the oldest families in the animal kingdom. Practically a living fossil, this marsupial is the only native mammal in the United States which carries its young in a pouch.

Nothing about the opossum is very attractive. A toothy mouth, pointed muzzle, upright ears, and naked tail give it a rat-like appearance. The legs are short and the first toe on each hind foot is adapted for clinging as is the long, prehensile tail. Females develop an abdominal pouch in which the young are carried. The long, coarse coat is grizzled, shading to yellowish-white on the head. Adults weigh 6 to 8 pounds and measure 2½ to 3 feet long and 6 inches high at the shoulders.

Opossums are not native to Oregon, having been transplanted from the southern states. One of the first introductions was made in Umatilla County during the early 1900s and the animals increased for a time but later disappeared. Present day opossums originated from pets liberated in the late 1930s by members of the Civilian Conservation Corps stationed in Clatsop County and from an illegal release at Troutdale. The animals later extended their range along the northern part of the coast, the lower Columbia River, and the Willamette Valley. While lowland areas are preferred, opossums are adaptable and will occupy a variety of areas wherever food, water, and brushy or timbered cover are available. Stream courses serve as travel routes to new territory and further expansion of the range is anticipated.

Home may be almost any place. An abandoned burrow, vacant squirrels' nest, or a hollow log will do. Nesting materials such as dry grasses and leaves are gathered under the abdomen and carried in a loop of the tail to the den. Opossums are solitary except during the mating season. Although nightly travels in search of food may extend as far as two miles, the animal generally returns to the den by daylight. The opossum does not hibernate but may remain inactive for several days during cold weather.

When cornered the opossum usually shows its teeth, hisses, and drools at the mouth. The animal is not aggressive and, if picked up, "plays possum" by falling limply on the side, closing the eyes, and feigning death. Such actions may be due to shock or could be deliberate. In any event, recovery is rapid after the danger has passed.

Climbing is second nature and the opossum is as much at home in trees as on the ground. The hind feet and tail are adapted for grasping branches and the animal commonly hangs with the head downward.

Enemies are many, including the larger birds of prey which capture the young. Dogs and foxes take their toll but man and his highways are the greatest hazards. Slow and nearsighted, the animal makes no attempt to avoid traffic as witnessed by the large number of carcasses littering the roadside wherever opossums range.

Almost anything will do for food. Meat is preferred, although fruits, vegetables, carrion, and insects are listed in the diet. Some of the more common items include small rodents, snakes, lizards, frogs, crayfish, birds and their eggs, worms, grasshoppers, wild or domestic fruit, mushrooms, garden vegetables, and grain.

The young are born after a short gestation period of 13 days and are undeveloped at the time. Pulling themselves hand over hand along the hair of the belly, the half-inch long youngsters enter the pouch. Once inside, the early arrivals attach to one of the 12 or 13 nipples and any latecomers perish. Growth is rapid and by the end of two months the young are about the size of mice. With a gain in size and courage the youngsters leave the pouch and cling to the hair on the mother's back during nightly hunting excursions. Weaning occurs at three months, after which the young fend for themselves.

Opossums are not popular, probably due to appearance, and are hunted as vermin. The fur has some value, particularly for trimming purposes, and a few people use the carcasses for food. While the animals do destroy bird nests and may become a nuisance in some areas, feeding habits are not all bad as many destructive insects and rodents are included in the diet.
COYOTE (Canis latrans)

The Aztec name, coyotl, was adopted by the early Spanish explorers to describe this wild American dog. Cunning and adaptability have enabled the animal to extend its range despite encroaching civilization. Coyotes are often called prairie wolves and the pelts may be listed as wolf in the fur trade.

In outward appearance the coyote resembles a short, slender shepherd dog. Erect, pointed ears, a tapered muzzle, and close-set eyes distinguish the head. The tail is large, bushy, and black at the tip with a bluish-black scent gland on the upper surface near the base. Long, black-tipped hairs form a bristling mane and a triangular cape back of the shoulders. Colors vary with the season. The thick winter pelt is brownish-gray on the upper parts and creamy-white below while the summer coat is thinner and more brownish in appearance. An average adult weighs 20 to 30 pounds, measures 42 to 50 inches long, and stands 18 to 21 inches high at the shoulders. Males are considerably larger than females and may weigh as much as 35 to 40 pounds.

Coyotes were scarce in western Oregon during the early days, particularly along the west slope of the Coast Range, but the animals have occupied such areas in recent years. The greatest numbers are found on the open rangelands of eastern Oregon while relatively few inhabit thickly forested areas at high elevations and the intensively farmed valley floors. Food supplies determine distribution and such practices as logging improve conditions by encouraging the increase of prey species. Man and his activities are accepted as long as food and cover are available. Some coyotes even thrive at the very edge of town despite the presence of numerous dogs.

The coyote is active only at night in settled areas but is often seen during the daylight hours in undisturbed localities. Not necessarily a loner, the animal may hunt with one or more companions, particularly in the winter when larger prey must be depended on for food. Such teamwork is precise, appearing as though planned in advance and executed by signal.

A trot is the normal pace for hunting with stops being made to investigate every scent or likely hiding place. Stalking is done in a crouch and all cover is used to advantage. The animal generally freezes before making the final spring and gives chase in a ground-eating lope if the prey is flushed. Coyotes are wanderers and cover considerable distances in search of food but generally return to the home range during the breeding season.

Although shy by nature, the animal is inquisitive and may venture close to unarmed humans or raid poultry in the dooryard.
Sight, smell, and hearing are equally keen, along with a sixth sense to recognize danger. A man with a rifle has little chance to approach within range. Caution should not be confused with cowardice, however, for the coyote will match a bobcat or dog of equal size in combat. Despite the hazards faced, playfulness remains a characteristic of the coyote.

Coyotes are more often heard than seen as they are the noisiest members of the wolf tribe. Early morning and evening hours are favorite times for singing and one or more animals may join in a wild orchestration that has a spine-tingling effect on the listener. The call usually begins with a low bark, followed by several high-pitched yaps, and ends in a long, quavering wail. No sound so typifies the west as the music of the coyote.

The coyote has incurred the wrath of man who continues to carry on an unrelenting campaign, using traps, poisons, and guns. Despite such efforts the wily animal has adjusted to each threat and continues to survive. While man is the greatest enemy, great horned owls, golden eagles, and bobcats do prey on the pups. Adult coyotes generally are too fast and wary for the larger carnivores.

Availability determines the choice of food for the coyote is an opportunist and will take whatever is most common. Anything edible is eaten, although meat is favored. A partial list includes rodents, ground-nesting birds, reptiles, fish, crustaceans, insects, and carrion of all kinds, including coyote carcasses. Poultry, lambs, calves, and the young of big game are taken as well as some adult sheep, deer, and antelope, particularly when in a weakened condition. Even a healthy deer may be brought down by two or more coyotes teaming up and running in relays. Vegetable matter is not overlooked when preferred food is scarce and coyotes do consume considerable fruits, berries, and even grass.

Coyotes are gluttons when the opportunity arises and an individual may consume as much as 20 pounds of meat at a sitting. That which is not used often is covered with urine and then buried.

Generally, coyotes do not mate for life but a pair may remain together for several years. Crosses with domestic dogs are not uncommon. Breeding occurs in late January or February and the young usually are born in April after a gestation period of 60 to 65 days. Housekeeping is set up in a den which may be dug by the prospective parents or remodeled from the burrow of a badger or other animal. Most dens are located on sloping ground where the soil is loose and the entrance can be concealed. The main tunnel leads to an enlarged chamber which is used as the den proper and several branches may be constructed to provide alternate escape routes. Often, additional dens will be prepared in the vicinity for possible use in case the family is disturbed. Cleanliness is a must and all droppings are deposited outside.

Young may number from 3 to 19 but the average litter contains 5 or 6. The youngsters remain blind for the first eight or nine days but grow rapidly and begin to play outside the den entrance at the age of three or four weeks. Although banished from the household when the young are born, the male remains faithful and hunts for the family, leaving food offerings at the mouth of the den. The father soon rejoins the group and both parents hunt, either carrying small game back to the den or feeding on the kill and later regurgitating the partly digested food for the youngsters. Hunting lessons begin at two months of age and are completed by autumn when the young begin shifting for themselves.

Coyote pelts command a high price on the market when fashion dictates the use of long-haired fur for trimming coats. From the standpoint of man, no other furbearer is as often condemned as a predator. Sheep operators in eastern Oregon have suffered substantial losses from coyote depredations and many hunters blame this animal for big game declines, particularly among deer and antelope. Like other carnivores, coyotes are susceptible to rabies but serious outbreaks, while widely publicized, are rare. The destructive capability of coyotes is well known but the animals also feed on rodents, thus serving a useful purpose. A change in thinking has become apparent in recent years as some ranchers today protect the coyote, feeling that it does more good than harm. Undoubtedly, controversy as to whether the coyote is saint or sinner will continue. The true situation probably lies somewhere between.
RED FOX (*Vulpes fulva*)

"Clever as a fox" aptly describes Reynard, an animal which survives by wits alone. Like the coyote, the fox is ingenious at thriving in the midst of civilization.

A pointed muzzle and erect ears give the red fox an alert appearance. The round, bushy tail is the most outstanding feature and is carried as a badge of distinction. Scent glands beneath the tail secrete a musk used for advertising the comings and goings of the animal. Colors vary between individuals but the typical red fox is reddish-yellow above and whitish or whitish-yellow below. The cheeks and tips of the tail are white while the back of the ears, feet, and lower legs are black. Some animals have a dark cross on the shoulders while others are black or black with silver-tipped guard hairs. Such color phases account for the animals being named cross, black, and silver foxes, respectively. Adult males weigh 8 to 10 pounds and measure about 40 inches long and 16 inches high. The tail averages a foot in length. Females are somewhat smaller, seldom exceeding 7 or 8 pounds in weight.

Red foxes were native to Oregon and originally ranged over the northern Coast Range and the Cascade, Blue, and Wallowa Mountains. The native animals disappeared following settlement and the foxes present today are descendants of eastern stock transplanted in the Willamette Valley for hunting purposes. Presently, most red foxes are found in the Willamette and Rogue River Valleys.

Typical habitat consists of open and rolling fields interspersed with rocky or brushy escape cover and nearby sources of water. Dense timber is avoided.

Foxes are solitary except during the breeding season and while the young are being reared. Although an occasional animal may be seen in the daytime, hunting takes place mostly at night and the daylight hours are spent resting under the cover of rocks or brush. The home range is limited, seldom exceeding five miles in radius. Red foxes are more often heard than seen, their short, sharp barks resembling those of a small terrier.

Senses of sight, hearing, and smell are well developed for use in hunting or to avoid danger. The slightest movement or sound will prompt a careful stalk or instant flight, depending on the circumstances. Stalking prey is done cautiously, followed by a quick pounce and a lightning-fast snap of the jaws. The fox has speed to burn and is most agile afoot, using the tail as a rudder for quick stops and turns to match the movements of a fleeing rabbit or other quarry.
Although courageous in defense of the young, the red fox is no match for dogs and uses discretion rather than valor in outwitting this enemy. Cleverness and cunning mark such contests as the animal uses every trick imaginable to throw pursuers off the scent. Taking to the water, running along logs, and back-tracking are but samples of the strategy employed. More often than not the fox is successful and the hounds return home bewildered and exhausted.

Man and dogs are probably the worst enemies but larger predators such as bobcats and coyotes also take a toll. Eagles, great horned owls, and mink are not reluctant to prey on the younger animals. The adults are extremely wary and prove to be one of the most trap-shy animals in the wild. Although red foxes have continued to thrive in the face of man’s never-ending warfare, parasites and disease check the population.

Small rodents such as mice, gophers, ground squirrels, and rabbits are mainstays in the diet. Ground-nesting birds, eggs, frogs, carrion, and many forms of insects are eaten as well as some grass and any fruits or berries in season. When food is scarce the fox will invade the chicken yard and has proved adept at avoiding traps or guns used in retaliation. Not all evidence found in the vicinity of dens is incriminating, however, since many of the poultry or game bird remains represent carrion salvaged for the young.

Unused food often is marked with urine or musk and then buried for future use.

It is doubtful if red foxes mate for life but the pairs do remain together from the breeding season in February until late fall when the family separates. The den is prepared shortly after pairing and may be used year after year, eventually being developed into a complex network of tunnels with several openings. Loose soil generally is chosen for the den site since the animals are not well equipped for digging. Often the abandoned burrows of other animals are appropriated and altered for the purpose.

The gestation period is about 50 days and the young are born in March or early April. Litters vary from four to nine kits which remain blind for the first eight or nine days. The male is excluded from the den for the first few weeks but stands guard in the vicinity and brings food for the female and young. At the end of a month the kits begin to venture forth and start hunting with the parents. Training continues until late fall when the family separates.

The demand for fox fur varies with the whims of fashion. Wild pelts, particularly those of the silver and black color phases, periodically command high prices on the market. Although selective breeding has improved the quality of the fur, fluctuating demand has discouraged interest in commercial fox farming.

Red foxes are responsible for some losses to poultry and ground-nesting birds and eggs, although much of the evidence found around dens may represent carrion rather than live-caught prey. Such losses are offset in part by the fur value of the animal and the large number of destructive rodents and insects consumed.
GRAY FOX (Urocyon cinereoargenteus)

Who ever heard of a fox climbing a tree? Actually, the gray fox does just that. In fact, it is often called the tree fox because of this habit.

Slightly smaller than the red fox, the gray also has shorter legs, smaller ears, and a sharper muzzle. The tail is slender and flattened and has a black tip. Upper parts are grizzled-gray with a black streak extending along the back and top of the tail. Reddish or tawny coloring is present behind the ears, along the sides of the neck, legs, and lower body, and under the tail. The cheeks, inside of the ears, and underparts are white. Males and females are similar in size, weighing an average of 8 to 10 pounds, measuring 40 inches long, and standing 15 inches high.

The interior valleys and foothills of western Oregon are the home of the gray fox. At one time the animals were common in central Oregon, particularly in the Klamath and Deschutes River drainages, but the Willamette, Rogue, and Umpqua Valleys support most of the population today.

A warm climate is favored. The gray fox differs from the red in avoiding open areas, preferring the timbered and brush-covered foothills and the wooded islands on the valley floor.

The gray fox is not a roving animal and its home range is generally less than two square miles in area. Hunting takes place at night while the daylight hours are spent resting in a temporary den or shelter. Unlike the red fox, the gray seldom rests in an exposed location.

One of the most unique characteristics is the ability to climb trees. The toenails are long and curved, enabling the animal to shinny up a vertical trunk if necessary. Climbing is done as a matter of choice as well as to escape enemies.

Lacking the speed and cunning of the red fox, the gray generally refuses to lead the hounds a merry chase. Rather, the animal slips into cover, holes up in a den, or climbs a tree at the first sign of danger.

Most of the larger birds and animals prey on gray foxes, particularly the young. Included on the list of enemies are bobcats, coyotes, red foxes, eagles, and great horned owls. Man also finds the animal relatively simple to trap or tree with dogs. Like other canines, gray foxes are subject to such diseases as rabies which may decimate the population.

A variety of items are included in the diet. Small game, rodents, and birds are favorite sources of meat, along with snakes, lizards, insects, fish, and carrion of all sorts. The gray fox eats more berries, fruits, and vegetables than the red and has a keen appetite for chicken and the eggs of ground-nesting birds. Storing excess food for future use is not a habit of the animal.

The gray fox selects only one mate for the season and the pair remains together until the family breaks up in late fall. Breeding occurs in February or March, after which the nursery den is prepared. Seldom does the animal dig its own den, preferring to alter an existing burrow or use a hollow log, pile of rocks, or other natural location for the purpose.

Gestation requires 63 days and the litter may contain two to seven young, although the average is four. Kits are blind at birth, weigh about one-quarter pound, and are gray and woolly in appearance. The male is not welcome in the den while the youngsters are small but does hunt for the family. By six weeks of age the young are taking solid food and both parents spend considerable time afield satisfying the growing appetites. Training sessions begin in early summer when the kits join in the nightly hunting forays. The family disbands in the fall after the young become independent.

From the standpoint of fur values, the gray fox is not an important species. The pelt is inferior in quality to that of the red fox and is used mainly for trimming purposes. Some losses of poultry and small game do occur but such damage is balanced in part by the number of rodents consumed.
KIT FOX (Vulpes macrotis)

The kit fox is the desert-dwelling relative of the red fox and is named for its small size. Another common name is swift fox in recognition of its speed over short distances.

Very large ears in proportion to the size of the head, a slender build, and a round bushy tail distinguish this smallest member of the fox family. A dark scent gland is located on the top of the tail about two inches from the root. The long, soft fur is buffy-gray on the upper parts, shading to yellowish-brown on the sides, legs, and lower surface of the tail. Throat, abdomen, and inside of the ears are white while the tip of the tail is black. Adults weigh 4 to 5 pounds and measure 2 to 3 feet long and 12 inches high at the shoulders.

The kit fox is rare in Oregon today and, if present at all, is found only in the extreme southeastern portion of the state. Early settlers reported the animals in southern Malheur County near the Nevada border but disturbance by people and coyote control programs have reduced it to the verge of extinction. Remote sandy deserts frequented by the kangaroo rat and other rodents make the best homesites.

The home range is small and generally centers around a permanent burrow with several emergency shelters located at strategic intervals. Activity takes place mostly at night while the daylight hours are spent underground or resting on the mound at the den entrance.

Although the swiftest member of the family and most agile in maneuvering, the kit fox relies on stealth rather than speed in capturing prey. The sense of hearing is most acute and the prospective meal is stalked with caution, then overtaken in a final rush. Running quarry is seldom pursued.

The kit fox is shy and generally escapes into its den or the nearest refuge at the first sign of danger. Any of the larger predators such as coyotes, bobcats, and eagles would enjoy dining on the kit fox but find the adult an artful dodger and difficult to capture. Some young animals are taken, however. Man's campaign against the coyote has proved the greatest hazard for the kit fox is unsuspicuous and easily trapped.

Rodents furnish most of the food, particularly kangaroo rats, pocket mice, and ground squirrels. Other items include rabbits, birds, snakes, lizards, and insects. Some grass is eaten but fruits and berries are scarce and relatively unimportant in the diet. The habit of eating in the den and piling the remains outside provides unmistakable evidence as to the location of the living quarters. Unlike the red fox, the kit fox does not store excess food.

The breeding season is in February and gestation requires about 50 days. Since the kit fox is poorly equipped for digging, sandy soil is selected for the den site or an abandoned badger burrow may be remodeled. The burrow is neither deep nor long but may follow a twisting course. There is no bedding in the den chamber and no attempt is made to hide the entrance, although three or more emergency exits may be constructed.

Litters range from two to seven in number with an average of four or five. The female nurses the kits for about 10 weeks, after which both parents begin training the youngsters to hunt. By early fall the kits become independent and the family breaks up.

Kit foxes have little value as furbearers due to their scarcity and the poor quality of the pelts. Damage to poultry is rare as the animals seldom live near man. Since few game birds other than sage grouse and possibly some valley quail and chukar partridge occupy the same range, predation is not serious. Any damage caused by this rare and fascinating animal is more than offset by the quantity of rodents consumed.
BOBCAT (Lynx rufus)

The name bobcat refers to the short tail on this overgrown tabby. Another common name is wildcat and the braggart who claims he can lick his weight in wildcats would do well to reconsider.

A slender build, long legs, small feet, and short tail are identifying features of the bobcat. The face is typically catlike in appearance, being offset with conspicuous side whiskers and a neck ruff. White bands encircle the eyes which have elliptical pupils. The ears are erect and tipped with hair tufts seldom more than an inch in length. A grayish-white spot is present on the back of each ear. General coloration varies by area with the animals in western Oregon being darker than those found east of the Cascades. The winter coat ranges from yellowish-brown to dark brown above and is heavily frosted with white-tipped hairs and mottled with darkish spots. Underparts are whitish, heavily spotted with black, while the tip of the tail is black above and white underneath. The summer coat is much shorter and lighter colored without the white-tipped frosting. Males are larger than the females, averaging 15 to 25 pounds, although a particularly big animal may reach 35 pounds in weight. Total length is about 36 inches, including a 7-inch tail, and height at the shoulders averages 15 inches.

Bobcats range over much of Oregon except for the more settled valleys where cover is lacking. Few are found in the spruce and fir forests at high elevations.

Cover is an essential requirement since the bobcat lives by stealth and cunning rather than speed. Dense timber and brush thickets interspersed with openings are favored in mountainous areas while rough lava rims are preferred in the juniper and sage country of southeastern Oregon. An ample food supply also is necessary and bobcats are quick to move when prey becomes scarce.

The bobcat is a solitary nomad, hunting at night and retiring to the nearest convenient rock pile, cave, or thicket at the approach of daylight. Nightly travels range from two to seven miles depending on the abundance of food but such wanderings may be much more extensive during the breeding season or in the winter when game is scarce. The average home range does not exceed five square miles.

Many of the bobcat’s habits such as its curiosity, sharpening the claws on a tree trunk, or giving voice to loud caterwauls during the breeding season remind one of an overgrown alley cat. Like the domestic variety, the bobcat avoids water unless forced to swim. Similarly, the tracks are rounded and placed nearly in a straight line as the animal walks.

The bobcat usually avoids a fight, preferring to retreat if pos-
sible. When cornered, however, it becomes a vicious fighter with courage and quickness to match. Spitting and screaming in rage, the animal seeks a firm grip and attempts to disembowel the antagonist with rapier-like thrusts of the hind claws. A single dog is seldom a match in a fair fight.

Such qualities leave the bobcat with few natural enemies. The larger predators may take some of the young but the wise adult rarely becomes a victim. Hunting with hounds is a popular pastime and presents one of the greatest hazards to survival. The animal is not a fast runner and generally trees or seeks safety in the rocks after a short chase. Trapping also takes a toll, particularly when fur prices are high. Despite constant harassment the bobcat has continued to thrive, even near settled areas.

Meat is the staff of life and anything which can be brought down is fair game. The bobcat hunts by stealth and rarely pursues running prey. Keen eyesight rather than scent is relied upon and a favorite hunting technique is to lie in wait, then spring from ambush at the appropriate moment. At other times the bobcat will stalk its prey and pounce from close range, covering the ground in ten-foot leaps. Although a good climber, the animal confines most of its hunting to the ground.

Some of the favorite food items are rabbits, squirrels, mice, and other rodents. Birds, eggs, fish, and insects also are taken, as well as any available carrion. When rodents are scarce bobcats prey on deer and antelope, particularly the fawns, and are capable of taking adult animals. Domestic sheep and poultry are not immune to attack and the occasional animal may suffer more than is needed for food, engaging in a blood lust typical of the weasel. Porcupines are included on the menu of the hungry bobcat.

The breeding season is in February and March and the male may mate with several females, assuming no responsibility for care of the young. A rocky cave, windfall, or hollow log is selected for the den which is lined with leaves and dry grass. Gestation requires about two months and litters average two to four kittens which remain blind and helpless for the first nine days. The kittens are weaned at two months of age but hunt with the mother until winter when training is complete.

Changing fashions influence the fur market and bobcat pelts periodically command high prices. A prime pelt is soft and luxurious and makes attractive trimming material for coats. Part of the bobcat's bad reputation for killing livestock and game is earned but some of the losses are offset by the large number of rodents consumed. Controlling individual animals involved in damage appears wiser than declaring war on the entire species.
NUTRIA (Myocastor coypus)

Although similar to a rat in appearance, the nutria was given the Spanish name for otter by early South American explorers. Other common names include swamp beaver, South American beaver, and coypu.

At first glance a nutria may be mistaken for either a stunted beaver or an oversized muskrat. A round rather than flattened tail distinguishes the animal. The broad, heavy head and short neck resemble those of a guinea pig. Other features include short, rounded ears and long whiskers surrounding the mouth. The front feet are short with strong claws while the hind feet are longer and are webbed for swimming. Dark brown is the most common color, although this varies with the season and locality. The underfur is overlaid with dark guard hairs which are long and coarse on the back and finer on the sides and belly. An adult male weighs 20 to 25 pounds and measures about 40 inches in length, including a 12 to 16-inch tail. The female is somewhat smaller in size, averaging 15 to 20 pounds in weight.

The nutria is native to that part of South America from central Brazil to southern Argentina. Nutria farms became established throughout the United States beginning in 1931 when the first introduction was made. Animals which escaped or were released intentionally from fur farms resulted in the wild populations present today.

Wild nutrias were first reported in Oregon during the 1930s, including colonies along the Nestucca, Columbia, and Willamette Rivers in western Oregon and the Umatilla and Grande Ronde Rivers east of the Cascades. The first animal to be trapped was reported in 1938. Today nutrias are well established in the lowland areas of western Oregon and are scattered along several stream systems in the central and northeastern part of the state. Dispersal continues and it is anticipated that additional drainages will become inhabited.

Nutrias are bank dwellers living along freshwater streams, lakes, and marshes. An abundant supply of succulent vegetation is required. Although mild temperatures are preferred, some animals in southern Argentina and Chile thrive in cold climates and those colonies in eastern Oregon appear adapted to low winter temperatures.

The nutria travels no farther than is necessary to obtain food. Migrations do occur when the colonies become numerous enough to deplete the food supply but the animals are more sociable than muskrats and several generations may occupy the same burrow. Nutrias are most active at night but feed some during daytime, particularly in the winter when food becomes scarce.
Muddy banks are preferred for homesites. The burrow entrance is located at the waterline and is connected by tunnel to an enlarged den well above the water level. Grasses are deposited on the floor of the den to serve as bedding. Floating nests similar to those used by muskrats are constructed in marshy areas where there are no banks.

The nutria is clumsy on the ground and seems to be off balance due to the short legs. When disturbed it moves in short hops to the safety of water. The animal swims equally as well as the muskrat and beaver.

Nutrias have many enemies in addition to man. The fox, coyote, and otter are among those which prey on adults while the mink, weasel, and great horned owl take some of the younger animals.

A wide variety of succulent plants is consumed, including grasses, rushes, sedges, and other aquatic vegetation. The animals are especially fond of alfalfa, clover, root crops, and garden produce.

Although the females are mature at about eight months of age, most do not breed until a year old. Gestation requires 130 to 150 days and litters range from two to eight young with an average of five. Two or more litters may be produced per year. The youngsters are well developed at birth and soon undertake short excursions from the nest. Mammary glands are located along the sides of the back, enabling the young to nurse while the mother is in the water. Weaning occurs at seven or eight weeks but the young may remain in the same burrow with the parents, enlarging the den for additional living space to accommodate families of their own.

Little good can be said for the nutria. Crop damage and the habit of digging burrows in dikes and stream banks create problems in agricultural areas. The fur value is low and nutrias compete with muskrats for food, driving the more valuable furbearer from the area. Liberation of the animals by disappointed fur farmers has proved to be ill-advised.
FURBEARER MANAGEMENT

Maintaining adequate breeding stocks and cropping annual surpluses are primary goals of furbearer management. Suitability of the habitat determines total numbers of any species which may be produced and, along with the need to control damage problems, dictates the harvest program. Information on the status of furbearer populations and habitat, as well as conflicts with agriculture and other interests, must be available before any management is possible.

Since furbearers are trapped for profit, factors other than recreation alone must be considered in the management program. Fur prices vary depending on style changes and a pelt which is valuable one year may be worthless the next. Consequently, a particular species may increase and become a nuisance as trapping pressure declines. Such whims of fashion cannot be predicted in advance, making it difficult to plan on a long-range basis.

Management is complicated by the fact that the food and other habits of most furbearers differ from those of game species. While game live primarily on vegetation, a majority of the furbearers are meat eaters. It is much simpler to improve habitat for the vegetarian than for the carnivore. Furthermore, the meat eater tends to be mobile and changes territory in search of prey, making it difficult to obtain reliable information on numbers.

THE INFORMATION PROGRAM

Population surveys on beaver and muskrat, two of the most important furbearers, are taken annually in key areas of the state.

Mud slides made by beaver entering and leaving the water provide a good indication of numbers using the particular area. Counts of active slides are made each spring along major waterways. Such counts serve as an indicator of trends in the breeding population and prove useful in planning regulations.

Muskrat population trends on marsh areas are determined from annual house counts. Only those houses in use are counted and the results serve as a guide in setting trapping quotas on waterfowl management areas.

Much information on furbearer abundance is acquired through daily observation by field biologists. The keen observer does not overlook any sign or other evidence which adds to the knowledge on distribution and habits. Annual records of furbearers seen on several thousand miles of big game sample routes are used to indicate trends in certain species, particularly the coyote and bobcat. Trappers and other outdoorsmen also furnish information valuable for management.

Since 1924 each trapper has been required by law to submit an annual report listing numbers of furbearers caught and the price received for the pelts. It is difficult to measure furbearer populations from such reports since catches vary according to the trapping effort. More trappers naturally participate when prices are high or during a depression when jobs are scarce. The reports are a very useful source of information, however, when conditions remain stable for a period of years.

Although the state has not paid bounties since 1961, several counties continue the practice. The county records supply some information on the abundance of such animals as the coyote, bobcat, and fox as do the reports of trappers employed by the U. S. Bureau of Sport Fisheries and Wildlife.

REGULATION OF HARVEST

Seasons are established each year to regulate the harvest of furbearers.

The Department of Fish and Wildlife holds a public hearing where individuals and groups may voice opinions or suggestions. All comments are considered, along with information supplied by biologists, in determining seasons and bag limits. Such an annual review permits up-to-date regulations based on changing conditions.
LIVE-TRAPPING AND TRANSPLANTING

One of the most successful furbearer management practices has been the live-trapping and transplanting program.

Symbolically, the beaver was the first species involved. Heavy trapping of the Beaver State’s best known furbearer prompted a series of closed seasons beginning in 1883. Despite complete protection after 1932 when a state-wide trapping closure finally was adopted, the animals remained scarce.

A live-trapping and transplanting program was undertaken in 1932 and resulted in over 3,600 beavers being relocated before the project was discontinued in 1945. Restoration proved so successful that an open season was declared in 1951 to control damage and harvest surplus animals.

Fishers also have been transplanted in Oregon. Although native to the state, this wilderness animal was practically extinct by 1940. Twenty-four fishers were obtained from British Columbia in 1961 and transplanted in Wallowa and Klamath Counties.

HABITAT IMPROVEMENT

Habitat improvement is most effective in the case of water-dwelling vegetarians such as the beaver and muskrat. A permanent water supply and ample vegetation for food and cover are required to maintain these species.

Marshy areas in cold climates should be at least three feet deep to assure the winter survival of muskrats. Another desirable management practice is the protection of shorelines from grazing and erosion to permit the growth of plants. Mink and raccoon also benefit from such protection, using the shoreline vegetation for hunting purposes.

The Department of Fish and Wildlife has kept furbearers in mind when developing marshes for waterfowl. Muskrats and other desirable fur species have benefited from planting and water development programs on marshland.

Willows have been planted along stream banks at higher elevations to provide food for beaver. Other similar habitat improvement programs have been carried out as a part of furbearer management.

DAMAGE CONTROL

Although most furbearers do far more good than harm, some conflicts with man are inevitable. The meat eater may enjoy an occasional meal of chicken while the vegetarian finds the garden or orchard irresistible.

Many problems can be anticipated in advance and precautions taken to prevent damage. Raising poultry next to a stream frequented by mink, otter, and raccoon is inviting disaster unless the birds are protected by an adequate fence and penned up at night. Digging animals can be excluded by burying the wire while the pen must be covered to discourage climbers. Similarly, trees next to water may be protected from beaver by placing wire around the base. Gardens also should be fenced when located in a vulnerable area. Various types of chemical repellents are on the market to discourage animals from using shrubs and other plants.

What about the problem of skunks under buildings? Naphthalene flakes scattered about will usually encourage the skunk to leave. After that, all entry holes should be plugged to prevent further invasion.

While some damage is preventable, removal of the animals involved often is the most effective solution. Trapping is the usual method of control, although shooting may be practical. Before taking such action it is wise to check the law since most furbearers are protected. Landowners suffering damage from furbearers should contact their local Oregon Department of Fish and Wildlife district biologist. The biologist will be able to advise the landowner on how to remedy the situation. Landowners may also contact the Oregon Department of Fish and Wildlife at P.O. Box 59, Portland, OR 97207, or one of the following regional offices.
Unprotected furbearers involved in damage may be taken without permit at any season except in refuges and other closed areas. The U.S. Department of Agriculture, Animal Damage Control, administers a cooperative program for the control of some species. Advice or assistance in controlling unprotected furbearers by trapping or other means may be secured by writing the U.S. Department of Agriculture, Animal Damage Control, 724 N.E. 24th Ave., Portland, OR 97232. County Extension Agents also can provide information as to the availability of government trappers in a particular area.

EDUCATION

Education is an important part of the management of furbearers. When trappers are knowledgeable about responsible trapping methods, equipment use and care, pelt preparation, and trapping laws, they contribute positively to the future of trapping and furbearers. This is why Oregon requires a new trapper to take the Oregon Trapper Education Course before doing any trapping. This course covers trapping history, furbearer management, trapping ethics and responsibility, equipment preparation and care, setting traps, handling your catch, and trapping laws. For more information about trapper education, contact Trapper Education, Oregon Department of Fish and Wildlife, P.O. Box 59, Portland, OR 97207.